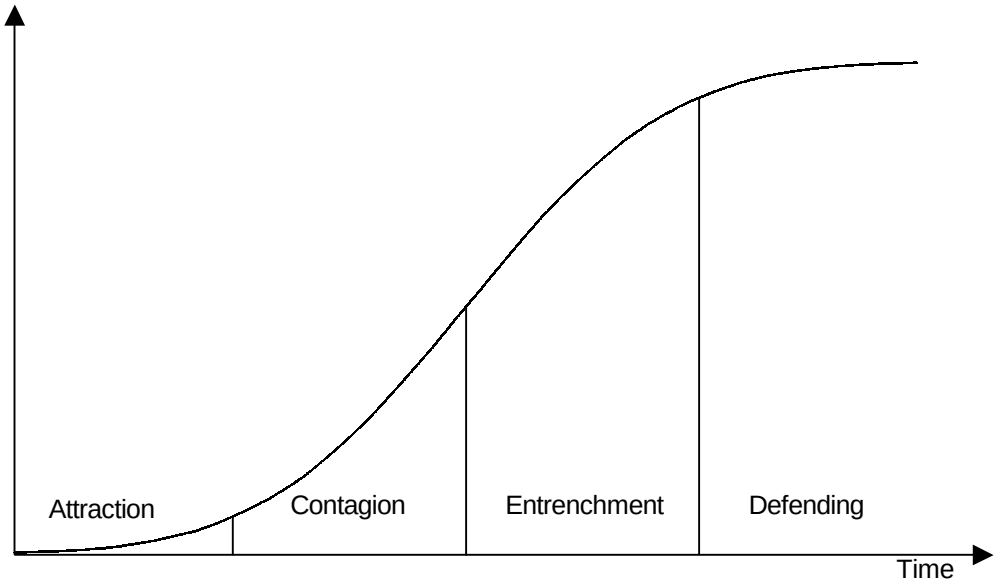
LAUNCHING AND MANAGING AN INTERNET PORTAL SUCCESSFULLY
- A STAGE MODEL



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ABSTRACT:

This thesis concerns the development of a stage model to aid Internet portal managers in launching and managing their portals.

Based on an initiating problem concerning the failure of many Internet portals, a pre-analysis of portal management in the network economy is preformed by exploring relevant research and examples of actual portals.

This pre-analysis reveals the lack of one simple and straightforward tool to aid portal managers in launching and managing Internet portals in the network economy.

A stage model suggested by Damsgaard is explicated and refined and the result is a model to aid Internet portal managers succeed in the network economy. This model illuminates the challenges and crises that should be handled in each of the stages. In addition, such considerations as building and entrenching an installed base and choosing the right competitive strategy are considered. The main characteristics and recommen-dations of each phase is condensed in four tables that make the model easier and simpler to use.

The thesis concludes that the developed model, in a satisfactory fashion, incorporates the theories that are most significant to managers launching Internet portals and thus the model is a good tool for portal managers.

Preface

This masters thesis was carried out by Kim Givskud Vineke, a student on the 10th semester of the software engineering education at Aalborg University, Institute for Electronic Systems, Department of Computer Science, Information Systems Research Unit, in the spring of 2001.

Knowledge of technical issues or the network economy is not required, but knowledge of the Internet and Internet portals on a user level is an advantage.

Chapter 1, *Introduction* describes the problems faced by Internet portals today and subsequently states an initiating problem based on this. Chapter 2, *Internet Portals* explores the initiating problem by taking a closer look at Internet portals and what makes them successful. This is followed by an exploration of Internet portal management, where several theories on the subject are explored (Chapter 3, *Portal Management in the Network Economy*). Based on this pre-analysis, the problem addressed by this project is defined. Chapter 5, *Explication and Refinement of Damsgaard's Model* attacks this problem, by trying to put forth a stage model to help Internet portal manager to succeed. The model is an explicated and refined version of the stage model suggested by Damsgaard in a draft (2001). The thesis is rounded off with an evaluation of the methods that where used, and a discussion of the results, that where achieved.

Throughout the thesis, references are quoted in accordance with the Harvard system[1] i.e. (Last name Year). The thesis contains a bibliography of all the literature that is referenced. Footnotes are numbered in succession, throughout the entire thesis. Figures are numbered in succession within each chapter so that figure 2.3 refers to the third figure in chapter 2.

I would like to thank my supervisor, Jan Damsgaard for his support and for contributing to a constructive research environment.

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Kim Givskud Vineke

[1] A description of the Harvard method of referencing can be found at: www.lib.monash.edu.au/biomed/referenc.htm

Dansk Synopsis

Dette speciale omhandler udviklingen af en stadie model til at støtte Internet portal ledere i at opstarte og lede deres protaler

Baseret på et initierende problem, der tager udgangspunkt i de mange usuccesfulde Internet portaler udføres der en foranalyse af ledelse af Internet portaler i netværksøkonomien ved at undersøge relevant forskning og se på faktiske eksempler på portaler.

Denne foranalyse afslører manglen på et simpel og lige til værktøj til at støtte Internet portal ledere i at opstarte og lede deres protaler

En stadie model, foreslået af Damsgaard, ekspliceres og raffineres og resultatet er en model til at støtte Internet portal ledere til at få succes i netværksøkonomien. Denne model kaster lys på de udfordringer og kriser, der bør håndteres i hver fase. Desuden overvejes bl.a. opbygning og fastholdelse af en kundebase og det at vælge den rigtige konkurrencemæssige strategi. De primære karakteristika og anbefalinger for hver fase er samlet i fire tabeller der gør modellen lettere og simplere at bruge.

Dette speciale konkluderer, at den udviklede model, på en tilfredsstillende måde, inkorporerer de teorier, der er mest relevante for ledere, der starter Internet portaler hvorfor den er et godt værktøj for portal ledere

Contents

Chapter 1
Introduction

The Internet revolution is changing the world, as we know it. The world is getting connected, and both consumers and businesses are presented with a wealth of new opportunities, in what is being called the network economy. This new economy has had a profound influence all over the world, and I am sure, that it is no coincidence, that the 15 largest merger deals in the history of capitalist finance all have taken place within the last two years. Five years ago no one would have imagined, that *America Online* (AOL) would be able to buy *Time Warner*, one of the worlds leading media companies. Compared to *Time Warner's* $26.8 billion, *AOL* was dwarfed with a mere $4.8 billion in revenues, but *AOL* was able to use it's enormous stock value to acquire 55 % of the *Time Warner* stock.

However, the Internet revolution has a flipside as well. In the spring of 2000, faith in the Internet companies suffered a blow, as the Internet stocks on the American stock market *Nasdaq* dropped from a March 2000 high of 5000 to below 2000 over the summer. In the fall of 1999 faith in the impending success of any company based around the Internet, had resulted in massive investments in Internet companies, and as a result, Internet companies became overvalued. The crisis of 2000 may be seen as a huge "correction" of the Internet stocks. As a result of the drop in valuation, it has become more difficult to get capital for Internet based companies, and many Internet companies have had to go out of business. Today, having learned from the crisis, the valuation of Internet companies may still be to high, but at least the crisis has brought with it some measure of scrutiny. Internet companies that do business in the "new new economy" (as the post crash economy is being called) are focused more on sensible business plans that involve estimates of expected revenues and profits.

The net economy has certainly affected the business world, but the effects to the consumer are just as great. The Internet has brought many different types of websites to the consumers, but one of the most interesting is portals. Portals are websites that help the Internet user to navigate the wealth of information and services available on the World Wide Web by connecting consumers with providers of services. Some portals facilitate eCommerce by making it easier for buyers and sellers to locate each other. This provides businesses with great opportunities, but along with the opportunities this provides, comes the challenges. Some portals like *EDBpriser.dk* (www.edbpriser.dk) and *Jubii* (www.jubii.dk) have met these challenges and are still on-line, while other portals have had to close shop. In the last year, several of the most promising Danish portals have filed for bankruptcy. These include: *Toycity.com*, *Boxman, Dressmart.com, Boo.com, Gubi.dk, LetsBuyIt.com* (Laursen 2000, Liwoni 2000, Bentow 2000, Rasmussen 2000). This wave of bankruptcies more than anything, is a painful reminder, that launching and managing a portal on the Internet and turning it into a good business can be quite a challenging task.

Many portals seem to focus on getting their product[2] to market fast in order to get the benefits, that comes with being the first (first mover advantage), but the portals that get to market first do not always retain their leadership position. Money and resources are spent on attracting customers, hoping that they will return, but in many cases, they don't. If Internet portals are to be good business, then the money spend on developing and marketing the portal must be recovered. If not at once, then within a foreseeable timeframe.

1.1 Initiating Problem

Based on the discussion in the previous section we formulate the following initiating problem:

- Why do some Internet portals fail in the new economy, while others experience great success?

Before we can explore this question in detail, we need to understand, what we mean by Internet portal, and how we define failure and success, when it comes to Internet portals. We take a closer look at these concepts in the next chapter.

[2] Throughout the scope of this report, the word *product* should be understood in the broadest sense of the word. Therefore, a product is not restricted to being a physical object, but could be a virtual product or a service provided by the portal.

Chapter 2
Internet Portals

This chapter explains what I understand by an Internet portal. I begin by describing how Internet portals came to be and move on to describe, what they have evolved into. The chapter is ended with a definition of Internet portal success. Based on this definition a more precise restatement of the initiating problem is given. Where it is intentional, I will refer to actual Internet portals and use them as examples.

> "We've set out to make Yahoo the only place anyone needs to go to get connected to anything. There's nothing in the real world to compare to that" - Timothy Koogle, Yahoo CEO

One of the first and most interesting portals on the Internet is *Yahoo!* (www.yahoo.com). *Yahoo!* was created in 1994 at Stanford University by David Filo and Jerry Yang (Wilson 2000). The original idea of the portal was, that it would be the starting place for people, who wanted to use the Internet. The first portals like *Yahoo!* were indexes, which sorted web pages, based on different categories or search engines that allowed users to find web pages based on a search word. Portals that include search engines and indexes still exist today (e.g. www.sol.dk, www.jubii.dk, www.opasia.dk) and most Internet users still use such a portal on a regular basis, but in addition to these traditional portals a myriad of other portals have emerged. These include databases like *Internet movie database* (www.imdb.com), news sites like *CNN.com* and Internet TV broadcasting sites like *www.viva.tv* among many others.

Many of the portals on the Internet today lets users buy or sell products directly over the Internet. One of the most successful and most talked about eCommerce portals on the Internet is *Amazon* (www.amazon.com). *Amazon* started out as one of the first on-line book stores. Today you can buy virtually anything at *Amazon.* To mention but a few, the products sold by *Amazon* include: Books, wine, cameras, computer games, CDs, DVDs, vitamins, cars, saws phones, action figures, rare comic books etc.

The Internet has certainly opened up possibilities for people, who want to do businesses. Not only does the technological nature of the Internet provide businesses with an infrastructure to help support business, it also lets businesses target a potentially global customer segment. This opens great possibilities for small, specialized shops that could not establish a big enough customer base at the geographical point where the shop was placed. With the help of the Internet, the whole world can be the marketplace - the customer base for a business no longer has to be geographically situated around the business. This has lead to the emergence of a lot of specialized portals. One example is

Fridgedoor.com (www.fridgedoor.com). *Fridgedoor.com* sells the magnets that you put on the fridge to pin notes to the fridge. It is hard to imagine that *Fridgedoor.com* would have been able to attract enough customers if they had opened a traditional shop, but on the Internet, they are able to attract customers from all around the world to stay in business.

Another reason why so many different specialized portals are able to do business on the Internet is the fact that the infrastructure of the Internet and technology related to the Internet has made it quite simple to start a business. Technologies have emerged, that ties the web pages directly to the back office systems and handles everything from billing to logistics. This lets website developers create websites, that for a large part are automated. Orders are registered, bills are printed, the ordered product is sent, and logistics are optimized, all automatically. Again, *Fridgedoor* is a good example of a pretty big business, which is run with rather few resources. *Fridgedoor* is run by Chris Gwynn and his family, and the technological backbone of the portal is handled as a *Yahoo!store*. *Yahoo!store* is a service offered by *Yahoo!* that provides entrepreneurs with a portal, where they can sell their products. *Yahoo!* handles everything from hosting over website development to logistics and payment solutions. Services like *Yahoo!store* help entrepreneurs to focus on their core competence, namely selling their product. Danish companies also exist, that offer services similar to *Yahoo!store*. For example, *IT business center* (www.access-consult.dk) offer to establish Internet shops for entrepreneurs for as low as dkr 15000.

The Internet has provided companies with new ways of reaching their customers, but it has also made it easier for customers to find the products, they are looking for. Virtually anything can be bought on the Internet, and this makes it easier for customers to "shop around" and compare products and prices. If three on-line bookstores sell the same book, the customer can fairly easily find out which one sells the book cheapest. This idea was automated when Brian Krulwich, a researcher at *Andersen Consulting*, created *Bargain Finder*, a little program that searched on-line music stores to find the best prices on CD's (Shapiro Varian 1999b). Today this idea has evolved into portals that let users compare products on price. The Internet in general and these comparison portals in particular increase the market transparency. If customers are price sensitive, then this increased transparency will make it difficult for on-line stores to sustain prices, that are higher than those of their competitors, and may very well result in increased competition and eroded margins. Conventional economic wisdom states two solutions to the problem of increased competition: Achieve cost leadership and you will be able to compete on price alone, or differentiate your product by adding value thereby distinguishing yourself from the competition (Shapiro Varian 1999b). These two strategies are appropriate for two different customer segments, namely *the price aware customer* and *the service-focused customer*. The increased market transparency mentioned above tips the market of *the price aware customers* towards the cost leader, while increased differentiation tips the market of *the service focused customer* towards the competitor with the best service and added value. Although there may still be a market for the competitors, that choose the strategy of cost leader, the network economy seems to favors the competitors, that focus on managing the relationship with the customer in a way, that far exceeds, what is normally understood as differentiation. By focusing on managing the customer relationship over time, rather than just focusing on each transaction with customers, Internet portal companies ensure, that they get the most out of their portal. This statement forms the basis of my definition of a *successful* Internet. Since focus in the net economy is on managing the customer relationship successfully over time, *success* must be defined as:

- An Internet portals is defined as being *successful*, if it is able to, continuously over time, make a large enough base of customers use the portal frequently enough in a fashion, that is consistent with the mission[3] of the portal.

As the definition states, the success is dependent upon the number of customers that constitute the customer base and the frequency, at which they use the portal. This number and the frequency are dependent upon the specific business goal and strategy of the portal, but I will state some rules of

[3]

thumb, that I believe to be true in general. In most cases, it will be necessary for the customer base to constitute the largest market share in order to sustain success. This means, that the size of the customer base in numbers is not as important, as what percentage it constitutes in terms of market share. The reason for this is the tippynes of network markets (see section 3.11). As for the frequency with which the customer has to use the portal, in order for it to be a success, I believe, that the portal should at least be the customers most popular portal for that specific task. For example, if a customer changes insurance roughly every 6 months, then an insurance portal should be able to attract the customer and get her to pick a new insurance a couple of times a year to be successful. However, if the portal is a news portal, and the user reads news on the net every day, then the portal will have a hard time becoming successful unless it is able to attract the get the customer to use it most days. Again, focus is on how much the customer uses the portal, *relative to* how many times she needs the service the portal offers, *not* the *number* of times she uses the portal. The reason for this statement is, that I believe, that it would be very difficult to sustain and manage a relationship with the customer, if she is using an alternate portal for the same services on a regular basis.

A customer base that uses a portal in the fashion I have just described is called an installed base. With this definition of success, I can restate the initiating problem of this project to better reflect the focus of the following chapters.

Restated initiating problem:

- Why do some Internet portals fail at building a large enough installed base and making that installed base interact with the portal in a fashion, that is consistent with the mission of the portal, while other succeed at this.

With this restatement, we are ready to explore the initiating problem more thoroughly.

In the next chapter, *Portal Management in the Network Economy*, I hope to convey a better understanding of the network economy, and in particular, how Internet portals should be managed in the network economy. This will form the basis for a problem formulation in chapter 4, *Problem Formulation.*

As the restatement of the initiating problem suggests, build an installed base and being able to manage this installed base is vital to the success of Internet portals. Therefore, the exploration of the initiating problem is begun by discussing the management of the relationship with the customer. I will base this exploration on the discussion on a selection of theories on the network economy and management. I will try to focus on the management of Internet portals, rather than doing business in the network economy in general. In order to achieve this, I will use actual events involving Internet portals as examples to describe, how Internet portals are best managed in the network economy.

Chapter 3
Portal Management in the Network Economy

The traditional understanding of how the economy works dates back to the 1880s and 1890s where Alfred Marshall among others derived an understanding of the economy that by and large has lived up until today (Arthur 1996). This understanding of the economy was in rough measure valid for the bulk-processing economy of Marshals day and still roughly holds true for the traditional part of the economy – the processing industries. However, through the course of the 20th century, many western economies have undergone a transformation from bulk-material processing to design and use of technology. From processing of resources to processing of information. This new economy is called the network economy, and it is based on the knowledge industries rather than the processing industries (Arthur 1996). Since Internet portals operate in the net economy, we will need to explore the trends and traits of this new economy in order to obtain an understanding of how an Internet portal should be launched and managed to attain success.

3.1 Focus on The Customer

> "It used to be, that the most important thing you could make was a product, and you went looking for a customer for that product. In the information age, the most important thing you can make is a customer, and then you go looking for products for the customers that you have" – Martha Rogers, of the Pepper and Rogers Group (Wilson 2000)

As mentioned in the previous chapter, the knowledge-based companies of the net economy have seen a shifted focus from the product to the relationship with the customer. In order to achieve a competitive advantage in the net economy portals must manage this relationship and develop products to sell to these customers. Through innovation and the use of knowledge value should be added to these products in order to make it easier to attract and retain customers. One way of doing this is by tailoring your product to fit the customer you are selling it to.

Personalization and Mass customization

> "If you have 20 million customers, you should have 20 million stores." – Jeff Bezos, CEO of Amazon.com (Wilson 2000)

It has been claimed, that Henry Ford once said about his famous model T automobile: "You can paint it any color, so long as it is black". Although this quote may be disputed, it is a clear example of the philosophy of the industrialized society. Products where mass produced in order to cut costs, and the only choice left to the customer was whether she wanted to buy it or not. In contrast to this, Jeff Bezos has recently said: "The notion is that you take customers and put them at the center of their own universe" (Brooker 99). Jeff Bezos' comment reflects the business philosophy of the knowledge society. Modern technologies allow system developers to develop systems that provide customers with customized or even personalized products. One example of this is the many portals that allow users to make their own personalize portal with e.g. the local weather and local news. For example *SpeedyTomato* (www.speedytomato.dk), allows customers to tailor their own portal based on the services they would like. Each service is called a speedie the user then moves these speedies around to tailor the portal to her needs and likings. Available speedies include: e-mail-speedie, address book speedie, news speedie, etc.

Personalization does not have to be initiated by the customer as it was in the example above. Many of the systems used by portals today track customer behavior and customize the website accordingly - often doing this without the customer noticing it. For example, a search on *AltaVista* (www.altavista.com) on the keyword "*book*" made the banner change to a commercial for *Amazon* (www.amazon.com), the number one selling online bookstore[4]. Almost all web servers store extensive information about the visitors. This information should be used to create a service that best serves the business needs of the portal.

Portals on the Internet are often based on information goods. While the costs of producing such information goods often involve high fixed costs, the marginal costs of reproducing such goods are usually very low (Shapiro and Varian 1999b, p4). For example, the first copy of a story on a news site is very costly to produce (having a journalist dig up the story and report it back), but the cost of making this news story available to a large number of users on the portal is negligible. In other words, the cost of services offered on a portal are usually unaffected by the number of customers that use or acquire the product[5]. Because of this, the high initial costs of producing the products have to be recouped on additional customers use of the product on the portal. Sometimes these initial high costs can be recouped, if the product is just sold[6] to enough customers, but more often than not, the profit has to be made on the aftermarket. As previously mentioned this shifts focus from the sale of one product to the management of the relationship with the customer - hopefully resulting in follow on sales.

The rather broad use of the words *sale* and *product* that is use in this report is illustrated by the following example: If the mission of a portal involves earning money by having customers look at advertising banners, then the successful management of a customer relationship involves attracting the customer and getting her to use the portal regularly as she is subjected to banner advertising.

In the example above the goal of the portal is to earn money from customers looking at banners. The product offered by the portal could be news, free web space, a search facility, or anything else that attracts customers to the portal. A sale of this "product" is then a customer using the portal and in

[4] According to Nielsen//NetRatings (www.nielsennetratings.com) Amazon.com had a unique audience of 13,988,974 In the month of April, 2001, making it the most visited bookstore on the web.
[5] Assuming that most of the services provided by Internet portals either involve information goods or services with great economies of scale.
[6] Throughout the scope of this report the word *sale* should be understood in the broadest sense of the word. This means that any use or acquiring of a product that serves the goal of the portal is understood as a sale.

return looking at a banner. If management of this user results in the customer returning to the portal and the sale of additional products to the customer, then this customer relationship contributes to the success of the portal as described above and defined in chapter 2.

The somehow abstract nature of "products" and "the sale of products" on the Internet in many ways resemble the old trading culture used before monetary systems were established. In that day, a transaction might have been the trading of milk and cheese for a chicken. Today a transaction could be a user using a portal to read news and in return looking at a banner ad. One might say that "trading" is more usual on the Internet, than the normal buying and selling of normal economies.

With this understanding of products and transactions on the Internet, we are now ready to look at how the relationship with the users of a portal can be systematically managed. In order to understand this relationship, we will introduce the concept of *switching costs.*

3.2 Switching Costs

In order to investigate how the relationship to the users of a portal can be managed to serve the goal of the portal, we need a model to describe customer behavior. The model I have chosen to use is Shapiro and Varians model of *switching costs* and *lock-in*. In the following, the concept of *switching costs* will be described, to give the reader an understanding of how switching costs can be used to describe the behavior of portal users. The management of switching costs will be presented as an effective way of managing the relationships with the customers. The concept of lock-in and switching costs are general and can be used to describe relationships involving virtually any product or service, but in this report, focus will be on the relationships between Internet portals and their customers.

When a customer switches from one product to an alternate product or from one supplier to another the customer may incur some costs in the process. These costs monetary and others are called the customers switching costs (Shapiro and Varian 1999b). In the case of portals, switching costs arise when a customer, who is used to getting a product from a traditional supplier or a portal, chooses to switch to an Internet portal to get that product[7]. For example, a user may be used to keeping track of her appointments using her pocket calendar, but chooses to switch to a calendar on the Internet, that she can access from her laptop and the office workstation. In order for the user to switch to using this new calendar portal, she will need to write all of her appointments from the old calendar into her new calendar, on the Internet portal. This burden of work is part of the customers switching costs. Switching cost may also arise, when a customer switches *from* a portal to a "normal" supplier or system, or from a portal to an alternate portal.

If the switching costs that a customer incurs switching to an alternate supplier or product are greater than the advantages, that the new supplier or product has to offer, then the customer will most likely be discouraged from switching to the new supplier or product. If switching costs are so high as to make it unproportionally costly to switch, then the customer is *locked in.* In this way switching costs and lock-in become tools to help us understand customer behavior. Take for example a customer wishing to switch from the portal she is currently using to an alternate portal that she feels will serve her better. If the she is locked-in to the portal she is currently using, then the switching costs that she must incur in order to switch are so high, that they discourage her from switching. Switching costs are central to the management of portals and their customers because they affect the customers' behavior in the net economy more than anything else.

In order to manage the customer relationship and make the customer return to the portal on a regular basis the customers switching costs should be recognized and managed. In order to illustrate the evolution of the switching costs of one customer Shapiro and Varian has developed a model they call *The Lock-in Cycle.* This model is described in the following.

[7] Switching costs may also arise when a customer switches from one portal to an alternate portal, or to a traditional supplier

3.3 Shapiro & Varians Lock-in Cycle

Shapiro and Varian (1999, p. 131) stresses the dynamic nature of lock-in. The switching costs that create lock-in can grow or shrink over time, but they are seldom constant. Therefore, Shapiro and Varian has developed a diagram (figure 3.1) that describes the cycle of shrinking and growing lock-in.

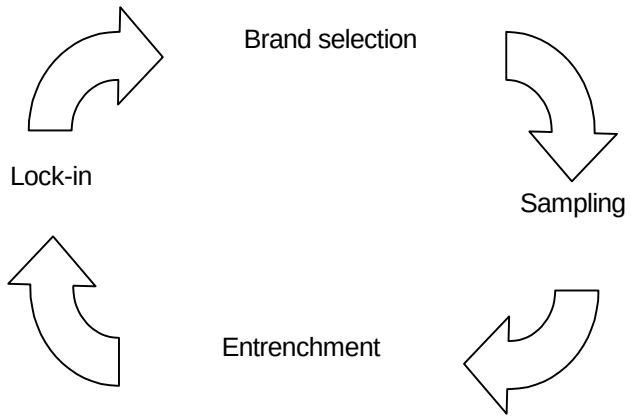

Figure 3.1: *Shapiro and Varians lock-in cycle*

New customers begin at the *brand selection point* where they have not yet committed to any of the available products. They can freely choose between any of the available alternatives. When new customers begin at this point, the customers switching costs are minimal. As the customer chooses a product, she makes a commitment (however little) to that product and thus enters the *sampling* stage. In this stage, the user tries out the product and decides whether she likes it or not. Switching costs are still quite low in this phase, but as the customer is lured into making commitments to the product, she becomes more locked-in and enters the *entrenchment phase.* Examples of how this could happen could be the customer signing up of a one-year account or converting data, she may have to fit the format of the portal. When the switching costs become so high that they discourage the customer from switching to an alternate supplier the customer enters the *lock-in* stage. Eventually this lock in may shrink and lower the customer's costs of switching. This creates a new *brand selection point* where the user can switch to an alternate supplier of the product or substitute products less expensively, than when she was in the lock-in phase.

This theory of the shrinking and growing switching costs of a customer relationship is very general in the sense that it can apply to a relationship regarding virtually any product. In this project, I am using it to describe the relationship between a customer and a portal. In order to illustrate how the model can be used to describe this consider the following example: A customer that has never before bought a book will be at the *brand selection* point, when she turns to the Internet for a way to buy the book she needs. The customer has no ties or relations to any portal or other sales point and is free to choose the portal that she thinks, will give her the best service. The customer may be looking at such factors as: price, delivery time, service charges, site design etc. When the customer eventually chooses to buy a book from one of the portals, she will have entered the *sampling* phase. She is trying the portal, seeing if she likes it. If the portal is effective, it will very quickly try to get the customer to enter the *entrenchment* phase. Perhaps the user is prompted to enter information about her name and address that allows her to make subsequent purchases without entering her address again, or perhaps the customer starts earning bonus-points that will allow her to get a free book with her next purchase. Such initiatives are designed to ensure, that the next time the customer wants to buy a book, it will be easier if she uses the same portal again. Sometimes convenience is all it takes to sow the seed to a loyal customer. If a customer has already entered a lot of information that she can recall by the click of the mouse at your portal then this convenience may make her come back and use your portal again

If the customer is hooked in this way and if she is lured into reaffirming her commitments to the portal, then she will soon be entrenched and the relationship between the portal and the customer will be strong[8]. If the portal is successful in getting the customers switching costs to grow, they may affect the behavior of the customer, discouraging her from switching to an alternate portal, even if she feels, that she would get better service at the other portal. This is the characteristics of the *lock-in phase*. However, from time to time the customers switching costs may shrink, making it less costly for the customer to switch to an alternate portal. For example, if the customer uses all of her bonus-points to buy a book, then she has no points to loose, should she choose to switch. For another example consider a customer that enjoys the convenience of having entered her address at a portal. If this customer moves to a new address then the entered information no longer represents a convenience. No matter whether she chooses an alternate portal or the same portal again, she will need to enter her new address. These points, where the switching costs shrink, making it less costly for the customer to switch, are new *brand selection points* and they mark the beginning or a new iteration of the lock-in cycle.

In order to make a portal successful the managers of the portal may use sweeteners to get the customer to enter the sampling phase. They may then try to get the customer to commit to the portal in some fashion in order to get her as quickly as possible into the entrenching and lock-in phases, and eventually they will probably try to keep the customer in the lock-in phase as long as possible and make the subsequent brand-selection point as less obvious as possible.

Obviously, the managers of the portal have the greatest control over the customer when she is locked-in. If the customers switching costs amount to 100$, then the managers of the portal may put a tax on the use of the portal, amounting to 99$, and the customer will still get the most out of staying, rather than switching to an alternate portal. This example is obviously a great simplification, but it does illustrating the effects of switching costs and taxation, and in general, it can be used to predict customer behavior.

Taxation is a difficult subject because taxation lowers the customers switching costs and this ultimately means weakening the customer relationship and decreased control over the customer. However, if the managers of a portal are good at managing the relationship with the customer, they may be able to continuously get the customer to entrench herself more and more, allowing the managers to put a continuous taxation on the customer, that is always a little less than the customers switching costs.

In their discussion of switching costs (1999b), Shapiro and Varian categorized switching costs into seven different types. This categorization and each of the seven types of switching costs and lock-in are discussed in the following section in order to illustrate the diversity of switching costs.

3.4 Categories of Switching Costs and Lock-in

Shapiro and Varian (1999b, p117) categorizes lock-in, into the following seven types:

- Contractual commitments lock-in
- Durable Purchases lock-in
- Brand-specific training lock-in
- Information and databases lock-in
- Specialized suppliers lock-in

[8] In Shapiro and Varians framework of lock-in and switching costs *entrenchment* refers to building up the switching costs of the customers that constitute the installed base so as to lock them in.

- Search costs lock-in
- Loyalty programs lock-in

Although one can certainly argue that any example of lock-in can be categorized as being one of these seven types, most initiatives designed to create lock-in seem to encompass several of the types. Whether an initiative creates one kind of lock-in or the other is not important here. This section and the categorization of lock-in are presented in order to illustrate the diversity off the initiatives that can be used to entrench customers and subsequently lock them in.

In the following each of these types of lock-in and the switching costs that create them, are described in turn. The section is completed with a discussion of the costs that a portal may have to incur in order to attract a customer, namely *supplier switching costs*.

Contractual commitments lock-in

When a customer or supplier is committed in some way by a contract, this constitutes switching costs [9]. This type of switching costs are called *compensatory or liquidated damages*. The switching costs arise because the customer must either follow the requirements of the contract or face the consequences associated with breaking the contract. The most usual example of how these switching costs arise is the case where a buyer obtains a favorable price by committing to future purchases from the same supplier. Usually the customer gets some kind of favorable discount or extra in return. Shapiro and Varian focuses on the case where a contract puts restrictions on a buyer's ability to buy from other suppliers. For example, a requirements contract forcing the buyer to buy exclusively from the supplier in question or a minimum order-size contract.

In Denmark, most GSM service providers offer excellent sweeteners to attract new customers[10]. To earn these sweeteners new customers have to enter into a contractual agreement with the service provider to retain the subscription for at least 6 months. Similar strategies have been used in the United States where some Internet service providers (ISP) have given away computers in return for contractual commitments from consumers to use that specific ISP to access the Internet.

In a Internet portal context

A contractual agreement can be entered into regarding the use of an Internet portal as well as the use of any other product. However, it does not seem to be one of the most common types of sources for switching costs. There may be several reasons for this. First of all, if a contract is entered into it must be enforceable to have any significant effect and regulation on the Internet is very scarce. Secondly, the lack of a widespread standard for digital signatures makes it difficult to enter into contractual commitments. A related and more widespread phenomenon on the Internet is *disclaimers*. Disclaimers are messages that are displayed upon entering a portal. The user is usually prompted to read and agree on the contents of the disclaimer before entering the portal. Disclaimers often read something like this: "By entering this portal you agree that you are in no way affiliated with any law enforcement agency and wave the right to..." Even though disclaimers are contractual agreements they are usually not used to create switching costs but instead to protect the owners of a portal against liability e.g. if they have illegal content.

[9] Shapiro and Varian stress that these seven types of switching costs can be both customer and supplier switching costs. However in my description of switching costs I will focus on customer switching costs.
[10] GSM is the predominant European digital mobile phone network standard

Durable purchases

Many products are dependent upon compatibility with other products in order to work (Hanseth 2000). This means that an initial purchase may determine what complementary products a customer will be able to use (I will elaborate on this in section 3.7, Standards and Compatibility). By purchasing a product, the customer makes a commitment to the supplier, the brand, and the standard of that product. If a customer buys a product she will want to use it until it breaks, but before it does some of the products that she is using the new purchase with may need to be exchanged. In exchanging these old products, the customer will have to consider that they have to work with the new purchase in order for her to get the maximum value from that product. Take for example computers and printers. If a customer purchases a *Mac* (www.mac.com) computer then she makes a commitment to the *Mac* brand and standard. The initial purchase of the computer limits the options of the customer when she later goes looking for a printer. She will need to buy a *Mac* compatible printer *or* exchange her computer. So buying a durable product will create switching costs stemming from the fact that the customer will have to accept that she must either buy a compatible product, or pay the price of replacing the durable product before it is broken. Such switching costs are called *replacement of equipment.*

Replacement of equipment switching costs may also arise when the customer has several durable products that work together. As one product breaks, she will find herself in a position similar to the one mentioned above. For example, a customer may have a printer that uses ink cartridges. When the ink cartridge runs dry, the customer must either buy a compatible cartridge, or replace her printer even though it is not broken.

It has been claimed that some printers are sold below production costs because the producer of the printers lock in the customers with that initial purchase. Eventually the buyer will have to buy new cartridges for the printer and this is where the producer of the printer makes money. If the producer of the printer has ensured that no competitors can sell compatible cartridges, then the customers subsequent purchases of cartridges will make up for the money lost on the initial sale.

In a Internet portal context

This type of switching costs usually arise because of durable products that have to be substituted if the user chooses to switch to an alternate “system”, but since there are very few durable products that only work with one portal this type of “replacement of equipment switching costs” are uncommon. However there are switching costs on the Internet that can be thought of as “replacement of equipment switching costs”. Some portals require the user of the portal to accept a certificate, install a plug-in, or install some other type of software in order to use the portal. These can be thought of as durable products since the plug-in usually stays installed even though the user switches to an alternate portal. One example of this is the portal *MSN Communities* (communities.msn.dk) where the user is prompted to accept different plug-ins. For example, if the user wishes to upload files to a personal “locker” on the site, then she must accept that a plug-in that handles this is installed.

Brand-specific training

If a customer is trained in using a product and if this training is brand specific, then this customer may have to be trained again, if the product is replaced for one of a different brand. Since the customer’s proficiency in using the product is brand specific then this proficiency becomes obsolete, if the product is replaced for one of a different brand. This type of switching costs is called *learning a new system* and in many ways, they are similar to the switching costs described under Durable Purchases.

With replacement of equipment switching costs, two complementary products give rise to switching costs, because they are interdependent and loose some of their value if one of the products are replaced. With brand-specific training lock-in, the interdependence is between the customer and the

product. The training can only be utilized with one brand of the product. Therefore, if the user chooses to replace the product with one of a different brand the brand specific training has no value.

If the training is not brand specific, no valuable switching costs arise.

In a Internet portal context

This type of switching costs is very common. For example, some Internet portals that facilitate downloading of warez[11], movies, and mp3s[12] require the user to spend considerable time learning how to download from the site. This may involve such tasks as setting up accounts for free storage on the Internet in order to transfer files, learning how to download from an on-line web storage site, setting up download managers[13] in a particular fashion in order to get them to download correctly, concatenating different volumes of an archive, and decrypting encrypted files.

If a customer has familiarized herself with one site for downloading warez and figured out how to download the warez then she will be able to enjoy that proficiency if she should choose to download from the same site again. However, if the customer chooses to download from a different site, then she will need to learn how downloading is done from that site. Because there are many different web storage sites, download managers, and archiving standards etc. the proficiency a customer achieves from learning how to download from one site may very well be brand specific, thus creating switching costs.

Information and databases

As with the previous two examples, once again we see switching costs arising from interdependence. In the case of *Information and databases lock-in*, the interdependence is between data and the systems (hardware and/or software) used to store it. If the system used to store the data (e.g. the DBMS[14]) is replaced, the data stored with the old system will have to be converted to the format of the new system. Therefore this type of switching costs are called *converting data to a new format.* If the customer wishes to avoid having to convert data to a new format, she is restricted to buying compatible storage systems. For example, users of *Microsoft Word* may have all their documents stored in *Microsoft's doc* format. If they choose to buy a word processing system from a different provider, then they will have to find some way of converting these documents. Often this is very difficult without the loss of formatting.

Information and databases lock-In may also occur when the supplier has been given (directly or indirectly) information that is not readily available to an alternate supplier. Meaning that the customer has to submit this information to the new supplier. For example, a customer may have entered the names and phone numbers of all of her friends on her mobile phone[15]. If the customer chooses to switch to an alternate GSM provider, she may have to reenter all of this information.

In order to lower these switching costs the GSM service provider *Orange* (www.mobilix.dk) offer their users a web based service that lets them enter the names and numbers on a web page and then send them to the mobile phone, thus making it less cumbersome for customers to switch to *Orange*.

In a Internet portal context

[11] Software that is distributed (made available for download) outside of the licensing agreement.
[12] Music files that are compressed into a format that lends itself better to distribution on the Internet. These music files are often distributed without the permission of the person that owns the rights to the music.
[13] Download managers are software that helps web surfers to download files correctly. For example by resuming lost connections etc. One such popular download manager is: GetRight (www.getright.com)
[14] Data Base Management System
[15] Usually names and phone numbers are stored on the SIM card in the mobile phone.

When it comes to Internet portals, the problem that creates switching costs for the customer tends not to be that data has to be converted into a new format, but that data has to be re-entered. For example, many eCommerce web sites allow customers to enter their name and address one time only. When the user subsequently buys something the name and address is recalled, and she enjoys the convenience of not having to enter this information again. However, if the user wishes to buy something from an alternate site, she will need to reenter the information again.

Another example is personalized Internet portals. Most portals lets the user customizing their main page of the website. For example the user can choose to see a weather forecast for her local region, and get new about only the sports that she is interested in. This information is entered by the user and is stored by the website (often in cookies on the users computer). If the user wants to switch to an alternate portal she will have to configure that portal the way she had configured the old one to get the same functionality.

Specialized suppliers

As we have seen in the three preceding examples switching costs can arise when products are interdependent, when training and products are interdependent, or when data and their storage system is interdependent. However, switching costs may also arise more directly, when the customer has helped fund the new supplier (thus creating an interdependence). In this case, the customer spends time and/or resources to specialize the supplier so that the supplier is able to supply the product in a way that fits the customer. The time and/or resources that the customer uses to train the supplier may be spent on giving the supplier knowledge that is needed for the supplier to produce the product or it may be investments that the customer has had to make in order to enable the supplier to produce and deliver the product. If the customer chooses to switch to an alternate supplier she may need to train that supplier in a similar fashion, before she can expect the same level of service from this new supplier. This may very well be enough to discourage a customer from switching, thus locking her in.

A very simple example of this kind of lock-in is the kind that a customer at a restaurant may feel if she has a very particular taste or some unusual preferences. If you go to your usual restaurant, the waiter may know that you like your beef rare and with plenty of potatoes, but that you do not like sauce and that you are allergic to dairy products. The reason why the waiter knows this may be that you have carefully explained this to her or that she has brought you food that you have commented on in the past. You have (indirectly) trained the waiter to know how you want your food served. If you were to go to another restaurant the waiter would know nothing about your preferences and you would have to explain all of this or risk getting food that you dislike or is allergic to.

In a Internet portal context

Companies like *Yahoo!store* and *IT business center* (see chapter 2) offer to help entrepreneurs establish an eCommerce portal. The entrepreneurs pay the companies to develop the portal and help build the product catalog etc. In this process, the entrepreneur funds the company that develops the portal as it gets to know the business of the entrepreneurs business better. This results in the supplier of the eCommerce site becomes specialized (funded by the entrepreneur), and should the entrepreneur ever choose to expand the site or build a similar site then this specialized supplier will have an advantage. If the entrepreneur should wish to choose an alternate supplier for the expansion of her eCommerce site she may need to (directly or indirectly through a higher price) fund the new supplier before she can expect the same level of service, as she can expect from the specialized supplier. The costs she must incur if she chooses to switch are called *funding a new supplier.*

When it comes to B2C Internet portals this type of switching costs are usually not monetary but an investment of time and work. Many websites track customers behavior and use this data to personalize the website so that it fits the customers preferences and interests. In this way, the

customer trains the portal. An excellent example of this is *Amazon* (www.amazon.com). When a customer purchases a book at Amazon, then the purchase is registered and all of the purchases of the customers are then used to suggest similar books that the customer may be interested in. In this way, the more books a customer purchases at Amazon the more interesting books will be suggested to the customer. This type of training/specializing of a supplier may take a long time and switching to an alternate supplier usually means that the customer has to start all over.

As can be seen from the last example, it may be difficult to determine if a particular lock-in is of the Information and databases type or the specialized suppliers type. It depends on what way you choose to look at it. Is *Amazon* storing information about the customers' preferences that cannot be passed on to an alternate portal or has the customer trained the *Amazon* to know her preferences. The distinction can be difficult, but this is not a problem. As mentioned in the beginning of this section these different types of switching costs are described to illustrate the many ways in which switching costs can arise, not as a tool for deciding whether an initiative creates one or the other type of lock-in.

Search costs

When a customer wishes to switch to an alternate supplier, she must first search the market for suppliers, evaluate their service, and - if she chooses to switch - run the risk associated with switching to an unknown supplier. These costs are summed up in what is called *search costs*, the switching costs of finding a new supplier. The Internet provides users with many tools that help customers to find suppliers e.g. price comparison portals and search engines, but the emergence of the Internet may also mean an increase in the number of suppliers available to a customer. This may raise the customers search costs since it may be a cumbersome task to evaluate all suppliers in order to find the best deal.

If a customer is used to eating in one restaurant it may require a considerable effort to find another restaurant that offer the same dishes, the same quality and the same service. In order to find a new restaurant, the customer might first find restaurants that seem to be likely candidates. She might then wish to examine their menus in order to determine if they have her favorite dishes. If they do, the next step might be to try out the restaurant in order to sample the food and the quality of the service. The customer is likely to end up try some restaurants that disappoint her, before she finds a worthy substitute. All in all, the costs and discomforts add up and make search costs a switching cost not to be ignored.

In a Internet portal context

Because of the great selections of portals available to customers on the Internet, this is a significant source of switching costs for Internet portals. A lot of portals are not being used very much because only few people are familiar with them. For example *SpeedyTomato* (www.speedytomato.dk). *SpeedyTomato* is a portal that facilities downloading of logos, ringtones and picture smses to *Nokia* mobile phones. It is one of the most technically advanced sites on the Internet for this kind of service. *SpeedyTomato* allows customers to do all the usual things like: downloading existing logos and ringtones like a large selection of other sites also do, but on top of this *Speedytomato* also allow customers to draw their own logos and picture smses. However many users are not aware that there exists a site that allows this. The search costs involved in switching from one mobile site to *Speedytomato* are just too big, because *Speedytomato* has not advertised in order to let their existence be known and *Speedytomato* is not listed on any of the frequently used search engines when searches are performed with keywords like "picture sms", *Nokia*, logo, ringtone etc.

Loyalty programs

Switching costs may also arise when switching from one supplier to an alternate supplier means loosing some measure of goodwill of benefits etc. These types of switching costs are called *lost benefits from incumbent supplier.* They typically arise "artificially" because the suppliers create loyalty programs or loyalty creating activities. An excellent example of this is the airline industry. Most airlines have some kind of frequent flyer program that mean that customers earn points every time they fly. The user then accumulates bonus points over time that she can use at her own disposal – subject to the bonus point offers available. The switching costs arise from the customer either having to stay with the same supplier or loose any goodwill or benefits (e.g. bonus points) that she may have, if she chooses to switch to another supplier (i.e. another airline).

Loyalty programs are created and managed exclusively by sellers and are meant to make artificial switching costs for the buyers. Loyalty programs work by rewarding repeat purchases with credits to be used later. Some loyalty programs, like *Subway*, work by giving the buyer "stamps" every time the user buys a unit of the product (e.g. a sandwich) and then, when the user has enough stamps, she can get a discount or a free unit. Other loyalty programs like *SAS' EuroBonus* frequent flyer program rewards the buyers with bonus points based on the size and nature of the purchase. Loyalty programs work because a buyer that is only one "stamp" away from a free sandwich is most likely to buy that next sandwich from *Subway* in order to retain her "credits". Now if this buyer were to never shop at *Subway* again her credits (stamps) would be lost and would thus ad to her switching costs. The problem with such loyalty programs based on the principle that the 5th (6th or 8th etc.) is free is that there is an obvious brand selection point when the buyer uses her credits to get that 5th sandwich. Now in frequent flyer programs and other loyalty programs where the buyers are awarded bonus points this situation is rather unlikely and not as obvious. Lets say that you need 1000 points for that trip to Paris and you now have 875. It is unlikely that the next flight you take will reward you exactly the 125 points that you need to take the trip. If the customer receives more points than she needs she will have passed the brand selection point and although she may loose fewer points than before, she will still be loosing some credits if she switches.

In a Internet portal context

The concept of bonus points can of cause also be used when it comes to Internet Portals. For example, some bookstores on the Internet have used a point system to reward the customer for each purchase. When the customer had enough points, she could buy a book for the points.

3.5 Managing Switching Costs

In the previous section, we have focused on customer switching costs, but suppliers (in our case portals) may also incur some costs in the process of acquiring the new customer. Supplier may incur costs such as expenses for marketing costs and discounts. The totals cost of switching is the costs to the new supplier plus the customers switching costs. Initially it may seem more logical to ignore supplier switching costs because they seem to be unimportant when it comes to customer behavior. Logic dictates, that when the advantages of an alternate product are bigger than the customers switching costs the customer will see the alternate product as more attractive than the product she is currently using, and she will switch. This obviously makes customer switching costs a valuable piece of information for would be suppliers, but it says nothing about the profits that the new supplier can expect to earn from the new customer. Suppliers can influence the customers switching costs by offering her discounts or sweeteners. For example, if customer A 's costs of switching from supplier B to supplier C has a dollar value of 50$ and C's costs of attracting A are 25$ then the total switching costs are 75$. If the supplier C should decide to offer the customer A a discount of 10$ in order to attract her A's switching costs will fall to 40$ but C's switching costs will rise to 35$ leaving the total switching costs unaffected, namely 75$. Thus, in theory, any amount of switching costs can be overcome by a new supplier wishing to attract customers. All the new supplier has to do is use

sweeteners, discounts, or other similar initiatives to even out customers switching costs and make it worth wile for the customer to switch. However, this tells portal managers nothing about the profitability of attracting a customer and leaves them with the problem of figuring out how much they should be willing to spend in order to attract a customer.

As mentioned earlier, the management of the customer relationship, and in particular the lock-in cycle, suggests that profits should be made over the lifetime of a customer relationship rather than from one transaction. Therefore, we need to look ahead through the entire lock-in cycle in order to evaluate how much profit we expect to be able to get from a customer. With such a valuation of the customer relationship, we will know how much we should be willing to spend in order to attract a customer.

According to Shapiro and Varian (p113), as a rule of thumb, the profits that a supplier can expect to earn from a customer can be calculated as: The total switching costs + any competitive advantages that the supplier have - e.g. cost advantages.

Whatever method one chooses to evaluate the value of attracting a customer it should be stressed that it should be done on a *per customer basis*. Customers may have very different preferences and buying patterns that should be taken into consideration. Existing customers' buying patterns and preferences may provide data to help portal managers predict what kind of revenue new customers will generate. However, portal managers should be very cautious assuming, that new customers will behave like existing customers. Often the most interested users are the ones that are attracted first, and customers that are attracted later will generate less revenue and profit. Other factors that make it difficult to predict what profits to earn from future customers include taking into consideration how customers affect each other. We will discuss this later when we look at *network effects*.

3.6 A Three Step Strategy

Shapiro and Varian suggest a three-step approach to managing customers. It describes how a supplier should try to manage the relationship with the customer throughout the lock-in cycle. In the following, we will describe each of the three steps in turn.

Invest

More often than not, a portal will have to invest in order to build an installed base. This may include such concessions as sweeteners or discounts. As we have discussed in the previous section, the important thing here is to figure out the value of each customer in order to know how much to be willing to invest in order to attract that customer. Treat each customer individually (as much as possible) and tailor offerings and prices to fit that customer.

Entrench

When customers have been attracted, they usually enter the sampling phase where they have low switching costs and sampling the new product. This phase should be avoided or minimized. Instead, the aim should be to invest in order to entrench customers, not merely to get them to sample the product.

A good example of a company that failed at this is *Gubi* (www.gubi.dk). *Gubi* was a Danish portal in the business of selling clothes and other fashion items over the Internet. *Gubi* understood the need to invest in order to attract customers but they had no good strategy for how this investment was to entrench customers. *Gubi* gave a DKr 200 discount to anyone who shopped at *Gubi* in order to attract customers. The result? Customers went to *Gubi*, bought something that cost DKr 200 and left the site,

never to come back. *Gubi* were never able to establish any switching costs for the customers who took advantage of the DKr 200 discount and thus *Gubi* never succeded in any entrenching, as customers went straight from brand selection over a DKr 200 sampling to a new brand selection point.

Companies will do wisely in learning from the mistake made by *Gubi*. Certainly portals may have to invest in order to attract customers, but portals should ensure that the investments result in entrenchment of customers. Tools to entrench customers include incorporating proprietary standards, getting customers to enter information, and getting customers to learn how to use the system. Inspiration can be obtained from section 3.4, *Categories of Switching Costs and Lock-in*.

Suppliers should try to get customers to go through the sampling phase quickly and get them into the entrenchment and lock-in phases. These phases should then be lengthened in order to retain control over the customer as long as possible. Eventually, at the end of the lock in cycle, the supplier should try to get the customer to reaffirm her selection at the inevitable brand selection point.

Leverage

When customers have been entrenched and hopefully even logged in, it is time to get a return on the initial investments. The great switching costs that customers must face, should they choose to switch in these phases, allow portal managers to control customers in a way that serves the purpose of the portal. In order to simplify the discussion we will assume that the goal of the portal is to make a profit. This means that portal managers should try to put some sort of taxation on customers in order to get them to pay for the service they are provided with. Complementary products should certainly also be sold to the locked-in customers in order to make a profit on the aftermarket.

Hopefully this discussion has hinted some of the considerations involved in managing switching costs. In the following sections, we will look at some traits and theories of the network economy that must be taken into consideration in order to manage an Internet portal successfully.

3.7 Standards and Compatibility

In the previous section, I stressed the importance of building actual switching costs when portal managers invest in attracting customers, thereby getting customers into the entrenching phase rather than just the sampling phase. As we saw in section 3.4, there are many ways of establishing such switching costs, but they seemed to have one thing in common: They exploit the need for compatibility. *Durable purchases* lock-in resulted from complementary products that needed to be substituted, if they were not compatible with the new product, *Information and databases* lock-in resulted from data that would have to be converted, if it was not compatible with a new system, etc.

Increased globalization has resulted in that virtually everything is becoming connected, and this is making compatibility a main issue in the network economy. Our digital camera is no good, if it is not compatible with our computer so that we can transfer pictures. In a similar way, our palm pilot needs to be compatible with our workstation and our mobile phone must be compatible with our laptop, so that we can surf the net wirelessly. The need for compatibility is pervasive throughout the network economy, and is affecting the development and design of products and services. An excellent example of this compatibility is office suits. *Microsoft's* office suit, *MS Office* includes word processing (*Word*), spreadsheet (*Excel*), database software (*Access*), mail program (*Outlook*), presentation/slide show software (*PowerPoint*) and software to design web pages (*FrontPage*). These programs have been developed to adhere to the same standards and have functionalities that allow the user to take advantage of the fact that each individual piece of software in the office suit is designed to give the user advantages, if she uses the other parts of the suit too. For example, it is very simple to import tables and diagrams from *Excel* to e.g. *Word* or *PowerPoint*. The way data can be exchanged between the different pieces of software that comprise the office suite tie the software together and makes it

difficult for a third party software developer to get *MS Office* users to use her product unless the third party is totally compatible. Obviously, *Microsoft* will try hard to make it difficult for the third party supplier to become compatible.

Networks of complementary products

In this fashion, networks of products that are compatible (complementary products) emerge. Such examples include the *Microsoft* software for personal computers[16], the *Oracle* software for business and databases and the *Adobe* software for setting up graphics and publications.

This need for compatibility can be exploited in order to create switching costs. When a customer buys a product she makes a commitment to the owners[17] of the network that the product is part of. The next time the customer needs to buy a product that is compatible with the initial purpose, she will have to buy one that is part of the network. Lets look at an example: By buying *Microsoft Windows* a customer makes a commitment to the "*Microsoft* software for personal computing network" because this user will have an incentive to buy *Microsoft Word* instead of some other word processing software because of the increased compatibility of using *Word* with *Windows*.

The need for compatibility does not only pervade one customer's personal purchases. Customers are also dependent upon compatibility with products that are not ours to choose. For example, students a university might be obligated to use *Microsoft Windows* and *Word* at the university. This may affect their personal purchases, since they will only be able to bring files home, if their home computer runs *Windows* and *Word* too.

Making standards work for you

This need for compatibility can be exploited in the three-step strategy described in section, 3.6. When the managers of a portal invest in attracting a customer they should try to get that customers to commit to the network that the portal is a part of. For example by signing up for an e-mail address at *Hotmail* (part of the *MSN* portal), the customer makes a commitment to the *MSN* network of complementary services. If in the customer, in the future should wish to get an instant messenger she will have an incentive to use the *MSN messenger* because of the compatibility between the two products from the *MSN network* of complementary products. In practice the *MSN messenger* shows the user when she has new mail – something that is not possible if the user chooses an instant messenger from an alternate supplier (who is not part of the network) e.g. *ICQ* (www.icq.com)[18]

Leveraging customer lock-in

When the customer has committed to a portal this lock-in should be leveraged to get the customer to commit again and more strongly through follow on sales. The more products the customer buys that are part of the network, the more the customer will be locked into that network. Most home computer users have been locked into the Wintel (*Windows-Intel*) platform for personal computing. The computer is an Intel based system and all the peripherals and accessories are compatible with the standards that are associated with this architecture. On the software side these Intel architecture based computers are sold with *Microsoft Windows* and locked in to all the other *Microsoft* software that make them run. Similar network exist for portals. *MSN* supports a network of complementary products including, e-mail, free web space, free web page, news, calendar, instant messenger etc. – all compatible with each other.

[16] Consisting of not only the Office suite mentioned above, but also the Microsoft Windows operating system and Microsoft Internet Explorer web browser.
[17] By owner I mean the companies that sell the products that are part of the network
[18] ICQ

Ensuring ownership of the customer

Networks of complementary products like the ones that I have just discussed are certainly something to take into consideration when trying to entrench customers. They can be a very strong tool for locking in customers. However, locking customers into a network has no value to the supplier unless the supplier has some ownership over the network. It can be said very simply: If you don't own the network, you don't own the customer.

For example, a supplier has ownership of the network if the technologies of the network are proprietary standards that cannot be used by competitors. These property rights will ensure that the customers are locked into the supplier and not only an open network of suppliers.

3.8 Strategic Considerations

As we discussed in the previous section, choosing which networks to let your product be part of is crucial. This decision means deciding what standards to follow and what complementary products to let your product be compatible with.

Besen and Farrell (1994) describe three ways of competing in network markets, namely: *Tweedledum and tweedledee*, *Battle of the sexes* and *Pesky little brother*. In the following each of these are described in turn.

Tweedledum and Tweedledee

Tweedledum and tweedledee describes the case where two firms decide to stick to their own standard in hopes that it becomes the prevailing one. Each firm insists on not making their product compatible with the other product because they have large interests in making their own technology the prevailing one. For example, one company may have proprietary right to their part of the technology and thus stand to make a lot of money from it, if their technology becomes part of the standard. Another example could be that one company has invested heavily in R&D that is useless if their technology does not become the standard. In this case, the firms may agree to disagree and thus have a standards battle. To Internet portals that have already established and invested heavily on a standard this may be a wise choice of strategy.

The Battle of the Sexes

On the other hand, if the benefits of agreeing on a standard overweigh the risks loosing a standards war, firms may try to agree on a standard. Each company may wish to promote their own technology, but not at the risk of disagreeing on which standard to use. This is the case that Besen and Farrell (1994) refers to as *the battle of the sexes*, because the two parties disagree but would rather let the other one win the argument than to risk the relationship. Two portals with complementary services could employ this strategy. By joining up and making their services compatible, the portals add value to their portals.

Pesky Little Brother

In both of the strategies mentioned above the firms agree. In the first example, they agree to have a battle over which standard to use and in the second they agree that a standard should be agreed on, the only question is which one. According to Besen and Farrell (1994), these two cases often occur if the companies are symmetrical[19]. But what happens if the companies are unsymmetrical? The companies may not agree on whether the same standard should be employed by both or not. This is the case referred to as *the pesky little brother*. In this case, one companies tries to establish its own

[19] By symmetrical is meant companies of largely the same size and with largely the same share of the market.

standard or technology, but the other company just tries to copy that product. If a company has a large installed base, a new competitor may have no other choice but to try to be compatible with the market leader.

Avoiding a pesky little brother

The *pesky little brother* may be a very powerful strategy if you are a fast follower[20] or a new entrant trying to capture your competitors customers, but when you are trying to protect your installed base a pesky little brother that copies your products can be very harmful. The pesky little brother may make her products so similar to yours that her product benefits from the value that you product ads to the network. This may eliminate your competitive advantage by lower the switching costs for those of your customers who wish to switch to the pesky little brothers product.

This illustrates the importance of making the features and networks that add value to your product exclusive to your product. One way of avoiding that important features of a product are copied is product proliferation. By continuously developing new extensions to its standards and technologies an Internet portal may be able to evolve its services at such a pace that they cannot effectively be copied.

Another way of avoiding that a pesky little brother copies your technology, standard or product is by asserting intellectual property rights. By patenting extensions to its products and technologies, a company may prohibit the copying of its product.

The three strategies discussed in this section point out some of the considerations when it comes to making your compatible or incompatible with your competitors product, but what about earlier standards. Should the product be made compatible with earlier products or should the old standards be abandoned in favor of a better design that is not encumbered by having to be backwards compatible. This is discussed in the following.

3.9 Backwards Compatibility

Where Besen and Farrell (1994) focus on compatibility with the competitors, Shapiro and Varian (1999a) focuses on compatibility with earlier standards. Backward compatibility can help to make new products become part of old established networks. This can give the new product some of the value that the old product has due to its network externalities. When Microsoft developed Windows 95, they made sure that users were still able to run old MS Dos programs. This ensured that when Windows 95 was introduced, Dos users already had software they could use with Windows 95, namely all their old Dos software. By making Windows 95 backwards compatible, Microsoft was able to leverage their installed base of Dos users and make them Windows users[21]. This is what Shapiro and Varian (1999a) calls an evolution strategy because the product (Windows 95) is backwards compatible (with Dos). However, sometimes developing a product to be backward compatible may be a disadvantage. Ensuring compatibility may mean choosing a design that is not as elegant as otherwise possible, making the product slower and more complicated. When Philips developed the audio compact disk they knew that it would not be able to play the old vinyl LP's that people had already bought, but Philips chose a this strategy because in order to make the product really good the old standard of the vinyl records had to be discarded. Shapiro and Varian calls such a strategy a revolution strategy because a new standard is proposed and the old one abandoned.

Shapiro and Varian (1999a) has set up a matrix to describe four different types of standards wars. This matrix can be seen in figure 3.2.

[20] A fast follower is someone who is not the first to market with a product (first mover) but one of the first to follow this first mover.
[21] An installed base is a number of existing users of the product.

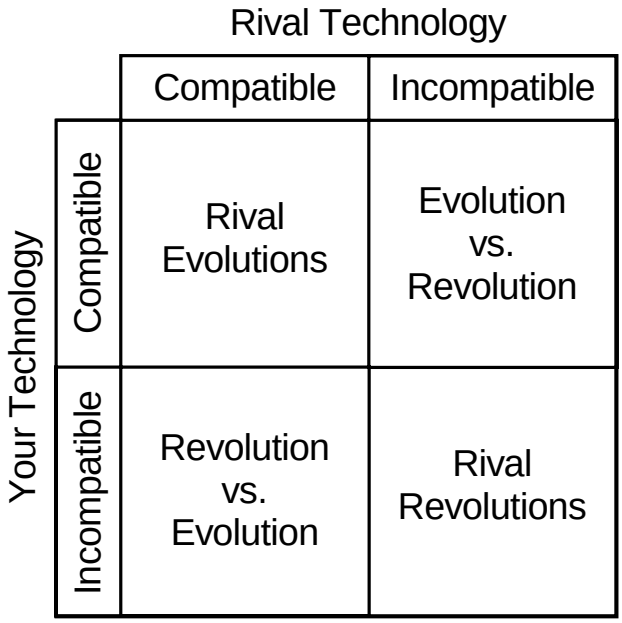

Figure 3.2: *Shapiro and Varian's matrix that describe the different types of standards wars.*

Rival Evolutions describes the case where both your and your competitor's products are compatible with the previous generation of products. In this case, the focus is on improving the product as much as possible while still maintaining compatibility. *Revolution vs. Evolution* describes the case where you have decided to abandon backward compatibility in the hopes that your product will be good enough for the customers to want to use it anyway. In this case, the competitor has chosen to make her product compatible with older products so the pressure is on you to convince customers that your product is worth the switch from an old standard to a new one. *Evolution vs. Revolution* is the opposite case where you are trying to leverage an installed base of users of the old product line, by giving them an improved product that is still compatible with the products they are using now. The competition however is hoping that her product is good enough for customers to want to change to her product even though this means abandoning compatibility with older products. The last case mentioned by Shapiro and Varian (1999a) is the *Rival Revolutions* case where both you and your competitor have abandoned the idea of making your products compatible with older products.

Creating a migration path

One of the most important things when you are employing a revolution strategy or an evolution strategy is creating a migration path for the customer. When you introduce a new product or standard you should think about where you wish to attract customers from, and then try and make it as easy as possible for customers to switch to you product.

When *Microsoft* introduced *MS Word* they made sure that it would read *WordPerfect* files so that users of *Word* might still use their old documents created with *WordPerfect*, but *Microsoft* also made sure that the documents created with *MS Word* could not be edited with *WordPerfect*. In this way, *Microsoft* successfully created a one-way migration path for all the users of *WordPerfect* making it easy for them to switch to *MS Word* while at the same time making it difficult for them to switch back to *WordPerfect*.

Luring customers into using proprietary standards

Backwards compatibility can also be used to lure people into using proprietary standards. This is what *Nokia* are trying to do with their *Picture sms* technology. As mentioned earlier in this section *Nokia*

phones can exchange sms messages with any other brand of phone but *Nokia* phones have the additional feature that they can send and receive *Picture sms* messages. As more and more people start using *Picture sms* to send messages to those of their friends that also have *Nokia* phones it becomes more and more valuable to have a *Nokia* phone. What started out, as an extra proprietary feature becomes a de facto standard. If this happens, *Nokia* will be in an excellent position since they have the intellectual property rights of the *Picture sms* technology. By adding proprietary features (*Picture sms*) to the open standard (normal text sms) *Nokia* has lured people into using a proprietary standard. The backwards compatibility is the key to making this new standard popular as long as only few people have adopted it. If or when *Picture sms* becomes widespread and used by a very large installed base *Nokia* may remove the backwards compatibility. If they do this, all the users that do not have a *Nokia* phone will have to get one in order to send messages to and receive messages from *Nokia* mobile phone users.

Microsoft employed the very same strategy when they introduced their browser, *MS Internet Explorer* (*IE*). At that time, *Netscape Navigator* was the market leader and *Microsoft* chose the strategy of *the pesky little brother* making *IE* compatible with all of the open standards that *Netscape* were supporting. This minimized the costs of switching from *Netscape* to *IE* and because *IE* was shipped with *MS Windows*, at no extra charge many *Navigator* users chose to use *IE* instead. As time progressed, *Microsoft's* share of the browser market grew and eventually they became the market leader. Now in order to keep the customers they had acquired, *Microsoft* began to differentiate their browser introducing proprietary standards that were backwards compatible. These standards include *Jscript*, an "improved" version of *Java* and extra HTML features that integrated web pages with *Microsoft's* product, *Office*. This ensured that *IE* users would incur great switching costs if they switched back to *Navigator* because they would no longer be able to websites that employed the proprietary *Microsoft* technologies.

3.10 Network Externalities

As the previous three sections have argued, compatibility is becoming more and more important. Choosing what networks of complementary products to be part of is a major strategic decision for any company doing business in the network economy. Letting your product be part of a network adds value to your product, but it may also add value to the network and indirectly to the other participants of the network. To put it in another way, the value of some networks grow as a function of the number of network members.

One example is e-mail. In the beginning of the '90, e-mail was not such a widespread technology. This meant that there were only few persons you could send e-mail to. As the number of people with e-mail addresses grew, the value of having an e-mail address grew, because you will have more people to correspond with. The fact that the network of e-mail users grew also lead to an increased amount of services that use e-mail. Today many organizations, business and government allow you to correspond with them using e-mail. These services and new uses for e-mail would not have been developed if it were not for the size of the network of people using e-mail. One might say, that the growing network of e-mail users lead to more services being developed, thus creating a positive feedback, since these new services will likely lead to even more people getting an e-mail address.

Metcalf's law describes how the value of a network grows with the number of users:

> Metcalf's Law:
>
> The value of a network goes up as the square of the number of users. [Cited from: Shapiro and Varian 1999b, p184]

Products that grow in value as the number of users of the network they are part of grow are said to display network effects. These are also sometimes called demand side economies of scale.

As an example of a product that display network effects, take the *Macintosh* computer. The number of *Mac* users largely determines the value added to you computer stemming from the fact that it is a *Mac*, because this determines the amount of new software and the amount of other computers that your computer is compatible with.

Needles to say network effects are a very powerful market force, especially in the network economy where so many products are dependent upon compatibility. If you are able to develop a product that display network effects then you may be able to use the cycle of positive feedback to create sky high switching costs that can certainly be used to lock in customers. Again, the *Microsoft Office* suite is a good example. The reason why it is so important to have software that is compatible with *Microsoft office* is not so much that you use *Microsoft Office* yourself, but the many other people that use *Microsoft Office*. The great value of owning *Microsoft Office* is due to the size of the network of *Microsoft Office* users.

The widespread need for compatibility mentioned in the previous sections and the fact that network effects lead to positive feedback in the value of network products means that network market may only be able to sustain one of several competing standards. One examples of how this plays out is the development of a standard for VCRs.

The market for VCRs started out with two competing formats, *Matsushita's VHS* and *Sony's Beta*. The products were largely equivalent in quality and were sold at about the same price (Arthur 1990). In the beginning, people were reluctant towards buying VCR's of either format because it was unclear which format was best. Nevertheless, eventually *Matsushita's* got ahead selling a little more VCRs than *Sony*. Now because more people had *VHS* VCRs the stores bought more *VHS* movies than *Beta* movies. This again made customers want to buy *VHS* VCRs because more movies were available for *VHS*. In the network economy, a little lead in market share often creates a positive feedback that may make it virtually impossible for competing products to enter the market. The value of owning a *VHS* VCR grew with the amount of *VHS* movies available in the stores.

It is important to notice here, that the value of a network is a function of the number of users of that network, but the expected value of a network is a function of the expected number of users. *Microsoft* exploited this in the fight for market share in the market for operating systems. The value of an operating system depends on what software is available for the operating system and what hardware it is compatible with etc. This means that when people buy an operating system they will want to buy the one that is compatible with most software and hardware. In the middle of the 1990s there were two popular operating systems, *Microsoft Windows* and *OS2* by *IBM*[22]. Some were confused whether to buy one or the other, but eventually *Microsoft* began to *look* like the winner and the fact that it *looked* like a winner made even more people buy *Windows*. This made software companies develop more new software for *Windows* and hardware companies develop more hardware that supported *Windows*. This raised the value of having *Windows* installed and thus made even more people buy *Windows*.

The power of network effects make choosing to be part of the right standards a major strategic consideration, but it also allows us to look at the strategies of Besen and Farrell in section 3.8, *Strategic Considerations* in a new light. We can now se *Tweedledum and Tweedledee* as the case where both companies want to sustain their own standard and hope that the expectations about their product will create network effects that are strong enough to make them the market leader. The *Battle of the Sexes* can be seen as the case where the two companies combine their networks in order to enjoy the much larger network effects of the combined network. And last, but not least, the *Pesky Little Brother* can be seen as a small new competitor trying to enjoy some of the positive feedback created by a larger competitors network effects.

[22] Of course there where several other operating systems like Unix and Be OS but Windows and OS2 where the only commonly used retail operating systems that where targeting consumer.

In a economy where network effects more often than not can make the difference between becoming the de facto standard and a long forgotten obsolete alternative, it is important not only to be able to manage network effects, but also to be able to add features that create network effects to your products.

Products can be developed explicitly to display network externalities or features can be added to existing products in order to get those product to display network externalities. Needles to say this is a very powerful way of adding value to a product and can be exploited to increase market share. In order to get a product to display network externalities the product must be given properties or features that link it to networks so that the value of the product is dependent upon other products in the network. One example is *Nokia's Picture sms* technology. *Picture sms* is a proprietary sms service that allows users of *Nokia* mobile phones to send pictures with the text messages. The value of having a mobile phone that supports *Picture sms* grows with the amount of other users that have mobile phones that supports *Picture sms*. Since *Picture sms* is a proprietary standard this effectively means that *Nokia* has succeeded in adding a feature to their product that makes their product display network effects.

This section has argued the importance of network effects, but network effects also have limitations. Liebowitz and Margolis (1994) argue that the value of a product is not necessarily a function of the number of members of that product. More likely, it is just the function of the number of users that the user interacts with, that are part of the network. Meaning that the value that I, being a student of software engineering enjoy from using *Microsoft Word* is largely unaffected by what word processing system a student of biology in Peru use. I am however very affected by what word processing system the rest of the faculty and the students at my apartment use, since this is likely to influence who I can exchange documents with and what software will be made available to me at the department. This illustrates the importance of noticing that the added value stemming from network effects is dependent upon my interaction with the other members of the network.

Another limitation of network effects that Liebowitz and Margolis (1994) stress is the fact that many network effects only grow until the network reaches some size where the added value of one more member is negligible. Such network effects are called *inframarginal network effects* and they are said to be *exhausted at the margin*. Some might argue that the network effects of *Microsoft Windows* is such an effects since *Microsoft Windows* is so widespread, and dominate the market so much, that it really makes no difference if they were able to increase their market share. It would add no value to the network.

After exploring network effects and seeing how they affect business, we shift focus and look at how the network economy is affecting markets.

3.11 Increasing Returns Markets

One of the most important traits of the new economy noted by Arthur (1996) is that more and more markets seem to display *increasing returns of investments*. That is, if a the market share of a product increases, the market reacts with a cycle of positive feedback that further increases the market share of that product. The emergence of such increasing returns markets is partly due to the emergence of more and more products that display network externalities. The difference between the old diminishing returns of investments markets of the old economy and the increasing returns of investments markets of the new economy is one of the most fundamental differences in the new economy.

Diminishing Returns of Investments Markets

Most conventional markets – the ones governed by the old economy – are diminishing returns of investments markets. In the sense that an increase in market share eventually generates a negative feedback, that erodes the profit margin and as a result, drives the market share back to a natural

equilibrium. For example the market for electricity. Imagine a market where production of electricity by using hydroelectric plants is cheaper than producing electricity by coal. Obviously, this will result in an increase in the demand of electricity from hydroelectric plants. Since hydroelectric plants have a finite capacity, this eventually will lead to an expansion of the current hydroelectric facilities or by constructing new hydroelectric plants. Now the newly constructed plants cannot be constructed on as good a site as the old plants because obviously the old plants were created the best possible places. Now this might not be true in all cases but conventional economic theories are based on the assumption that an increase in market share will imply an increase in production and an increase in production will imply an increase in use of resources. Now because of the scarcity or at least finite nature of the resources used for conventional production this will lead to an increase in production costs. Therefore the scarcity of the resources used for the production of electricity by hydroelectric plants, namely strong rivers, the production cost of electricity by hydroelectric plants will increase and eventually will become higher than the price of electricity produced by burning coal. This will lead to an increasing demand for electricity produced from coal and eventually to an increase in the production cost of coal. As this example shows the scarcity of resources used for production creates a negative feedback that divides the market neatly in natural shares. The negative feedback displayed by diminishing returns markets ensures free competition, natural selection if you will. By this is meant that if one of the "players" on the market improve their product, e.g. a new, cheaper and more efficient way of deriving electricity from coal then this will eventually lead to a corresponding increase in the share of the electricity market that comes from the production of coal. The negative feedback nature of diminishing returns markets also means that things like market shares and prices can be predicted based on knowledge of things like the production methods, the demand for the product and the quantity of resources available (Arthur 1996).

All this does not mean that diminishing returns markets do not also encompass positive feedback, (e.g. an increase of market share will often lead to economies of scale advantages), but the important thing to acknowledge here is that the net effect of all the feedback generated by an increase of market share in these markets will be negative driving the market to an equilibrium that ensures free competition.

Increasing Returns of Investments markets

Increasing returns of investments markets on the other hand are more difficult to analyze and forecast. There are no negative feedbacks to drive the market shares of the different competitors to an equilibrium. Instead increasing returns markets tend to be decided by small unpredictable occurrences at an early stage and then go on to tip to the favor of on of the competitors. In an increasing returns of investments market that display strong network externalities a small lead in market share at an early stage can result in a positive feedback that may be so strong and grow so quickly that no other competitor may ever get the chance to enter the market. Increasing returns of investments markets are also called tippy markets because they may tip to either side effectively locking up the market. Tippy markets can never sustain equilibrium and when they are locked up, entry costs are too large to make it profitable for any company to challenge the market leader. Because the increasing returns of investments markets are tippy all of the profits from the market will go to the winner, and in a network economy where the value of your product is proportional to the square of the number of users the profit margins are often enormous. This obviously makes the fight to get an installed base and lock-in that installed base very fierce.

One example of a tippy market is the market for videos mentioned earlier. The market could not sustain two different formats so eventually the market tipped. *Beta* became obsolete and *VHS* grew to become the only VCR type on the market.

The fact that many markets in the net economy are tippy may have something to do with the success and fail of portals on the Internet. *Microsoft* has succeeded in locking up the market for operating systems; it will be interesting to see if *Amazon* will be able to do the same on the Internet.

Chapter 4
Problem Formulation

In the preceding chapters, I have explored the initiating problem by looking at Internet portals and exploring how the characteristics of the network economy affect how Internet portals should be managed in order to become successful. In this chapter, I will formulate the specific problem that I will explore in this project.

In the first sections of chapter 3, we explored some of the possibilities that the Internet provide us with, when it comes to tailoring the portal to fit the customer.

The exploration of Shapiro and Varians framework on switching costs and lock-in has given us an understanding of some unconventional ways of looking at what motivates a customer to be loyal to a portal. This tool for reasoning about "customer commitment" was used to describe the three-step strategy, which explained to us, how Internet portal managers should build and manage an installed base in the network economy.

The study of the matrix of standards wars (Shapiro and Varian) and the different types of competitive strategies (Besen and Farrell) shed light on the issues of standards and compatibility, and my discussions of network effects and increasing returns of investment markets explain some very significant characteristics of the network economy, including how network effects can raise the value of a network and, if managed successfully, raise the value of an installed base.

The major theories and characteristics of the network economy were conveyed through a qualitative description. This description provided users with an easily accessible description of the major trends and theories of the network economy. In addition using examples of actual Internet portals helped make the pre-analysis more accessible to portal managers. It also makes the advice easier to convert into real life business decisions. Building the basis of the pre-analysis on known and respected theories like those of Shapiro and Varian help to anchor the description to the research community, and offer the readers an opportunity to explore the theories further by reading the original theories.

Although the pre-analysis of chapter 3 provided us with a wide set of tools and theories for understanding Internet portal management in the network economy, none of the theories discussed seem to provide managers with an easy tool to aid them in the launching and managing of Internet portals. The lack of a popular operationalized theory that incorporates the most important of the theories discussed in chapter 3, seems to be a significant problem. Therefore, I will attempt to put forth a model that incorporates these theories and focuses on supporting portal managers in their strategic considerations. The model that is chosen as the basis for this, is a diffusion model introduced as an early draft by Damsgaard in 2001. The draft presents the idea of a stage model to

aid managers in the launching and managing of Internet portals. In the next section, I will present this model as suggested by Damsgaard in order to evaluate whether it may be developed into a model that provides portal managers with strategic insight and advice at all stages of the launch and development of an Internet portal.

4.1 Damsgaard's Diffusion Model

Damsgaard (2001) introduces the idea of developing a stage model to analyze the use of lock-in as an Internet portal is launched and managed.

Damsgaard (2001) suggests that the number of new users of an Internet portal can be explained by a bell-shaped adoption curve, and divide this bell-shaped curve into four stages:

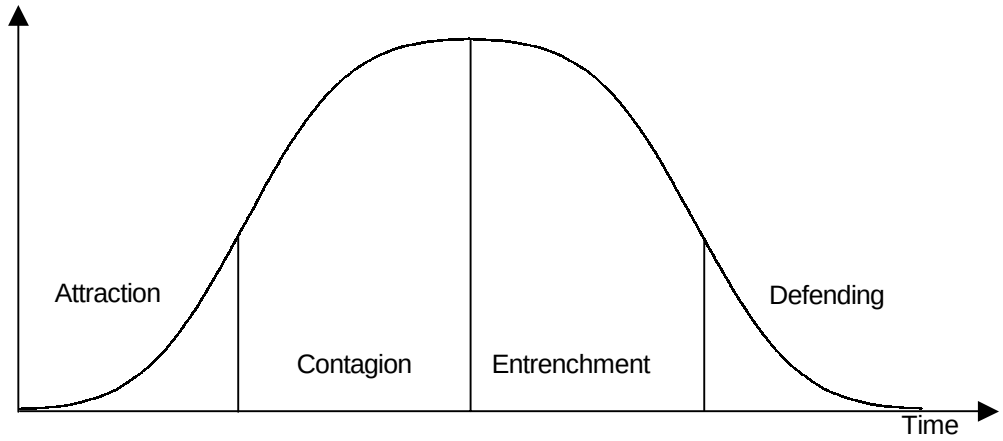

Figure 4.1: *The bell shaped curve describes the number of new customers that the portal attract in the different stages*

The integral of the bell shaped adoption curve is the s-shaped curve shown in figure 4.2. The s-shaped curve shows the entire number of users/customers as a function of time. The first stage,

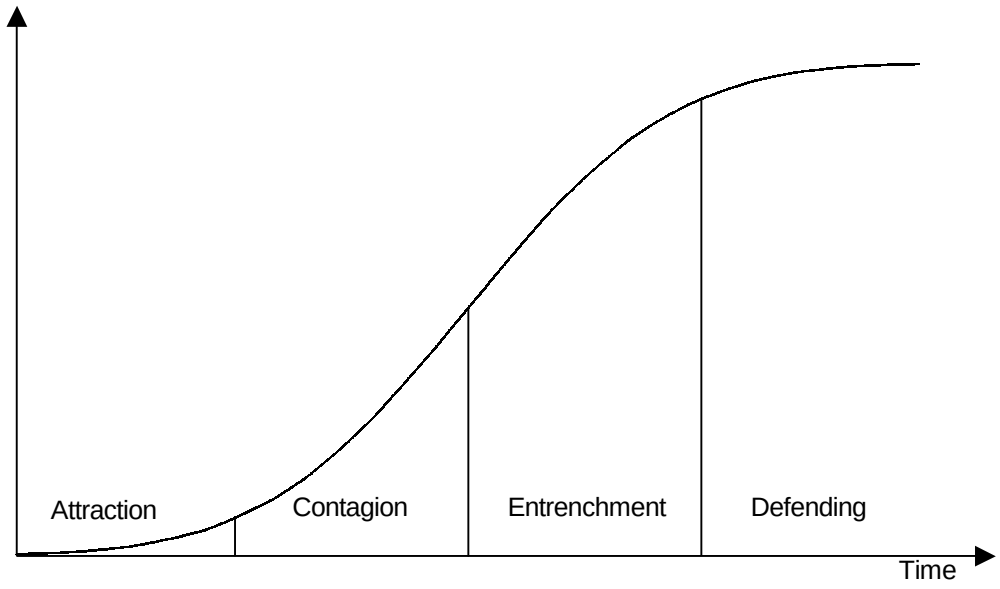

Figure 4.2: *The s-curve describing the number of customers / amount of lock in the different phases.*

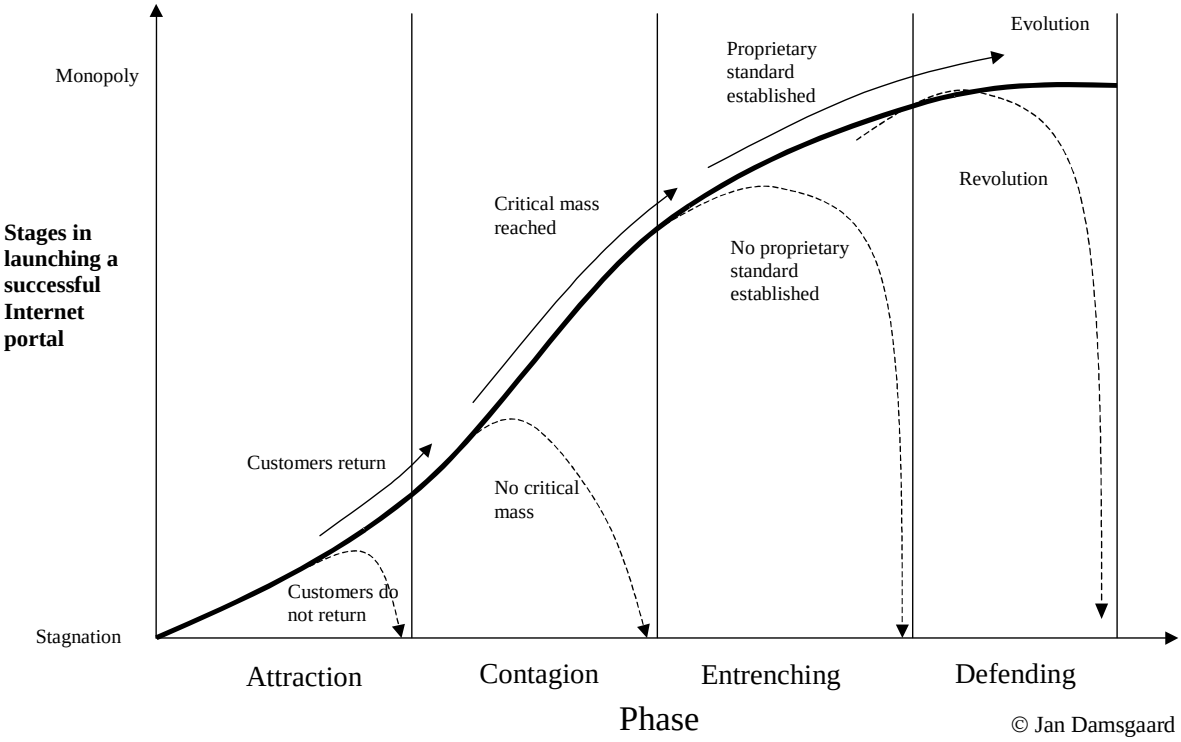

Figure 4.3: *Damsgaards description of the four phases and the crises that must be handled. The model is reprinted from Damsgaards draft from 2001 and may not be redistributed without the written permission of Jan Damsgaard*

attraction is the phase where the first customers begin to use the portal. Looking at the bell shaped curve we see, that this stage is characterized by exponential growth in the number of new customers, but as the s-shaped curve illustrates the total amount of users is still very low. The second phase, *contagion* sees growth in the number of new customers. The total number of customers increases steadily, fueled by momentum of the exponential growth in the beginning. As the portal enters stage three, *entrenchment*, the number of new customers decreases. The portal still attracts a lot of new customers, but fewer and fewer. This is illustrated by the s-shaped curve, where the total number of customers can be seen to slow down in growth. As the portal enters phase the last phase, *defending*, this is marked by a slowing down in the decrease of the number of new customers, illustrated by the bell shaped curve, leveling out. Eventually, at the end of stage four, the growth of the number of customers seizes as the portal has reached saturation.

In addition to predicting the phases Damsgaard's model also describe some crises that may arise. These are shown on Figure 4.3, which shows the s-curve in more detail.

Evaluation

The stage model suggested by Damsgaard seems to be a very fruitful way of reasoning about portal management from the launch to the saturation and lock-in of the market. The model is simple and seems intuitive. I believe that if explicated and refined, it could become a very useful tool for portal managers.

4.2 Formulation of the Problem

In the preceding chapters, and in the pre-analysis in particular, theories on portal management in the network economy were explored. While the pre-analysis explored many theories that might support portal managers in launching and managing Internet portals, it also illustrated the lack of one model that incorporates all of the most relevant theories in a simple and easy to use tool. This seams to be a likely answer to our initiating problem. Why do some Internet portals fail in the new economy, while others experience great success? Well, it is probably because they are unfamiliar with this “new” economy and there is no simple model or tool to help aid them. The main ambition of this thesis is to help develop just such a tool.

In this chapter, we have presented and evaluated Damsgaard’s diffusions model as a structure to incorporate the knowledge of portal management in the network economy, gained through the pre-analysis. Damsgaard’s model was evaluated to be a good basis for the impending development. Therefore, Damsgaards diffusion model is used as the basis for the model that will be developed in the following.

This idea is condensed in the following formulation of the problem explored in this thesis:

- How can Damsgaard’s diffusion model be explicated, refined, and operationalized in order to make it a tool for managers of Internet portals to support them in launching and managing portals successfully?

In order to address this, I will first discuss what I hope to achieve in working with Damsgaard’s model. Then I will go on to describe what methods I will use to explicate and refine Damsgaard’s model using the knowledge on portal management in the network economy that I have gained through the pre-analysis and in particular in chapter 3.

4.3 Design criteria for the model

Of the theories and models described in chapter 3 the theory that seems to be of the most value to portal managers is the three step strategy taken from (Shapiro Varian 1999). However, the three-step strategy does seem to have some disadvantages with regard to our goal with the model:

1) It is very general and offers no specific advice and examples regarding portals

2) It seems to focuses on the management of the relationship with one customer without considering the strategic considerations that affect and are affected by the installed base, as a whole.

In the re-design/refinement of the explication of Damsgaard’s diffusion model, I will try to make up for these shortcomings. In my explication, I will sacrifice generality for applicability and specific advice by focusing on portals. Hopefully this will result in more specific advice and examples that can be used in practice.

In Damsgaard’s original drafts regarding the model he suggests that the s-curve’s y axis goes from stagnation to monopoly. In my "interpretation" of Damsgaard’s model, I will let the s-curve describe the collective customer switching costs of the entire installed base, relative to the potential collective customer switching costs, that would arise, if all potential customers (the entire market) were locked-in. I have chosen this definition, because it fits well with our definition of success, from chapter 2. This

definition ensures, that we do not make the much to usual mistake of only looking at the number of customers.

My assumption that the collective customer switching costs follow an s-shaped curve during the locking in of a market is based on the statistical pattern of the bell shaped adoption model. This diffusion patters is common, and although I have no empirical evidence to support this assumption then I feel that it is a safe assumption.

Because I let the s-curve describe the collective customer switching costs I can use each of the four phases to discuss the implications that the properties of the installed base has on strategy, thus hopefully making up for the shortcoming 2) mentioned above.

4.4 Method

In order to explore the specific problem defined in section 4.2 the Damsgaard's stage model (see section 4.1, *Damsgaard's Diffusion Model*) will be explicated, extended and refined with the purpose of creating a tool to aid managers in launching and managing Internet portals successfully. This explication, extension, and refinement will be done in accordance with the design criteria discussed in the previous section, *Design criteria for the model*.

Before I begin to explore each of the stages of the model, I will discuss some of the preconditions that should be fulfilled before managers plunge into the launching of an Internet portal. This is done in order to stress the importance of thinking ahead, through the entire life of a portal in order to avoid embarking on a path that proves to be futile.

After this discussion, I proceed to address each of the four phases in turn. I will use the knowledge, that I have obtained through the pre-analysis (Chapter 2 and in particular 3) to qualitatively describe what I think will be the characteristics of each of the phases.

For each of the phases I will dedicate a subsection to the discussion of each of the following:

- The challenge faced by portal managers in the phase
- The competitive strategy that might be employed to live up to that challenge
- The crisis that not living up to the challenge will result in

This is done in order to make the description of the model more structured.

The section on competitive strategy will categorize the strategy that should be employed using the three competitive strategies, Pesky *Little Brother, Battle of the Sexes* and *Tweedledum and Tweedledee*, suggested by Besen and Farrell.

In order to make the model easy to use I will end the description of each of the phases with a summary condensing the main points of the phase in a table.

Chapter 5
Explication and Refinement of Damsgaard's Model

In the following, I will discuss the stage model suggested by Damsgaard in his 2001 draft (enclosed in this report as appendix A. I will explicate the model and hopefully refine it and make it easier to use for portal managers.

Damsgaard's stage model has four phases, the *Attraction Phase*, the *Contagion Phase*, the *Entrenching Phase*, and the *Defending Phase*. In the following sections each of the stages are discussed in turn, but first I will discuss some of the issues that are not treated in the description of each of the phases.

The scope of the model

Before launching an Internet portal, there are many aspects that should be considered and many practical things that should be handled. Unfortunately including all aspects of Internet portal success would make this model cumbersome and would defeat the purpose of this project, namely to try and develop a tool that is simple and straightforward to use. Instead, I have tried to keep the focus as defined in the previous section, *Design criteria for the model*. The model incorporates the most relevant theories without becoming too big and cumbersome.

In my explication and refinement of Damsgaard's model I will focus on the managerial and strategic decisions that are affected by the installed base as a whole, rather than decision relating to the management of the relationship with each customer. This is not to say, that the management of the relationship with each customer is not important. On the contrary, as we have argued in chapter 3, the management of the customer is the backbone of any successful portal, but tools and models like the lock-in cycle already discuss this. Therefore, this model focuses primarily on the managerial and strategic decisions that are affected by the installed base as a whole.

Preparation phase

In the following, I will mention some of the things that I perceive to be the most important for portal managers to consider, before they launch an Internet portal.

Have an idea

In this "new economy" people are so concerned with working at "Internet time" that they sometimes forget to plan ahead. Granted, the dynamics of network markets and the sheer complexity of the competitive battles, make it difficult to plan to far ahead. However, at the least, it is my opinion, that future portal managers should ask them selves: How does my portal add value to customers that they were not able to enjoy before. Either your portal should supply customers with a unique service, which was not available before, or it should supply customers with an existing service in a much better way, than previously.

If portal managers think they have an idea of a portal that satisfy these criteria, then they should make a business plan.

Have a business plan

Before an idea can become a portal, it is vital to explicate and refine this idea in a business plan. One way of making such a business plan would be to think about how the portal from the original idea will meet the challenges of each of the phases of Damsgaard's model.

As we have discussed in the last section of chapter 3, network markets display increasing returns of investments and are there fore only able to sustain one dominant competitor in the market. The positive feedback resulting from network effects will raise the value of the market leaders product, eventually allowing her to lock-in the market. Therefore, the business plan of any new portal should have as its ultimate goal to attract and lock-in the lion's share of the market they choose to compete in.

This however does not mean that there is no room for niche portals. For example, The *Vegetarian's Health Niche Bookstore* (www.nichemarket.com/health/hnbkstr.html) sells books relating to nutrition to interested vegetarians. This portal may be able to lock-in the niche market for health books for vegetarians. However the managers of *The Vegetarian's Health Niche Bookstore* would be wise to consider whether they are able to add so much unique value to the experience of buying a health book, that they can sustain this niche, and protect it against the big corporations like *Barnes & Noble* (www.bn.com) and *Amazon* (www.amazon.com), that are hoping to lock-in the entire market for on-line bookstores. Many small niche portals have already given up and *Barnes & Noble* and *Amazon* have found an ingenious way of getting control over these small portals. Both *Barnes & Noble* and *Amazon* have set up affiliate programs that allow interested parties to design their own site where they can sell books, while letting the big bookstores handle the payment and shipping of the books that are ordered at the site. For example, *The Jim Carroll Website Store* (jimcarroll.forbin.com/bookstore.asp) lets fans of Jim Carroll buy his books and movies[23]. When the customer clicks on an item she wishes to order, she is forwarded to the appropriate page on *Amazon.com*, where she can complete the purchase. *The Jim Carroll Website Store* makes money on the commissions they get every time they refer someone to *Amazon*. *Amazon* gets control of the niche and due to their size, they enjoy economies of scale that make them a cost leader. This type of arrangement is called an affiliate program and they are becoming an increasingly popular business model on the Internet. Another example of an *Amazon* affiliate niche bookstore is *Catholic Online Bookstore* (www.catholic.org/bookstore/spring_books.htm).

The increasing returns of investments nature of network markets make them tippy and sometimes they even make markets for complementary products tip with them. Therefore, any business plan should either aim at locking in most of the market or have a very good plan for sustaining a lower market share

[23] Jim Carroll is best known as a sort of post-punk cultural icon primarily because of her 1978 book *The Basketball Diaries*, and the controversial 1995 film adaptation of that book starring Leonardo DiCaprio

Have the right system and the right organization

When the business plan is ready, the portal has to be designed and developed. In developing the portal and the organization that is to manage and support the portal, it is important to think ahead of the challenges that will come, if the portal is successful in moving from the first phase to the second... third... fourth... There should be no hindrances to the growth of the portal. It is important that the technical architecture and the organization, that supports the portal, can be expanded to accommodate an increase in customers. The business plan should form the basis for predicting what functionalities the future will require of the technical system and what competences will be required of the organization and the people in it. For example, it may be vital to the realization of the business plan, that the technical system incorporate features that support customer tracking and entrenchment of customers (as described in the entrenchment phase of the model). If the system does not support these features from start, it may be very costly to add them later.

Be prepared to, and capable of investing

As Shapiro and Varian (2001) stresses, anyone unwilling to invest at an early stage in order to recoup these investments in a later phase will have a very hard time competing in the network economy. This is certainly not to say, that money should be spend without regarding the likelihood of being able to realize the business plan, but it is vital to understand, that the return on the investment (ROI) may show up at a late stage. "Running out of money" and being unable to make the necessary investments to "get the portal going" can certainly be fatal to an Internet portal.

When portal managers have created a business plan for the portal, built an organization to support the portal (now and as it grows) and a technical system capable of supporting the customer relationship management and lock-in features required by the business plan design, then the portal is ready to be launched, and the portal enters phase one – *Attraction*.

5.1 Attraction Phase

In this early phase of the model, the new Internet portal is launched. This portal may be a first mover offering a unique service thus trying to create a brand new market, or it might be a fast follower trying to catch up with the market leader by enjoying the lower costs of being a fast follower. The portal may even be a new entrant hoping to be able to compete in an existing established market. No matter whether the portal is a first mover, fast follower, or a new entrant the characterizing feature of the portal is, that it has very few (if any) customers, and no significant measure of lock-in has been established. With a brand new portal and no customers, the first article on the agenda is to attract some customers.

The challenge

In this, the first of the four phases the challenge faced by portal managers is to attracting customers and get them to use the portal. In order to aid portal managers in overcoming this challenge several ways of attracting customers are discussed in the subsection *Overcoming search costs*. In that section, we will be discussing the traditional ways of attracting customers, namely marketing and advertising, but we will also describe some alternate ways of attracting customers, that portal managers in the network economy may take advantage of.

However, simply attracting customers is not sufficient for customers to avoid the threatening crises of this phase. In order for the portal to progress into stage two, the portal must not only attract customers, but also make them use the portal on a continuing basis. We discuss this in the subsection *Getting customers hooked* where we look at some of the ways portal managers can avoid that customers merely sample the portal. If portal managers are unable to attract customers, or if they

are unable to get the customers to return, then the crisis of this phase will set in. A discussion of this crisis finishes of out discussion of this phase, only followed by a summary that states the highlights of this phase.

Overcoming search costs

Customers are difficult to attract, if their costs of switching are high. Therefore attracting customers to a portal is often a case of minimizing customer switching costs.

One of the most deterring types of customer switching costs at this point is *search costs*. Many people do not know the portal, and the ones that do, are unaware of the quality of service that the portal provides. In order to overcome these challenges, the managers of the portal must figure out a way of lowering these search costs, so that customers might like to try out the portal. There are several ways of lowering these customer search costs in order to attract customers. In the following, I will describe some of the most efficient.

Marketing and advertising

One way of lowering customers search costs is to advertise. By telling customers about the portal and the service it provides, the interest of the customer is awoken and they are suggested to try out the portal. If the marketing is good, they will try it out.

In order to attract customers ordinary marketing and advertising campaigns like TV and print commercials may be a good idea. However, explaining how to design such campaigns is beyond the scope of this project, but I will mention some of the new ways of marketing a portal, that might otherwise be overlooked.

When you are setting up a marketing campaign for an Internet portal, it is natural (and relevant) to look to the Internet. Some search engines like *Google* (www.google.com) allow website managers to add their own portal to the search space of the search engine, while others like *Jubii*.[24] require website managers to purchase keywords, so that the portal is included in the result lists, when users of the search engine query on these keywords. For example, a portal specializing in comparing prices on insurances on the Danish market might purchase keywords like “insurance” and “premium”[25]. It may also be a good idea to pay for a listing in the directories of some of the portals that are most commonly used by the target customers. For example under the category: Home > Personal Finance > Insurance. By paying for listings and keywords etc. on other portals, the portal managers increase the likelihood of customers finding the portal when they go looking for the service that the portal provides.

Another way of advertising on the Internet is the infamous banner ads that we all love to hate. While the clickthrough rate[26] on banner ads may be low, the effects of customers viewing a banner ad may be significant. This leads to the conclusion, that banner ads may be better used in so called “imaging” or branding campaigns, than in marketing campaigns intended to attract customers to a website. What advertising and marketing methods work, depend on the target customer, the nature of the portal and the specific goal of the marketing campaign.

One of the most important things when advertising and marketing your portal on the Internet is to realize and utilize the many possibilities for targeted marketing. For example, a banner ad for a new sales portal for books on computer science may attract more customers, if it is placed on a university’s computer science faculty page (E.g. www.cs.auc.dk), than if it was put on a portal

[24] Jubii is Denmark’s largest portal on the Internet and every month they are visited by more than 1,8 million different Danes (Jubii 2001)
[25] Obviously, the Danish portal would purchase the Danish translations of the words “insurance” and “premium”.
[26] The clickthrough rate is the percentage of customers that view a banner ad, that actually click it.

committed to helping new mothers (E.g. www.momsonline.oxygen.com). Some Internet websites are even so good at managing their installed base that advertisers can pay to get their ad shown to a particular demographic or group of users. For example, *Jubii* (www.jubii.dk) offer businesses to show banner ads to website users from a particular industry, e.g. Health, IT, government, education etc.

Depending on the budget of the portal that is being launched and the target market, it may be advisable to seek the help of professional marketing firms to develop a coherent and well-planned marketing campaign. However, the best results are achieved if portal managers and developers are also aware of the fact, that marketing and advertising is a priority. Everyone involved in the portal may be able to contribute to the success of the marketing and advertising. For example, developers may be able to incorporate features into the design of the portal that help support the marketing (e.g. a feature allowing portal users to tip a friend of about the portal, by sending her a postcard form the portal).

Although marketing and advertising is one of the most common ways of attracting new customers, it is not the only one. Alternate ways are discussed in the following.

Buy access to a network or a community

As I have described, marketing and advertising can be an efficient tool in creating awareness and lowering customer search costs, in order to attract them. However, I would like to suggest an alternative and slightly different way of thinking about what makes customers use a portal, and how they are attracted.

In section 3.7, *Standards and Compatibility* I introduced the concept of networks of complementary products, where each of the participants in the network are affected by the other participants in the network. For example*, MSN messenger* users are more likely to use *Hotmail* as their free web e-mail client, rather than e.g. *Jubii*, because of the synergy effects of using *Hotmail* and *MSN messenger* together. For example, *MSN messenger* will let *Hotmail* users know when they have new e-mail, but does not support integration with other e-mail systems

In order to attract customers to a portal, managers might therefore consider trying to make the portal part of a network of complementary services thus trying to leverage the installed bases of the other services to get users to use the portal.

The portal managers might also consider trying to make the portal part of the services preferred by a community[27]. By designing the portal in a fashion, that adds extra value to the experience of using the portal, if you are part of a certain community, portal managers may be able to successfully link the portal with the community.

An excellent example of how a portal can be connected to a community of people with a common interest is *BowieBanc* (www.bowiebanc.com). *BowieBanc* is an on-line bank committed to David Bowie fans. One of the features of special interest is the opportunity to get a debit card decorated with a picture of David Bowie on the front (see figure 5.1). The managers behind *BowieBanc* have succeeded in connecting the credit card with the community of David Bowie fans. By doing this, BowieBanc becomes interesting to a particular community and can thus hope to win the loyalty of the people who make up the community. By linking a portal to a community of potential customers, portal managers may be able to instill a preference for their portal, rather than the competitors.

[27] In this project I will use the word community in the sense: A group of people having common interests. E.g. the scientific community.

Figure 5.1: *David Bowies face on the face of the BowieBanc debit card*.

The following example does not concern a portal, but illustrate how the loyalty of a community of people with common interests may be bought. The gasoline company *Metax* promises customers from Aalborg, that when they are pumping gas at *Metax's* service stations, a small percentage of the cost of each liter of gasoline will go to the local soccer team, *AaB*. In addition, *Metax* sponsors *AaB*, and has paid to have their logo on *AaB's* team jerseys. By sponsoring *AaB* and more specifically by letting fans give to their local team, while they are buying gasoline, *Metax* has succeeded in buying the loyalty of the community of *AaB* soccer fans. To put it in another way, *Metax* has pays *AaB* to be part of the network of complementary products preferred by the community of *AaB* fans. Now one might think, that when *Metax* supports one team over another, this might make *Metax* unpopular with the opponent's team, but *Metax* has certainly thought of this. While *Metax* sponsors *AaB* and markets itself in Aalborg as supporters and sponsors of *AaB*, *Metax* markets itself in Copenhagen as supporters and sponsors of a team from Copenhagen. *Metax* has based their entire marketing campaign on local advertisements in local papers on the local TV channel or on billboards set up locally in order to avoid soccer fans from Copenhagen figuring out that *Metax* is no more loyal to their local team than to *AaB* (and the other way around). By avoiding advertising through national channels like the national TV channel or national papers and magazines, *Metax* has purchased the loyalty of communities with directly opposite interests. This is possible because, while soccer fans in Aalborg are pleased to support *AaB* every time they fill up the car with gas, they are unaware that *Metax* sponsors their opponents from Copenhagen as well.

Leveraging a competitive advantage

Sometimes managers launching a portal into a new market are in the lucky position of having competitive advantages that they can leverage. For example, the talk show hostess Oprah Winfrey had a huge advantage, when she launched her women's portal called *Oprah.com* (www.oprah.com). She already had millions of faithful viewers constituting an enormous community, that she could leverage to make the website a success. By referring to the website during the show and by encouraging viewers to check out the website, Oprah leveraged the advantage of being a known brand and having a great complementary product (the show) to attract customers to her website. Oprah has effectively created a network of complementary products, including the show and the website.

Bricks and mortar firms like *Barnes & Noble* (www.bn.com), *KB Toys,* and *Toys'R'Us* also enjoyed huge advantages, when they launched on-line offshoots in order to challenge pure play[28] web companies like *Amazon* and *eToys* (www.etoys.com). The discussion of the success (or failure) of bricks and mortar companies is often very shallow and the distinction between the on-line ventures of bricks and mortar firms and pure play online shops is often considered very groundbreaking. In my opinion,

[28] Pure play online shops are online shops, that do not have a bricks and mortar business.

bricks and mortar companies are merely online companies with a set of competitive advantages, that they may be able to leverage. Competitive advantages like a brand name and network of bricks and mortar shops may be used to attract new customers, thus linking the bricks and mortar business with the on-line portal. For example, *KB Toys* might use their bricks and mortar stores to advertise for their portal www.kbkids.com.

Potential competitive advantages might include: having an installed base of customers (in their bricks and mortar stores), having a complementary product (the bricks and mortar stores), having a bricks and mortar network of shops (cost advantage, when it comes to shipping and delivery). In each case, time will show whether the competitive advantages enjoyed by the bricks and mortar firms are more significant than those enjoyed by the pure play on-line companies. Today *Amazon* has taken over *Toysrus.com* and made it part of *Amazon.com*, while *KB Toys* have taken over *eToys*.

An existing portal can also leverage its installed base to attract customers to a new portal or service provided by the same company, but this discussion is deferred to the discussion of the last phase, *The Defending Phase* where we will see this situation arise.

As we have seen, any manager launching a portal will be wise to consider what competitive advantages the portal might have and how these advantages may be leveraged in order to attract customers.

Getting customers hooked

The great challenge of this, the first phases of the four is basically to attract customers. Will the advertising and marketing campaigns make customers try out the portal? Do the potential customers perceive the switching costs so high as to discourage them, or have the managers succeeded in creating an easy migration path? Attracting customers can be difficult and often portals have to fight hard, to get customers interested. But how much should portal managers spend in order to attract customers? While this phase is very important and does justify significant spending in order to attract customers, it should not be confused with locking in customers. Many companies (E.g. gubi.dk – see section 3.6, *A Three Step Strategy*) seem to think, that as soon as customers have tried out the portal, they are locked in. This is not the case and therefore attracting customers does NOT justify the same amount of spending pr. customers as is appropriate, when sweeteners and discounts are used to lock in customers. Therefore, portals should be weary of to expensive marketing campaigns that make the portals run out of (venture capital) funds, before the customers are locked in. At this stage, giving away products that cost the portal money like free books or toys is usually inappropriate, while giving away products and services with a near zero marginal cost may be reasonable. For example, letting the customer try out a news service free for one month seems reasonable, if it will help the portal to attract new customers.

Launching and managing a successful marketing campaign may get customers interested in trying out the portal, but to count on the sheer uniqueness and quality of the portal, to get the customers to return would be naive.

When customers are attracted to the portal by the marketing campaign, the portal should be ready to welcome them and greed them in way, that eventually becomes an incentive for the customers to return. Although switching costs for customers switching to the portal should be minimized in this early phase, measures should still be taken to sow the first seed of lock-in. Chances are, that if customers have been affected by the marketing and have logged on to the portal, then they will probably also be willing to accept a small measure of lock-in. For example, customers can be requested to register for a free membership before they enter. This might result in the customer entering name and e-mail address (and perhaps more) and thus the customer has already begun to lock herself in. Another way of initiating customer lock-in is to get the customer to answer a few questions (E.g. Where are you from? What is your age? Etc.) before she enters, allowing the portal to

be tailored to the customer. In this way, the customer has already, during her first visit, trained the portal, to know some of her specific preferences. It might not even be necessary to ask the customer, in order to specialize the portal to the customer. For example, new customers using *Google* (www.google.com) are forwarded (without explicit notice), to the national version of their site (e.g. www.google.com/int/danish) and are thus greeted in their own language. Information about the nationality of new customers is extracted automatically from the web server, without the notice of the customer.

By initiating a small measure of lock-in portal managers support their investment in attracting customers (marketing) and increase the likelihood of these newly attracted customers become returning customers, not just samplers.

If the portal is unique or very competitive, and if the advertising and managing campaigns are successful, then customers will be attracted. If small measures of lock-in is also successfully initiated, then many of the customers will even return. Leveraging the small installed base of customers, and getting the awareness of the portal to spread is the challenge of the next phase, the *Contagion Phase*.

Competitive strategy

As I have discussed above, focus is on attracting customers, and in the network economy, a big part of this may be to get your portal to be part of networks[29]. Because the portal has no installed base to leverage at this time, focus should be on becoming part of networks and not on introducing proprietary standards. Using the framework introduced by Besen and Farrell (section 3.8, *Strategic Considerations*) we can categorize this as a *pesky little brother* strategy. If you are a first mover you may try to establish your own standard, but you will be wise to ensure, that this standard leaves potential customers with an easy migration path to your product. If you are a fast follower or a new entrant, it will be wise to try and either copy the competitors service or make your service compatible with the market leaders, again leaving your customers with a migration path to your product.

For the same reasons you should not fight hard to avoid competitors copying your service or making their services compatible with yours. The focus in this section is on *lowering* switching costs and in order to lower the switching costs of customers being attracted to your portal, you may have to lower the switching costs of customer wishing to switch from you service. Obviously any portal manager should always try to hang on to her customers, but the important thing here is to not become greedy and impose to great switching costs through e.g. proprietary standards at this early time. For example, some say, that this is what happened in the case of *IBM* compatible computers versus *Macintosh*. While *IBM* allowed third parties to produce compatible products, *Mac* imposed stringent property rights and ensured a proprietary architecture that did not allow third parties to produce computers that were compatible with the *Mac* computers. The *IBM* compatible network grew faster because of the open standards, and eventually this caused *IBM* compatible computers to lock in the market for personal computers. Today the *IBM* compatible architecture has evolved into the Wintel (*Microsoft Windows* and *Intel*) architecture. *IBM* has lost control of the architecture, while still sustaining a big part of the market, while *Mac* has a fairly small "niche" installed base over which they enjoy great control due to their proprietary interfaces and standards[30]. Time will show if *Mac* installed base is locked in well enough for *Mac* to sustain their market share, or whether the network effects of the Wintel architecture will allow it to expand to include *Mac* market.

[29] As I have now explained the concept of networks of complementary products (section 3.7, Standards and Compatibility) and networks of people with a common property that binds them together (like the soccer fans mentioned earlier in this section) I will no longer explicate this, but merely refer to all of such, as *networks.*

[30] Macintosh's installed base is based on a tradition of using Macintosh within the creative industries and educational institutions.

The crisis

As we started out discussing at the beginning of this section, the main challenge of this phase is attracting customers and getting them to return. Several ways of attracting customers were described in the subsection *Overcoming search costs*. We saw how marketing and advertising can be a way of lowering search costs in order to make customers interested in the portal. We also discussed how linking the portal to a network or a community can be an alternate, but very effective, way of attracting customers to the portal. In the subsection *Getting customers hooked* we discussed how initiating the first small measure of entrenchment can create an incentive for the customer to return. Getting the customer to register or tracking the customer's behavior were introduced as two concrete ways of achieving this. A discussion of how the *pesky little brother* strategy can be employed in order to make it easier to attract customers was also introduced.

If the portal managers are still unable to attract customers and get the to return to the portal, then a crisis sets in. With a tremendously high burn rate[31] due to the marketing and advertising budget, this phase is not sustainable in the long run. If the portal managers are unable to attract customers – either through advertising or marketing or by linking it to networks or communities then the portal will fall into oblivion. Because the portal has no users no network effects arise and no one hears about the portal from others.

Once the portal has failed at such an early phase, it will be very difficult for portal managers (and the rest of the organization) to get the motivation to try again. An even bigger problem may be finding the capital to try again. Investors will be difficult to convince since the first attempt failed.

Many portals do however succeed in attracting customers, but fail at getting the customers to return. If the portal is not designed in a way that ensures that the investments to attract customers result in the customers making some kind of commitment to the portal, then the portal will be in a very fragile position. Some portals may be able to attract and retain customers simply because of their unique service and their good service, but most portals will not. Even if the portal is able to attract and retain customers the portals installed base is totally unprotected and thus lends itself very easily to a hostile raid from a pesky little brother.

The main characteristics of this phase, and the recommendations of this phase are condensed in table 5.1 on the next page.

[31] Burn rate refers to the rate at which money and resources are being spent on living up to the challenges the portal faces

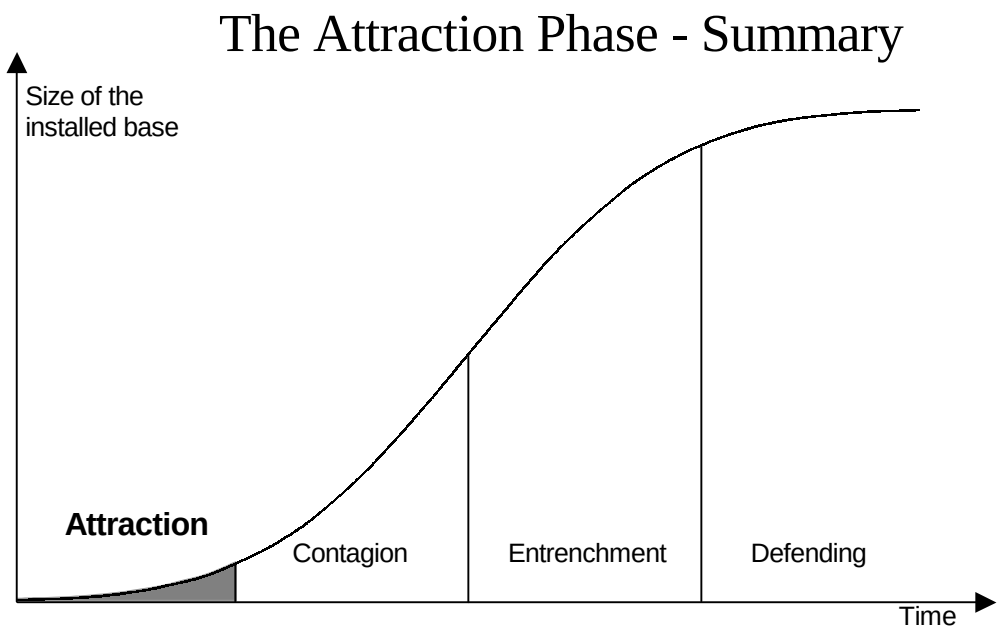

Figure 5.2: *The graph shows the placement of the attraction phase in Damsgaards stage model*

Characteristics	
Installed base:	Small
Lock-in	None to low
Cost of attracting customers	High
Burn rate	High
Challenge	Attracting customers and getting them hooked
Threatening crisis	Customers never come or don't return
Recommendations	
Focus	Attract customers and get them hooked
How?	Attraction: Advertising, marketing, link to networks and communities Hooking: Prompt user to enter info or train
Competitive strategy	Pesky little brother

Table 5.1 *The characteristics and the appropriate recommendations of the attraction phase*

5.2 Contagion Phase

As the portal enters the second phase, the managers of the portal have handled the first challenge, namely attracting customers, and getting them hooked. It may not have attracted many, and there is usually no substantial lock-in, but never the less these new customers constitute an asset.

The challenge

In this, the second of the four phases the challenge faced by portal managers is to reach a critical mass of users and usage. Thus, as in the previous phase, the challenge is twofold. The portal must attract enough customers for the portal to reach critical mass and in addition to this, the portal must get these customers to user the portal enough for critical mass to be reached.

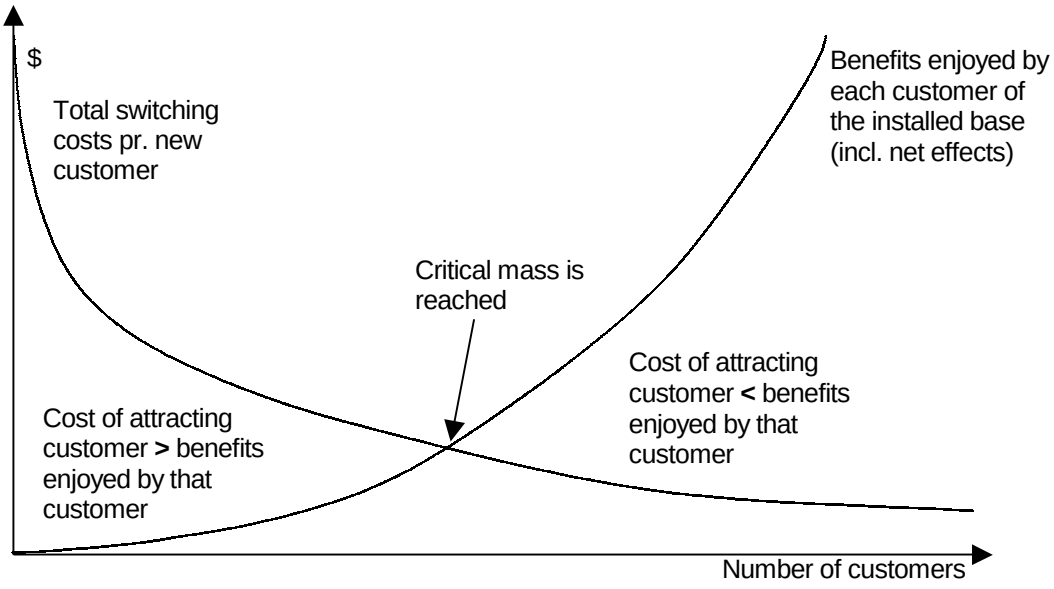

Figure 5.3: *The figure shows the typical shapes of the graphs for the total switching costs pr. new customer and the benefits enjoyed by each customer of the installed base. The point of critical mass is indicated.*

Because most Internet portal markets are increasing returns markets, the investments necessary to attract customers shrink as the installed base grows. If the portal is able to sustain this growth then the installed base will eventually reach critical mass. At this point, the benefits (including the positive network effects) enjoyed by members of the installed base become higher than the total switching costs (see figure 5.3). Beyond this point, the customers will (generally) be willing to incur any supplier switching costs because they are low compared to the benefits of being part of the installed base.

In the subsection *Leveraging the first sampling customers*, we discuss some of the advantages that the portal enjoys compared to when it was in the first phase. We also look at how the customers attracted in the first phase can be leveraged in order to attract more customers. We go on to discuss the concept of viral marketing as a method of supporting the natural network effects that arise naturally as a result of the growing installed base.

In the subsection *Obtaining critical mass*, we discussed some ways of redefining the scope of the portal in order to improve the likelihood of reach critical mass.

In order for customers in installed base to have a positive influence on the network effects stemming from the network effects, the customers need to sustain a certain level of use. In the subsection

Active users please! we look at some ways to try and get customers interested in increasing their use of the portal.

If the portal managers are unable to reach the point of critical mass before they run out of funding, then a crisis sets in. The discussion of this crisis finishes of our discussion of this phase, only followed by a summary that states the highlights of this phase.

Leveraging the first sampling customers

In *the attraction phase*, investments had to be made in order to attract customers and because the portal has not yet reached critical mass investments are still needed. As in the attraction phase the focus is on hooking the customers when they are first attracted, in order to ensure that they return.

Finding the most cost efficient way of attracting customers may make the difference between having enough money to almost reach critical mass and to reach critical mass. Therefore, it is important that portal managers try to leverage the advantages that they have attained since the attraction phase.

As opposed to when the portal was first launched, the marketing and advertising has hopefully created an awareness of the portal. Most people may have heard the name, and seen the advertising, but they have not themselves tried out the portal. If the portal delivers creative new services of a good quality, then the customers that are sampling the portal will help attract new customers by their positive attitudes towards the portal. They may tell their friends how satisfied they are with the portal, or they might even suggest, that their friends try it.

These network effects all arise naturally, as the result of marketing and a small installed base, but alone and unmanaged, they may not be strong enough to achieve the critical mass of users, that is necessary for the portal to enter the third phase. Therefore, activities and initiatives, that help support and manage these network effects, should be initiated. For example, it may be a good idea to make it easier for customers that are thrilled with the service, to tip a friend about the portal. A good example of this is *Feriebolig.dk* (www.feriebolig.dk). *Feriebolig.dk* has incorporate, into the design of their portal, a web page where customers can enter their name and the e-mail address of a friend that they think would be interested. Subsequently an e-mail will be sent to the friend, telling her about the site, and informing her which of her friends initiated the e-mail.

Another example of how the naturally arising network effects can be supported is the many sites that let customers send a postcard to a friend (e.g. *HK's*[32] website, www.hk.dk). Often these postcards not only convey the message decided by the user, but carry an additional message, predetermined by the website it was sent from.

By incorporating these feature into the design of their portals, the managers of *Feriebolig.dk* and *HK.dk* has made it easier for satisfied customers to convey their enthusiasm to others, thus hopefully strengthening the network effects stemming from happy customers[33]. The *tip a friend* feature and the *send a postcard* features support the network effects that arise naturally. This resembles a concept known as *viral marketing* that will be discussed in the following.

Viral marketing

The concept *viral marketing* is often used to describe the type of spam e-mails that prompt receivers to forward the e-mail to a number of friends in order to get a free gift. The concept, however, is

[32] HK is a Danish labor union

[33] The reason why this kind of feature only strengthens the network effects of happy customers is that the feature *tip a friend* doesn't alow the customer to decide what the "tip" is to say. It merely sends a standard message like: I think you should check out Feriebolig.dk – it's really great.

broader than this, and covers all activities where marketing is done by the customers themselves spreading the information in order to achieve some benefit. An excellent example of viral marketing is *Microsoft's* messenger service, *MSN messenger*. One customer, let us call her A, at *MSN messenger* may like to chat with one of her friends, let us call her B. In order for A to chat with B, B needs to have *MSN messenger* installed too. Therefore, A has an incentive to convince B to install *MSN messenger*. When B installs *MSN messenger* she may like to chat with her friends C and D and thus *MSN messenger* spreads like a virus (thus the name *viral marketing*). In order to support the spreading of *MSN messenger*, *MSN* lets A "invite" B to download *MSN messenger* by sending a pre-configured e-mail to B asking her to download the messenger, so that A can talk to her.

A very classical example of viral marketing is the spreading of the packaging software, *WinZip*. The main functionality of this software is to allow users to compress files that they wish to transfer to a removable media (Floppy disk) or make available for download on the Internet. As users of *WinZip* make files available to others, and these files are transferred to people who are not using *WinZip*, these customers are forced to download *WinZip* (or a compatible program) in order to unpack the files.

Viral marketing can be very effective, but should be used with caution (especially e-mail viral marketing), since some people are offended by e-mails offering discounts and cheap bargains. Experience has shown, that customers that are tricked into being customers are very resentful and eventually end up not contributing anything to the portal.

Obtaining critical mass

As we have discussed, the sustained success of any portal is contingent on the installed base reaching critical mass. We have discussed some of the ways that portal managers can try to get the most out of the resources they have available. We have also discussed how external events in the competitive environment can shift the point of critical mass making it more difficult to reach. Because the return on investments may not arise until after the point of critical mass, very large investments may be needed to get there. Many portals have blamed their demise on the fact that they ran out of cash (venture capital) and where unable to raise enough money to push the portal through to the point of critical mass. In order to avoid this unfortunate situation portal managers should consider the following:

- What amount of customers will be enough for critical mass?
- When will this amount be reached?
- What will it cost to get there?

Obviously, it is not as simple as that, but fundamentally, these are questions portal managers need to answer in order to determine whether they will be able to make the portal successful. If the answers to the above questions, and the investment capabilities of the portal managers do not match up, then the portal managers must rethink their strategy in order to redefine their portal in a way that allows it to reach critical mass before they run out of resources. One way of doing this is to consider what services the portal should provide, and what customers the portal should try to attract. A portal can be characterized by its *horizontal* and *vertical span*. The horizontal span of a portal indicates the width of its field of operation. Some portals have a narrow horizontal scope (e.g. *Fridgedoor.com* focusing on selling fridge door magnets), while others have a broader scope (e.g. *Amazon* selling virtually anything). While the horizontal span of a portal indicates the width of its field of operation, the vertical span indicates the width of the community that the portal is targeting. A portal may have a narrow vertical span, targeting a very specialized community (e.g. BowieBanc targeting the community of David Bowie fans), or it may have a broader span, targeting a less distinct community (e.g. Hotmail targeting virtually all e-mail users).

Now if a portal has trouble reaching critical mass redefining the scope of the portal helps it to achieve critical mass. By narrowing the span of the portal (vertically or horizontally), portal managers may be able to redefine their target market in a way that allows them to reach critical in a niche market, rather than to fail at reach critical mass in a bigger market. In many ways, this discussion resembles the very common business dilemma of diversification versus specialization. By focusing on core competences and business, portals may have an easier time succeeding in that field. Take for example *AltaVista* (www.altavista.com). *AltaVista* realized, that they had lost the battle for critical mass in the market for general Internet portals, because competitors like *Yahoo*! (www.yahoo.com) and *AOL* (www.aol.com) had more success in attracting customers (Risom 2000). In order to stay in business (reach critical mass), *AltaVista* has now cut of all other services and are focusing on what they perceive to be their core competence, namely being a search engine. Thus by narrowing their horizontal span *AltaVista* is hoping to be able to reach critical mass in the market for search engines, rather than being edged out of the market for general portals that aim to be the starting point for anybody looking for anything.

Many portals fail at obtaining critical mass because they have defined their portal too broadly. Having too large a horizontal span will result in the portal not being able to sustain a high enough quality of service, because offering other services take up to many resources. While having too large a vertical span will result in the portal no being able to add enough value to the members of the service. If the target community is very big, then the portal will have a difficult time specializing the offered service to each of the customers. The point here is, that it is better to be a great portal to a small community, than a mediocre portal to a large community.

Active users please!

As mentioned in the beginning of this subsection a user is only a user, if she uses the portal regularly. The positive network effects that push the portal through past the point of critical mass stem from active users that are committed to the portal, not users that use the portal once and then forget about it.

In the discussion of the first phase, *attraction* several methods for initiating lock-in were discussed. These included getting the customer to register and tracking the customer's behavior and tailoring the portal to fit him. In this, the second phase these activities must be extended in order to, not only get customers to return, but to get them to increase their commitment. The customer should continuously be given a reason to, not only return to the portal, but to extend her use of the portal. If the customer uses one service continuously, then it is safe to assume, that she is committed to that service. If this is the case, then the customer should be informed about new features or complementary services that she might be interested in. By continuously informing the customer of new services and functionalities that are relevant to the services she already uses the user may be tempted to increase her commitment to the portal by expanding the range of services she uses. For example, *SpeedyTomato* (www.speedytomato.dk) sent en e-mail to many of their users in May informing them, that a chat had been added to the website. E-mails regarding new functions and services should be customized to fit the customer they are sent to, so that the customers only get information about services, that they may be interested in. This minimizes the negative effects that e-mails sent to customers may cause.

Competitive strategy

Since this phase focuses on growing the customer base, it will in most cases be to early to introduce proprietary standards or initiate measures to lock in customers that may have a discouraging effect on new customers. In order to get the most out of the network effects discussed earlier in this section the switching costs of customers switching to the portal should still be minimized. The focus is on reaching critical mass and thus anything that can be done to increase the size of the network of users using your portal and technology, should be done. This may even mean joining up with competitors.

By agreeing on standards and technologies, making portals compatible, two portals may be able to achieve the network effects stemming from a larger installed base, than their own.

When *AOL* and *Microsoft* saw, that their instant messengers where not able to compete with the first mover, *ICQ* they decided to join up. To start with all the instant messengers where incompatible. None of the users of one of the messengers, where able to chat with any of their friends, that where using a different messenger. Because *ICQ* had the largest installed base most customers could chat with more friends on *ICQ*, than on the other messengers. *ICQ* had reached critical mass and was hoping to tip the market. Hoping not to be edged out of the market *AOL* and *Microsoft* decided to make their messengers, *MSN Messenger* and *AOL Instant Messenger* (*AIM*) compatible. The users of *AIM* where allowed to chat with those of their friends that where using *MSN messenger*, and vice versa. Making the services compatible resulted in *MSN* messenger users and *AIM* users being able to enjoy the network effects stemming from their combined installed base, rather than just from one of them.

Besen and Farrell (section 3.8, *Strategic Considerations*) refer to this case as employing a *battle of the sexes* strategy. Portal managers would like their own standard to prevail, but are much more preoccupied with reaching critical mass, than introducing proprietary standards. The portal does not have a large enough customer base to edge out the competition, without a significant chance of loosing so reaching critical mass is contingent on the portal being compatible with whatever becomes the de facto standard. Agreeing on a standard with other market players increases, the likelihood of that standard become the predominant one, and thus helps the network of portals employing that standard to attract new customers.

If the portal managers succeed in leveraging the small installed base of customers attracted in the first phase by supporting the natural contagion, then the customer base will soon begin to grow. This is the so called band-wagon effect or ketchup effect, describing how a few customers that are satisfied with the portal will help attract many new customers. If in turn, the portal managers are also able to make the right alliances and business decisions in order to ensure, that their portal becomes part of the de facto standard, then the portal has a good chance of reaching critical mass.

However, critical mass is not a predetermined percentage of number of customers. Because switching costs (and attraction costs) are dynamic, so is the point of critical mass. This also means, that factors like new competitors fighting aggressively for customers or new migration paths to competing portals may switch the balance, pushing the portal back into the unstable state before critical mass (e.g. the *AIM* and *MSN messenger* vs. *ICQ* example mentioned previously). This illustrates the importance of moving on to the next phase, *The Entrenching Phase* and locking in customers as soon as critical mass has been reached.

The crisis

In the beginning of this section we discussed the challenge of this phase, namely to reach a critical mass of users and usage.

Because of the tippyness of Internet portal markets it is difficult, if not impossible, to sustain a small market share over time without reaching critical mass. Before reaching critical mass, the costs of attracting a customer are larger than the benefits this customer can expect to enjoy by joining the installed base. Therefore, the portal managers will have to invest in order to attract customers. On top of this, portal managers may also have to invest in order to retain their existing customers and keep them active.

In the subsections *Leveraging the first sampling customers* and *Viral marketing* we discussed methods for leveraging the customers attracted in the attraction phase in order to reach critical mass. In the subsection *Obtaining critical mass*, we discussed how defining the scope of the portal correctly can be a very effective tool in helping the portal to reach this critical mass. In the section *Active users*

please! we discuss the need for the customers to be active users of the portal. We also considered some ways of getting customers to become more active. In the subsection *Strategic considerations* we explained how employing a *Battle of the sexes* strategy may contribute to the portal reaching critical mass. In particular we saw how agreeing with competitors to endorse the same standards will make the networks of users grow, increasing the likelihood of critical mass being reached.

If the efforts to attract new customers and get existing customers to increase their use are not sufficient for pushing the portal though past the point of critical mass fairly fast, then the portal may end up spending all of its funds just trying to sustain the status quo. *This* is the crisis of the contagion phase. Playing this game without winning fast will get you broke. If the plan for achieving critical mass turns out not to work as well as expected and the portal managers are unable to obtain critical mass on schedule, then the prolonging of the unstable phase before the critical mass point will cost the investors dearly, spending precious money that could have been used to reach the critical mass point.

The main characteristics of this phase, and the recommendations of this phase are condensed in table 5.2 on the next page.

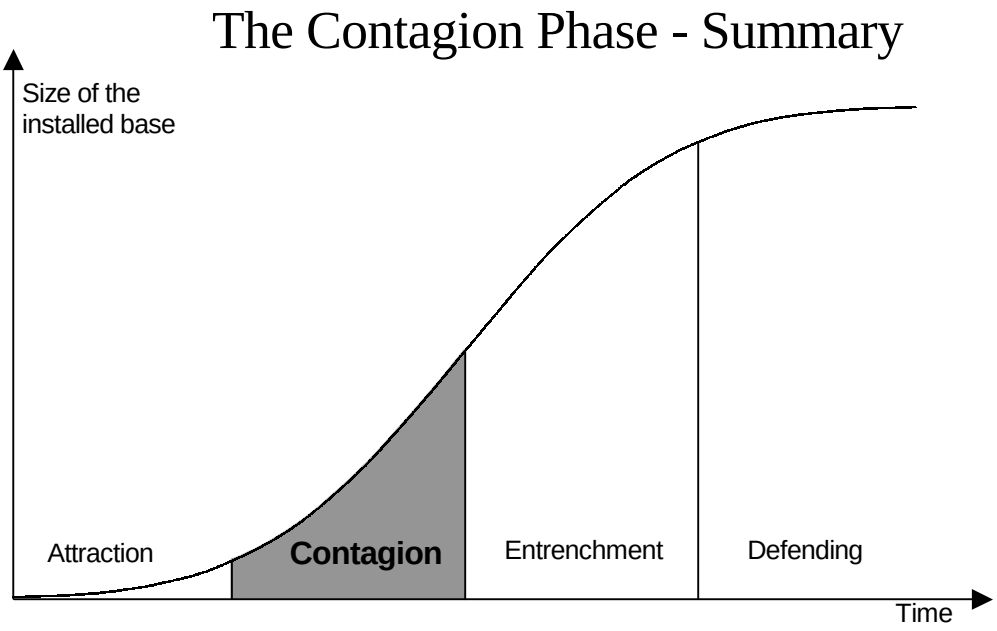

Figure 5.4: *The graph shows the placement of the contagion phase in Damsgaards stage model*

Characteristics	
Installed base	Mediocre
Lock-in	Low to moderate
Cost of attracting customers	Medium to low
Burn rate	High
Challenge	Reaching a critical mass of users and usage
Threatening crisis	No critical mass + high burn rate => broke
Recommendations	
Focus	Attract more users and get existing users to use more services
How?	Support the contagion (to other services and to new people)
Competitive strategy	Battle of the sexes

Table 5.2 *The characteristics and the appropriate recommendations of the contagion phase*

5.3 Entrenching Phase

As I explained in the previous section, the transition from *the Contagion Phase* to *the Entrenching phase* marks the point where the installed base of customers reaches critical mass. New customers are now being attracted without the portal having to invest to achieve this (although it might be a good idea to keep investing to boost the flow of new customers).

The challenge

At this point, the portal has the potential to tip the market because it is experiencing positive increasing returns of investments. Nevertheless, if customers are not properly locked in then a competitor employing a pesky little brother strategy may be able to steal customers from the installed base. Therefore the challenge of this, the third phase is to entrench customers thus effectively locking in the installed base.

The subsection *Entrenching the customer base* describes three methods of incorporating entrenchment into the design of the portal. The sub section *Competitive strategy* describes how getting customers to use proprietary standards and technologies can lock in the customers.

Are they really your customers?

At this point in the life of a portal, a large customer base has been established. The standards, that the portal are build around are generally accepted as the de facto standards and are used by most of the major competitive forces in the market. This, and the large installed base of customers, has created considerable network effects that the customers enjoy. Certainly, the customer base is a valuable asset at this point and the obvious next question is: How do portal managers best protect and exploit this asset?

A common mistake is to rely on the loyalty of the customers, and then just try to exploit the many customers. However, the fact, that customer lock-in is still fairly low makes the installed base vulnerable to raids from competitors.

A good example is the browser war of the late 1990's. *Microsoft*, *Netscape* and some smaller companies were fighting to make their browser software the most popular way for customers to connect to the Internet. At one point *Netscape's* browser, *Navigator* enjoyed a market share of around 80% and most analysts were ready to declare Netscape the winner of the browser war. *Microsoft's* browser, *Internet Explorer* had a much smaller market share, but enjoyed a dominating market share of the market for operating systems. *Microsoft* chose the strategy of the pesky little brother and made *Explorer* 100% compatible with the market leader, *Navigator*. This made it easier for any potential new customers to switch from *Navigator* to *Explorer*. At this point, most customers had a preference for *Navigator*, but no great switching costs, because *Explorer* was made to be compatible with *Navigator*. In the time to follow, *Microsoft* leveraged their dominance in the market for operating systems by pre-installing *Explorer* free with every new computer sold with the *Windows* operating system pre-installed. Customers buying new computers or a new copy of the *Windows* operating system might still have a preference for *Navigator*, but because *Explorer* was pre-installed and came with all sold copies of the *Windows* operating system fewer and fewer customer chose to go to the trouble of downloading *Navigator* and installing it. Since the browsers were very alike and very compatible, most users just did not think, it was worth the extra hassle to get and install *Navigator*. Over a fairly short period, *Navigators* installed base migrated to *Explorer* and eventually *Microsoft* became the market leader for browsers.

What went wrong? Apparently, *Netscape's* customers were not properly locked in to *Navigator* and thus did not have to incur any significant switching costs, as they migrated to *Explorer*. As *Microsoft* was able to leverage another competitive advantage (dominance in the market for operating systems), customers were quickly convinced to switch to *Explorer*.

In order to avoid loosing it's newly acquired customers, *Microsoft* began to build switching costs for their new *Explorer* customers, thus slowly but surely locking them in. Proprietary standards like special editions of *Java*, *Java Script*, and *JScript* were introduced and due to *Explorer's* newfound dominance in the browser market, they were swiftly adopted as de facto standards. *Microsoft* also integrated *Explorer* with their other software like *Windows* and *Office* to create dependencies that today makes it very costly for customers to switch to an alternate browser. In this way *Microsoft* has entrenched it's installed base, protecting it from raids like the one *Microsoft* performed on *Netscape's* installed base.

Much can be learned from the browser war example: A customer base is a valuable asset, but as long as it is not locked in, it is very vulnerable. A competitor with a competitive advantage (e.g. a bricks and mortar business or a brand name or a large installed base for a complementary product) may be able to steal the customers from the portal if they are not properly locked-in.

The challenge of this, the third phase of the model, is to leverage the advantages of having a large installed base to lock in these customers by creating switching costs that entrench them.

Entrenching the customer base

As we have mentioned before the customer base, that a portal has established at this point, is a very valuable asset. This creates many competitive advantages for the portal. For example, the customers of the portal enjoy the network effects that come with using the market leaders product. They may also enjoy benefits stemming from using technologies and architectures that have been established as the de facto standards. These advantages must be leveraged in order to lock-in the installed base, thus securing the valuable asset, which is the installed base.

For customers to use the portal, is a commitment to the portal in itself, but in order to entrench customers, they must be required to reaffirm this commitment. As we have discussed in section 3.4, there are many ways of getting customers locked in, and all of these constitute a reaffirmation of the customers commitment to the portal and thus helps to entrench the customer. However not all of these types are equally good, when it comes to entrenching portal users. Whereas *durable products* lock-in fades over time, there are several other types of entrenchment that increases over time. These are called cumulative switching costs, and cumulative types of lock-in, because they increase over time (whenever the customers uses the portal). Three of the best and most practically usable ways to build such cumulative switching costs is to requiring customers to either *train the portal more*, *train them selves more* or *give the portal more information*. In the following each of these three ways of creating cumulative lock-in are discussed in turn.

Getting customers to train the portal

By tracking customers valuable information about the customers can be gathered. For example, information about the customers' interests, preferences, and their patterns of usage may. The web server can then be set up to tailor the portal to the customer, based on the information that could be gathered. In addition to these indirect and subtle ways of training the portal, customers can be prompted more directly to train the portal. For example, users can be asked to pick categories that interest them or to choose what kind of layout they would like for the home page of the portal. This is all information that should be utilized to create a service that is tailored to the customer. By, bit by bit, requiring the customer to train the portal, the portal becomes alert to the interests and preferences of the customer, and in a word: specialized. Should the customer ever choose to switch to an alternate

portal, then the training of the portal will be all for nothing, and the new portal will have to be trained all over.

Amazon uses this way of entrenching customers very effectively. Customers using *Amazon* are tracked, so that all queries and purchases are stored and used to tailor the service of the portal to that particular customer. For example, queries regarding an old book by Stephen King will alert the portal, that the customer may have an interest in books by Stephen King. Subsequently the customer may find, that many of the “special features” and “weekly offers” she is presented with, in each side of the portal, are "colored" by her “presumed” interest for Stephen King. As the customer perform queries and buys products over time, the portal is able to gather information to paint a very accurate picture of the customers interests. In effects, *Amazon* has created a portal, that responds extremely well to customer training, and this training is specific to *Amazon*, so if a customer wishes to switch to an alternate portal, providing the same service, then this training is lost.

Getting customers to enter more information

Another way of entrenching customers that is very similar to *getting the customer to train the portal* is *getting customers to enter more information*. The reason why this type of entrenching seems so similar to the one mentioned above is, that training a portal often means getting the customer to enter information, explicitly or implicitly. For example: If a customer enters information from her calendar into a portal that uses this information to help the customer plan her days, then there are two ways of looking at this. Did the customer train the portal, by entering information into the portal that helps the portal managers to tailor the service provided to the portal, or did the customer just enter information, that she can not readily transfer to a different portal, without having to reenter the information. In this case, in my definitions of these two kinds of customer entrenchment, I will distinguish between *getting the customer to enter more information* and *getting the customer to train the portal* by looking at whether the entering of information is explicit, like in: Please enter your appointments for the next five days. Or whether the entering of information is more a case of the portal gathering information, as in the case of *Amazon* tracking customer navigation, queries, and purchases. Another way of distinguishing is by looking at how the information is used. If the information is merely stored for the customer to manipulate, then it is a case of *getting the customer to enter more information*, but if the information is use to tailor the service of the portal to the customer, then it is a case of *getting the customer to train the portal*.

Getting customers to enter more information is often done in practice by requiring the customer to register before she is permitted to use some specific service. For example, customers at Amazon can browse the website all they want, looking for the product they want, but if they want to buy something, they will have to register. Usually the customer is required to enter her name and e-mail address and sometimes the customer is also required to enter information regarding her gender, age, occupation, address (usually just country, but sometimes zip-code), and interests etc. This information can be used by the portal to tailor the service offered to the customer. Switching costs arise, as the customer may have to register again, should she choose to switch to an alternate portal.

One might think, that once the customer has registered, it will not be possible to require her to register further at a later time. This is not the case however. Many portals get customers to register further by stating, that the service, that the customer was using is now reserved for “premium account customers” (or gold customers, or some other indication of a different level of membership). The customer is the prompted for more information, as she registers for a “premium account”.

Getting customers to train them selves

Another way of getting customers to entrench themselves is by *getting customers to train* themselves in the use of the portal. For example, customers that are used to using *Amazon* are very familiar with the different menus, the search capabilities and the layout and functionality of the site in general. Since *Amazon* is not a small website and have many advanced functionalities, long time customers

will probably have picked up a lot of tips and tricks that help them to better use the service provided by the portal. In effect, customers have trained themselves in using *Amazon.com*, and since if this training is brand specific, it cannot be transferred.

The important thing to notice here is that only brand-specific training creates switching costs. If a portal has a website and a service, that is just like all the competitors, then there might not arise any significant switching costs from customers training themselves in the use of the portal. The training that they have for one portal can readily be transferred to a different portal, should they choose to switch. Therefore, the challenge of getting this kind of entrenchment to work is to have some way of making it unique – brand-specific. *Amazon* has patented their One-click buying system, and although this may primarily have been done to ensure that only *Amazon* can advertise *One-click buying*, then there is no doubt, that this will also help to make the portals service more brand specific and their layout and functionality harder to copy.

Competitive strategy

In this, the third phase, the portal has overcome the challenge of attracting a critical amount of customers, and the focus is now on entrenching these customers. In the second phase, *The Contagion Phase* focus was on becoming part of the de facto standard. In this phase, where the focus is on entrenching customers it is no longer sufficient to be part of the de facto standard. In order to lock in customers proprietary standards and extensions must be introduced. If the portal managers are able to get portal users to accept these proprietary standards and use them, then they will become dependent upon these standards and thus the portal. The instant messengers mentioned earlier are actually an example of this. *Microsoft* was hoping that the customers of their portal *MSN* would accept *MSN messenger* as their Instant messenger, while *AOL* was hoping that their customers would accept *AIM*. As the users of *AOL* or *MSN* accept the proprietary standard (the instant messenger) suggested by the portal they are using, they are reaffirming their commitment to that portal and if they ever choose to switch to an alternate portal, they may have to switch instant messenger too.

This strategy is called *Tweedledum and tweedledee* in the words of Besen and Farrell and it results in what is called an inter-technology standards battle. Because customers are forced to either, accept proprietary standards and be part of the portal, or be left behind, this strategy increase the likelihood of the market tipping (Besen and Farrell 1994). Hopefully the competitive advantages of having reached critical mass will be strong enough to tip the market in favor of the portal and not one of the competitors.

The shift to *Tweedledum and tweedledee* is similar to the one made by *Microsoft* in the browser war, described earlier in this section. By incorporating proprietary standards into the browser software *Microsoft* changed the standards battle into a *Tweedledum and tweedledee* setting. *Microsoft* was betting on their standards and technologies to become the standards, rather than the open standards that were common for both *Navigator* and *Explorer*. The fact that *Microsoft* has control (property rights etc.) over the standards and proprietary technologies and standards that they introduced, forced customers to either choose *Explorer* or pick *Navigator* and have to accept not being able to utilize the proprietary technologies and standards, controlled by *Microsoft*. As mentioned above this increases the likelihood of the market tipping. When *Explorer* and Navigator shared the browser technologies their customers benefited from the same *network* effects, but only *Explorer* users benefited from the network effects stemming from using *Microsoft's* proprietary technologies.

If portal managers are able to entrench customers then the installed base is locked in. The portal them moves on to the last phase, *The Defending Phase*.

The crisis

In the subsection *Entrenching the customer base* methods for entrenching the customers were discussed. The subsection *Competitive strategy* discussed how introducing proprietary standards and technologies can be a very powerful was of creating switching costs for customers.

The *Netscape* vs. *Microsoft* example introduced in the section *Are they really your customers?* illustrates the threatening crisis of this phase. Although business is good for the portal in this phase, it is very vulnerable if no lock-in is created. A competitor employing a *pesky little brother* strategy may be able to steal the customer base before the portal managers know what is going on. Getting the customers back may be achieved by investing in attracting customers. But more likely than not, the competitor that employed the pesky little brother strategy to steal the customers will take every measure possible to avoid the customers switching back again. As we saw in the *Netscape* vs. *Microsoft* example, *Microsoft* lured customers into using proprietary standards as soon as they had reached critical mass. Hereby *Microsoft* ensured, that *Netscape* would have a very difficult time winning the users back and thus *Microsoft* sealed the faith of *Netscape*.

The main characteristics of this phase, and the recommendations of this phase are condensed in table 5.3 on the next page.

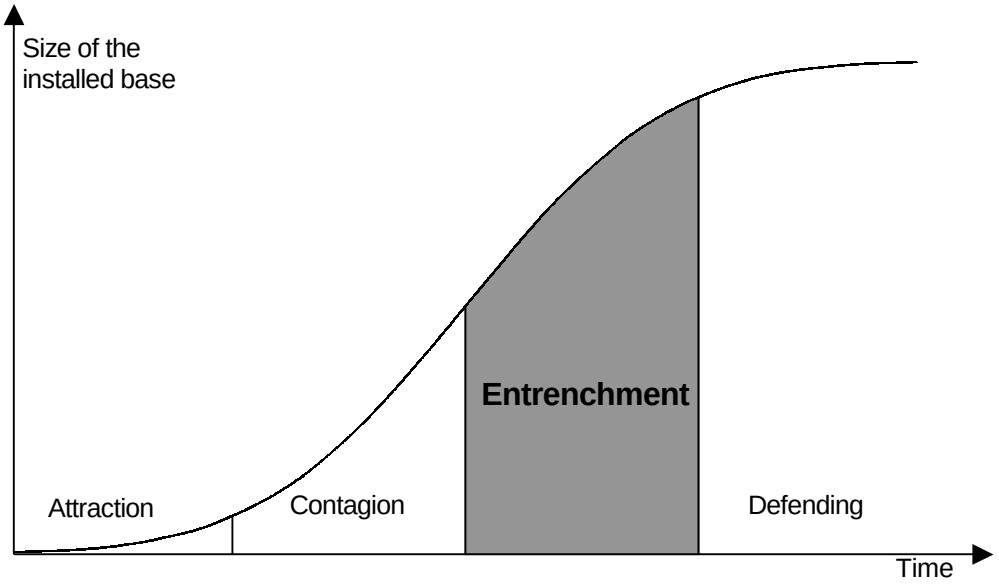

Figure 5.5: *The graph shows the placement of the entrenchment phase in Damsgaards stage model*

Characteristics	
Installed base	Large
Lock-in	Medium to high
Cost of attracting customers	Low
Burn rate	Medium
Challenge	Entrenching customers (getting customers to accept proprietary standards)
Threatening crisis	Raid on the installed base => migration
Recommendations	
Focus	Lure customers into entrenching themselves
How?	Build migration path to proprietary standard
Competitive strategy	Tweedledum tweedledee

Table 5.3: *The characteristics and the appropriate recommendations of the entrenchment phase*

5.4 Defending Phase

As the third phase is completed, the portal has attracted a critical mass of customers and succeded in entrenching these customers. Now is the time to defend this favorable position and recoup the investments made in the first three phases.

The Challenge

In this, the last phase portal managers are faced with the challenge of actually making money. The challenge of this face is to recoup the large investments that the portal may have needed in earlier phases. While doing this, the portal managers must ensure, that no competitors are able to threaten their position as market leader. We will first discuss taxation, followed by leveraging and then we will discuss defending the installed base.

In the subsection *Types of taxation*, different types of taxation that can be put on customers are described. The subsection *Differentiated taxation* motivated the need to use customer tracking to estimate customer lock-in so that the maximal taxation can be put on each customer. The subsection *Estimating customers switching costs and taxation dollar value* introduces some ideas and methods as to how to reason about the amount of customer switching costs and the amount of taxation put on customers. The subsection *Leveraging the installed base* discuss how an installed base of locked in portal users can be used to achieve competitive advantages in other markets.

The subsection Competitive strategy describes what portal managers can do to try and protect their position against competitors.

If the portal managers are unable to make money on the portal then they may eventually have to close shop. This scenario is not quite as alarming as if a competitor is able to start a *revolution* or build a migration path. The discussion of this crisis finishes of our discussion of this phase, only followed by a summary that states the highlights of this phase.

Types of taxation

At this point customers are familiar with the portal, and have grown dependent upon the service it provides. Because the customers that constitute the installed base are locked in, they will have to incur large switching costs, if they should choose to switch to an alternate portal. These switching costs can be exploited and we call this *taxation*. I define taxation as requiring portal customers to participate in some action that serves the ultimate business of the portal, if they wish to continue to use the portal. In the following, the ultimate business goal of the portals is assumed to be making money[34]. Therefore, by that assumption and our definition of taxation, taxation is getting customers to participate in some action that makes money for the portal. For example, if an eCommerce portal increases the commission on the products sold, then this is taxation, because the customers are required to participate in an action that eventually makes money for the portal. In a similar fashion, subjecting customers on the portal to banner ads is taxation if the portal earns money by showing these banners.

There are many different kinds of taxation. In the following, we will discuss some of the types that are of the most interest to managers of Internet portals.

[34] By *ultimate business goal,* I mean the thing that the managers and owners of the portal in the long run hope to achieve from the portal.

Advertising

One way of putting taxation on customers is to subject them to advertising. The most common type of advertising on the Internet is banners.

Today almost all portals feature banner advertisements in order to profit from customer interest. Banners are advertisements for products or services, that, when clicked, take the customer to the site, that paid for the banner. Different payment systems exist for banners. Some sites charge a price depending on how many times the banner is shown, others charge a price depending on how many times the banner is clicked. Other sites again charge commission on the purchases of customers, that they have referred.

A related type of advertising, which may be used to put taxation on customers and generate revenues, is pop-ups. A pop-up is a small browser window that pops up in front of the page that the customer is browsing. Pop-ups are used to subject customers to advertising, but are also sometimes used to prompt the user to take some specific action. For example, they could be used to get the customer to participate in a pole or to register. Pop-ups may capture the interest of the customer better than banner ads, because they require the customer to close them, before she can continue, but they are also perceived as being more intrusive.

Some portals offer specialized or tailored advertising services to customers they serve. Such services include endorsing products, featuring products, showing links to products when certain keywords are used to search on the portal etc. For example, *Jubii* offer so called sponsorships that include search boxes displayed on *jubii.dk* and displaying new information about the advertiser. A sponsorship can be thought of, as a more complex and advanced type of marketing, where the traditional banner ad is replaced by search boxes, the displaying of specific information on the page and links to the sponsoring website.

Subscription

Another way of putting taxation is requiring them to subscribe to the service the portal offers. If customers are locked in to the service that the portal provides, it is not unlikely that they may be willing to pay. For example, many on-line news services have had success requiring subscriptions for some of their services. These include *Børsen* (www.borsen.dk) and *Jyllands Posten* (www.jp.dk). A common business model for many of the sites that require subscription is to allow portal customers to use many of the services of the portal free of charge and thus gain the customers interest. The more specialized services are then required for the portal users that choose to subscribe to the service. For example, many of the Internet news services allow portal users without a subscription to read today's news, but require a subscription, if customers want to search the archives.

*E*TRADE* (www.etrade.dk) has a similar business model. It is free to subscribe to *E*TRADE*, but the stock quotes are delayed 15min. If customers want to real-time stock quotes, they will have to pay for the subscription.

Sell access to the installed base

Internet portals with an installed base and customer tracking information on these customers may be able to sell access to their database. This information can then be utilized by the purchaser to target special offers to those customers. Often the information that is sold is the customer's name, and her e-mail address. This is the reason why many people are receiving e-mail spam from senders that they haven given their e-mail address to. Selling access to the installed base should be done with caution, because many customers recent this. If Internet portal managers sell access to much information about their customers, or if they sell access to a third party, that exploits this access, then the credibility of the portal can be shattered.

Raise the price

For eCommerce portals or portals who charge commission on their services, the question of how to exploit an installed base of customers is simpler. The prices should be raised in order to raise margins. If customers are locked in to the portal, then they will be willing to pay a little extra, to continue to use it. For example, many users of *Amazon* are finding that *Amazon* is no cost leader when it comes to buying books on the Internet. However, even though they may be able to buy the books somewhere else, they choose to continue to use *Amazon*, because of the many benefits they enjoy at *Amazon*, that they will not be able to take with them to an alternate portal. *Amazon* customers, that have been using *Amazon* for years may have bought many things at *Amazon* and thus *Amazon* knows their interests and preferences. If these customers switch to an alternate portal, they will have to spend considerable time and effort in order train the new portal before they can expect the same level of service.

As long as the price overhead is low compared to the switching costs that the customers must incur if they switch, then customers will stay customers at the portal.

On a related note, portals that have a business model that builds on commission, rather than regular margins from sales may put taxation on their customers in a similar fashion i.e. by raising the commission.

Cash in on the aftermarket

If you have an installed base of locked in customers, that are using your portal, then you may be able to influence these customers to buy other services or products to. In particular, you may be able to make money on selling products that are complementary to the portal. For example, *IT business center* (www.access-consult.dk), the Danish company mentioned in chapter 2, that offer to set up and run web shops for entrepreneurs. IT business center may very well be able to charge steep prices on the service and maintenance on the web stores that they build for entrepreneurs, because the entrepreneurs are locked in to IT business center.

By selling additional products or services to their installed base, portal managers may be able to make money of the customers. This idea has actually lead to a new, slightly different business model that we described earlier: Affiliate programs.

Affiliate programs – referrals

If a portal has an installed base of locked in customers, then the portal managers may be able to leverage that lock-in to get customers to buy products from other companies, and then charge a commission. Essentially this is the idea behind affiliate programs like the one from *Amazon* that *The Jim Carroll Website Store,* mentioned in the beginning of this chapter, is using. *Amazon* awards commission to other portals that are part of their affiliates program. Every time someone from *The Jim Carroll Website Store* clicks yes to buying a certain Jim Carroll book, and is forwarded to Amazon where she buys the book, The *Jim Carroll Website Store* is awarded commission. Thus*, The Jim Carroll Website Store* clicks makes money on the commission they get, when they get their customers to buy books at *Amazon*.

Differentiated taxation

As we have discussed many times (e.g. see chapter 3) the best results are achieved by treating each locked-in customer individually as a valuable resource. This is particularly true in this, the last phase, where portal managers should get the most out of their locked-in customers.

In the following discussion of lock-in and taxation I will describe the degree of lock-in in terms of how much money this is equivalent to and I will describe the effects of taxation on the customer in terms of how much money this taxation is equivalent to. For example, I will describe a customer as having switching costs amounting to $100 if the costs that the customer must incur, monetary and other have a value of $100 relative to the customer. And I will describe taxation as amounting to $50 not if the profit stemming from this taxation is $50, but if the customer incurs costs (including discomforts and inconveniencies) that are perceived, by the customer as amounting to $50. By this rationale a customer with switching costs amounting to $70 will wish to stay as long as the taxation put on her amounts to less than $70, but will choose to switch to an alternate portal, if the taxation amounts to more than $70. This way of reducing the customers the customers choice to a question of taxation and switching costs alone is certainly simplified and incomplete in describing the many complex factors that are involved in the customers choice, but in our discussion of switching costs and taxation we need some way of indicating size and significance. This way of rationalizing about the behavior provides us with a simple and precise tool for discussing how portals can best manage lock-in.

The problem with treating all customers alike is, that many customers are treated less than optimally. Because some customers have larger switching costs than others, more taxation can be put on these customers, without them wanting to switch to an alternate portal. For example, lets say that a portal has 1 mill. locked-in customer. Of these 100.000 customers lets say that 90.000 have switching costs amounting to from 6$ to 30$ and 10.000 have switching costs amounting to over 30$. If we assume, that a customer will stay a customer as long as the switching costs are lower than the taxation put on the customer, then putting taxation on the customers amounting to 5$ will make it worth their while for all the customers to stay, and it will bring in profits of 5$ x 100.000 = 500.000$. However, this means putting only 5$ worth of taxation on 10.000 customers with switching costs amounting to over 30$ Looking at only these 10.000 customers this means charging at least ($30-$5) x 10.000 = $250.000 less than could have been charged. However, if a taxation of $30 is put on all the customers then this will result in the loss of 90.000 customers.

In order to get the maximal profit out of the taxation of customers, portal managers must therefore employ a scheme that puts different taxation on different customers. If portal managers were able to identify the 10.000 customers with switching costs larger than $30, then they would be able to put a special taxation amounting to 30$ on these 10.000 customers, resulting in an additional $250.000! Imagine the profits that could be extracted, if customers could be grouped into even more groups. For example, customers with profits under $5, from at least $5 to under $10, from at least 10$ to under $15, etc. Or if each customer's switching costs could be identified and each customer individually taxed. In theory the best results will come from identifying the switching costs of each customer individually and then tailoring a taxation program to that customer, but several advantages come from dividing customers into different types or categories and then designing a taxation program for each of these categories.

Estimating customer switching costs and taxation dollar value

Analyzing how switching costs are best estimated based on customer tracking is beyond the scope of this project and so is putting a dollar value on taxation types like registering and referrals. However, I will demonstrate some general approaches to this.

As we have seen in section 3.4, Categories of Switching Costs and Lock-in customer switching costs can arise from several different sources. Three of the most significant switching costs used to lock customers into portals are the ones mentioned in the entrenching phase: *Getting customers to enter more information*, *getting customers to train them selves*, and *getting customers to train the portal*. Getting the customer to enter more information builds switching costs, because the customer can't transfer this information to an alternate portal, should she wish to switch. One way of measuring this type of lock-in could be simply to look at how much information the user has entered. Data like: How many fields has the customer entered? could be used to classify customers. However, it is important

to consider, that different kinds of information may create different amounts of switching costs and different customers may respond differently to the switching costs that arise, if they choose to switch to an alternate supplier. For example, computer literate people may find the need to enter username and password every time they use a portal negligible, while other users may be deterred from using the portal by having to log on. However we do need to find some system to measure customer lock-in, and as a general rule, the amount of switching costs stemming from a customer entering information is a function of the amount of information the customer has to enter.

It is difficult to say exactly how many dollars (or cents) one field of information amounts to. This problem can be solved by first estimating a number – e.g. 1 field = 10 cents. Then, as customer switching costs are calculated and taxation is put on the customers, the results of the taxation will tell portal managers if their estimate was to high or to low. If for example 100.000 customers had entered three fields of information then 30 cents of taxation could be put on a representative section of these customers – e.g. 1000 of these customers. The taxation could then gradually be increased, as the number of customers switching to an alternate portal was registered. When the break-even point was reached, managers would know what amount of taxation to put on the rest of the 100.000 customers. By making such "tests" and tracking very accurate estimates for e.g. the value of the switching costs equivalent to having entered a field of information. This explains a general way of starting to work with the estimation of switching costs.

The switching costs that arise from customers training themselves in using the portal can be estimated by looking at what functions the customer uses. If for example the customer only uses the center part of the portal to navigate, then this may indicate, that she has not become proficient in the use of the other parts of the portal yet. On the other hand, customers that use almost all of the different types of navigational tools of the portal can be expected to have gained a larger proficiency in the use of the portal. When evaluating the dollar value of these switching costs the same kinds of tests can be used, as described for *Getting customers to enter more information*, only, portal managers must remember that only *brand-specific* training creates switching costs.

As the customers use the portal more and more, more and more data on their preferences, behavior and interests become available to the portal software, which then uses this data to tailor the portal and the service provided by the portal to the customer. Obviously, the amount of personalization and tailoring can be used to estimate how large the switching costs stemming from *getting customers to train the portal* are.

Designing different taxation programs

As mentioned in the previous section the information gained by customer tracking can be used to evaluate customer switching costs and tailor the taxation to each customer. There are at least two different ways of employing such a differentiated taxation scheme. Either by using the customer tracking information to identify different types of customers and putting taxation on the customers according to what type they are, or by using the customer tracking information to tailor personalized taxation to each customer. In the following we will assume, that customers have been divided into groups, and taxation is then to be put on each of these groups. If customers were treated separately, this would merely mean treating each customer as a group in itself.

When portal managers have set up the customer tracking software in a way that estimates each customer's switching costs and categorizes customers by group, then taxation of each of the groups can be tailored.

Leveraging the installed base

At this stage, the critical mass has been reached and your portal is the predominant on the market where you are operating. Focus should be on defending this position while at the same time putting taxation on your installed base in order to recuperate the costs that you have suffered attracting customers.

As described earlier, the installed base of locked in users can certainly be exploited by putting taxation on these customers. However, portal managers may also try to exploit the customers' lock-in by leveraging this lock-in to get them to use other products or services.

As we mentioned in section 5.1, *Attraction Phase* having an installed base of locked in customers is a competitive advantage that can be leveraged to attract customers to complementary products. When a portal reaches this, the last stage, leveraging this advantage can be a good way to secure continued growth.

For example, *Amazon* started out by selling books, but has now expanded their offerings to include everything from CDs to toys. As *Amazon* expanded their offerings and tried to take over new markets they enjoyed the advantages of having an installed base, having customer tracking information about these customers, having an established portal and having a brand name, among other things. The customers that where used to buying books at *Amazon* saw, that e.g. CDs and DVDs where sold on the same portal where they where buying books. Therefore, it was easier for them to buy their CD there too.

In section 5.2, *Contagion Phase* narrowing the scope of a portal was suggested as a way of increasing the likelihood of reaching critical mass. In this phase, critical mass has been reached and the customers have been locked in. Therefore widening the horizontal scope of the portal may be a way of increasing the size of the market.

For example, *Microsoft* has been able to leverage the advantage of having a large installed base of customers on their web based e-mail service, *Hotmail* to get these customers to use other complementary products from *Microsoft*. *Microsoft* has made *Hotmail* a part of their portal *MSN* that now also offer customers such services as: Free web space (http://communities.msn.dk/filecabinets), web photo album (http://communities.msn.dk/photoalbums), free web page (http://communities.msn.dk/personalhomepages), calendar (http://calendar.msn.com), instant messaging (http://messenger.msn.dk). The user can use all of these services without having to log in more than once.

The advantages of leveraging a locked in installed base of customers to make these customers use complementary products are twofold. Firstly, the market is increased and thus so are the potential benefits for the portal managers. Secondly as the customer becomes increasingly locked in as she accept more and more of the services offered. For example, *Hotmail* customers further entrench themselves to *MSN* as they set up a personal web page and a photo album at *MSN*. Should they choose to switch to an alternate portal, then they would not only incur the costs of switching e-mail address, but would also have to find a new place to set up their web page and their photo album.

Competitive strategy

In this, the last phase the portal has become successful. The portal has built an installed base of customers and locked in these customers.

In the previous phase, the competitive strategy was focused on getting customers to use proprietary standards. In this, the last phase focus is on sustaining this situation. The proprietary standards and technologies that the portal is built around will evolve. The challenge is to sustain control of the

technologies and standards as the portal evolves. Two things can threaten this position: A competitor succeeding in employing a pesky little brother strategy, or a competitor successfully creating a revolution.

A competitor may try to employ pesky little brother strategy in order to try and make her portal compatible with your portal. By create migration paths from your portal to her portal the competitor can lower the switching costs of your customers switching to her portal. Measures should be taken to avoid this in order to retain control of the installed base. Tools to avoid a pesky little brother include asserting property rights and proliferation (renewing your product so fast that a competitor will not have enough time to copy your service before it has been renewed again).

However, a competitor may also threaten the portals position by trying to start a revolution. That is, to try and get customers to switch from one technology or standard to an alternate technology or standard. This poses a dilemma to the portal managers. In order to retain the advantages stemming from their installed base, portal managers should make new services, technologies, and versions of their portal be compatible with the old ones, but in addition portal managers may have to revert to introducing new services, technologies, or versions that are not compatible with old ones in order to stay competitive when it comes to quality and level of service. The solution is to introduce new versions and standards that are not compatible at such a low rate, that considerable lock in still binds the customers to the portal – even with the introduction of new features that are not backwards compatible.

The crisis

Established as the market leader with a large installed base of locked in users the portal is in a very favorable position. However, this position may be threatened quickly if the portal managers are unable to retain control of the technologies that are incorporated in the portal

If a competitor is able to build a migration path from your portal to hers and she has a competitive advantage, then you customers may quickly switch to the other portal. The value of your installed base is dependent upon it being locked in. Therefore, it is vital to continuously work to retain control of the standards and the customers.

However, while sustaining control of a proprietary technology is important, getting customers to continue using this technology is just as important. In order to make their portal competitive portal managers must continuously evolve the portal incorporating new features and standards as the portal moves along. In this game of evolution, the key is to stay in control. Portal manager may try and get customers to accept new proprietary standards that are backwards compatible. However, if a competitor introduced a *revolution* technology that is superior in quality and performance the portal managers may have a difficult time convincing people to choose their proprietary standard again. If portal manager loose control of a technology in this way the competitor might capture large parts of the installed base thus potentially pushing the portal back before the point of critical mass, making it very expensive for the portal to get the customers back.

The main characteristics of this phase, and the recommendations of this phase are condensed in table 5.4 on the next page.

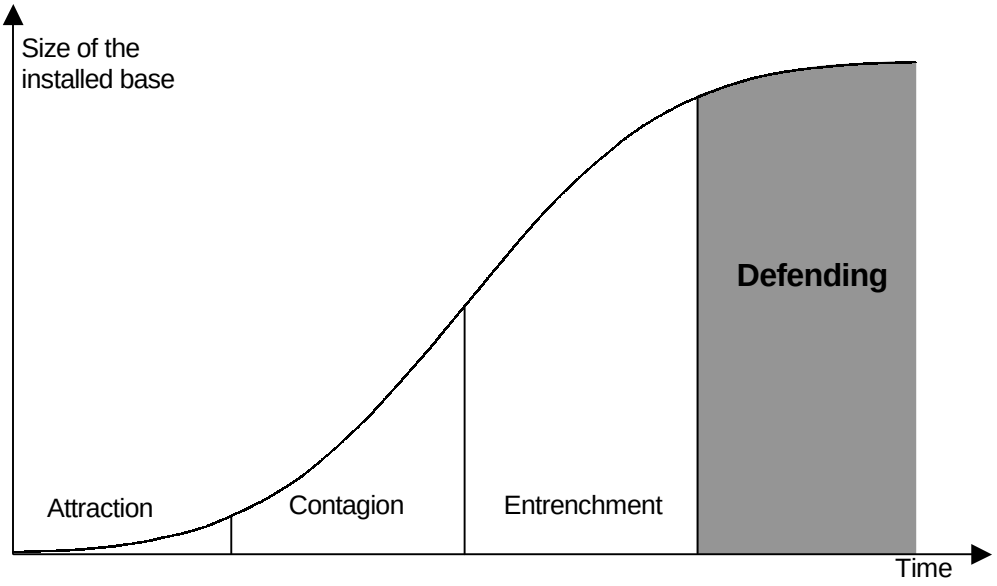

Figure 5.6*: The graph shows the placement of the defending phase in Damsgaards stage model*

Characteristics	
Installed base	Very large
Lock-in	Very high
Cost of attracting customers	Very low
Burn rate	Soaring quasi profits
Challenge	Put taxation on customers and defend position
Crisis	Revolution
Recommendations	
Focus	Tax customers and get them to reaffirm their commitment
How?	Taxation: Raise the prices require subscription Defending: Property rights, product proliferation
Competitive strategy	Avoid pesky little brother

- Table 5.4: *The characteristics and the appropriate recommendations of the defending phase*

Chapter 6
Evaluation

In this chapter, I will evaluate the methods (described in section 4.4, Method) that I used to explicate and refine Damsgaard's stage model in the previous chapter. I will evaluate the methods based on how well they help me to investigate the problem defined in section 4.2, *Formulation of the Problem* according to the design criteria defined in section 4.3, *Design criteria for the model*. In particular, I will evaluate the methods based on whether I think that the resulting model will be a good tool to aid managers in launching and managing Internet portals successfully.

The fact that I started of describing some of the issues that managers face, before they launch a portal gave me an opportunity to address issues, that are beyond the scope of this project or would have been difficult to incorporate into either of the four phases. Among other things, this allowed me to stress the importance of managing each customer individually.

Using Damsgaard's model as a structure to help me think about the strategic considerations faced by portal managers at different stages in the launching and managing of an internet portal proved to be a very fruitful choice. The division of the lifespan of a portal into phases made it easier to reason about causality and precedence, and the contrasts of each of the phases helped me define the characteristics of each of the phases. Terms and theories from the pre-analysis (chapter 3, *Portal Management in the Network Economy*) fit well into Damsgaard's model and also served as an inspiration to the qualitative description of each of the phases. The structuring within each of the phases also worked well. By starting of by describing the challenge faced by portal managers the description becomes result oriented and focused towards living up to that challenge. The following subsections describing in more detail how these challenges are met provide portal managers with more explicit advice. Discussing the strategic considerations in the subsection, *strategic considerations* lead to a discussion of the four strategies suggested by Besen and Farrell. This was a good way to explore what strategies should be employed towards competitors in each of the stages.

The description of the threatening crisis that will set in if the challenges are not handled is discussed in a subsection for itself. This was a good way to motivate why it is vital for the portal to live up to the challenges presented in each phase. It also helps to puts the tasks of the phase in perspective. At the end of the description of each of the phases the main results are condensed in a table that makes a great quick reference, making the model quick and simple to use.

During this analysis, I chose to look at and use actual Internet portals as examples to support my analysis of the theories. This ensured, that I was working with 1. hand data rather than just taking the theories of others for granted. It also proved to be an inspiration as new and interesting ways of doing business often show up on the Internet before they are documented. Using actual Internet portals as

examples also helped me to make the description of the model easier for portal managers to use, because it relates directly to actual portals and their design and strategy. Hopefully this will aid the reader in the understanding of how the results of the analysis can be converted to actual competitive advantages for portals in the network economy.

All in all, I am very satisfied with the methods I used to explore the specific problem (section 4.2, *Formulation of the Problem*). In particular, Damsgaard's model proved to be a good structure to integrate the knowledge of the pre-analysis (chapter 3) into.

Chapter 7
Conclusion

This conclusion is meant to follow up on the work done during this project and presented in this report, with particular focus on if the initiating problem and the specific problem (the problem defined in section 4.2, *Formulation of the Problem*) were explored in a satisfactory way.

The initiating problem, as specified in the beginning of the report, was:

- Why do some Internet portals fail in the new economy while others experience great success?

Based on this initiating problem a discussion of portal management in the network economy was initiated. In the course of this exploration, it became evident that there are several theories that try to describe distinct features of the network economy. However, no single tool, theory, or model seemed to provide portal managers with a tool to support them in reasoning about the strategic considerations of launching and managing an Internet portal. Since I became aware of Damsgaard's ambitions to solve just this problem, the model, initially suggested by him, came to form the basis of the formulation of the specific problem that I explore in this project, namely:

- How can Damsgaard's diffusion model be explicated, refined, and operationalized in order to make it a tool for managers of Internet portals to support them in launching and managing portals successfully?

The theories and traits of portal management in the network described in the pre-analysis (chapter 3) and the knowledge of portal management gained through this pre-analysis came to form the basis for the exploration of this problem. The most significant of the theories described in the pre-analysis where incorporated into the model suggested by Damsgaard, in order to try and create a model that would serve as a tool for managers (as described in the problem above).

The result of my efforts to create such a model is the model described in chapter 5, *Explication and Refinement of Damsgaard's Model*. This model divides portal launching and the subsequent management into four phases. The focus, challenge, and potential crisis of each of the four phases are described along with a description of the competitive strategy that should be employed. At the end of each phase the main characteristics and recommendations for each phase are condensed in a table. Thus, chapter 5, *Explication and Refinement of Damsgaard's Model* is an extensive exploration of the problem stated in the problem formulation (see above) and my main contribution to the efforts to create a tool for managers of Internet portals to support them in launching and managing portals

successfully. Therefore this thesis concludes, that the problem formulated has been explored in a satisfactory manner.

Future Work

The primary result of this project, is the development and description of the model suggested in chapter 5, *Explication and Refinement of Damsgaard's Model*. The theoretical basis for this model is my qualitative analysis of portal management in the network economy and Damsgaard's idea of a stage model for describing the phases that a portal go through during launch and the subsequent management. The only empirical data provided in this thesis are the many examples that are used to illustrate points. Thus there is no empirical evidence to support the theory, that portals go through these phases, and that each of these phases have the characteristics described in chapter 5, *Explication and Refinement of Damsgaard's Model*. Therefore, I perceive collecting empirical evidence to support the model as the natural next step in my work.

The model as a tool for working with business plans

As suggested in the beginning of chapter 5 any good idea for a portal should be developed into a business plan, before a portal is launched. It is my conviction, that the model developed in this project could be a very valuable tool in this process. By reasoning about how portal managers expect to live up to the challenges of each of the four phases, they are forced to think ahead through the life of the portal and are thus more likely to discover any blind roads, leading to nowhere.

In order to investigate empirically whether the model is an actual help the model could be introduced to portal managers trying to develop business plans. Their qualitative perception of the model, and what influence it had on their developing of a business plan, could bring valuable data on the correctness and usefulness of the model as a tool to be used by entrepreneurs to aid them in developing business plans or by venture capitalists to assess business plans.

The model as a tool for working with strategy

As I have suggested, the model may also be used by existing portal managers to evaluate their competitive position, and to develop, redesign, or evaluate a corporate strategy. Empirical evidence to support this could be gathered by introducing the model to people with experience on the launching and managing of Internet portals. In this case, it would be interesting to introduce the model to both people who are successful or have achieved success with their portals and ex portal managers, who failed to make their portals successful.

Getting managers (and ex managers) to evaluate their own portal and their strategy using the model may help them to see their success or failure in a different light. This may shed light on the value of their business decisions, as well as the correctness and usefulness of the model as a tool for existing portal managers. For example, it may be able to help ex portal managers to identify the crucial decisions that eventually lead to their demise. This again would lend credibility to the model as a tool for avoiding making these mistakes again.

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Appendix A

Launching an successful Internet Portal
A Stage Model

Version 1.0
Draft - do not distribute without written authorization

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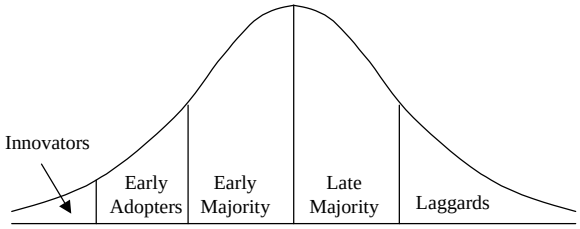


Figure 1. Bell-shaped adoption curve

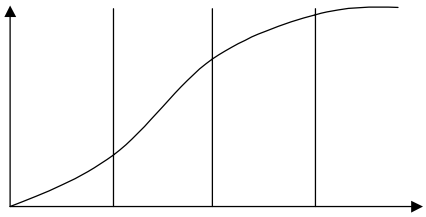
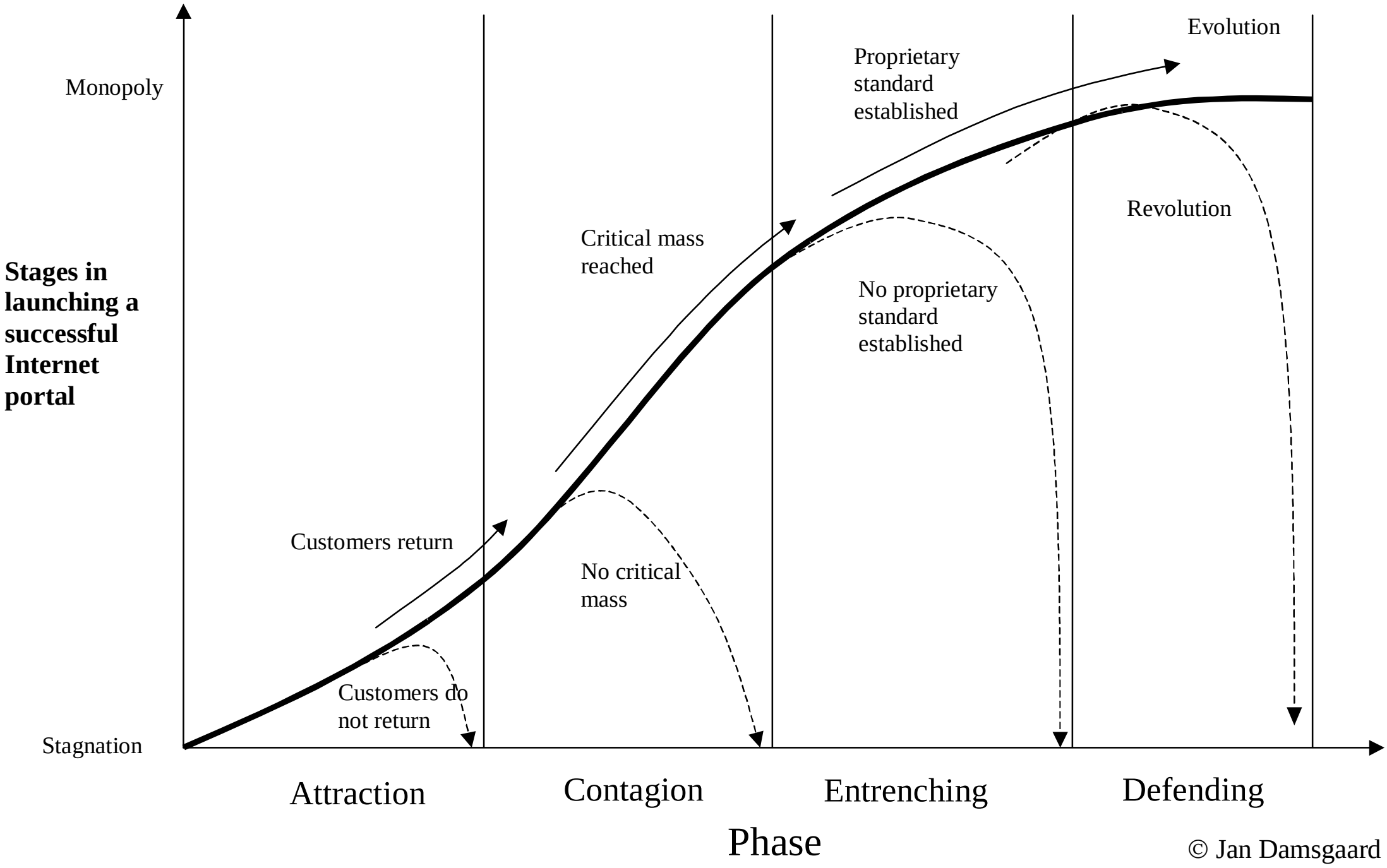


Figure 2. S-shaped integral divided into stages

Lock in	**Description (Shapro and Varian, 1999)**	**Meaning in portal context**
Contractual commitments		
Durable purchases and replacement		
Brand-specific training		
Information and data		
Specialized suppliers		
Search costs		
Loyalty programs		



1. Attraction phase

Focus

In the attraction phase the focus is for the provider to attract customers to the portal and use the service.

Contractual commitments	
Durable purchases and replacement	
Brand-specific training	
Information and data	
Specialized suppliers	
Search costs	
Loyalty programs	

Table: Main lock in mechanisms during the defending phase

Degree of lock in

low

Crisis to handle

Get users to return

2. Contagion phase

Focus

In the contagion phase the focus is for the provider to make the customers grow accustomed to use as many services as possible.

Contractual commitments	
Durable purchases and replacement	
Brand-specific training	
Information and data	
Specialized suppliers	

Search costs	
Loyalty programs	

Table: Main lock in mechanisms during the contagion phase

Degree of lock in

moderate

Crisis to handle

Build a critical mass of users and usage

3. Entrenching phase

Focus

In the entrenching phase the focus is for the provider to make the customers adopt and use a technology or service that is controlled by the provider.

Contractual commitments	
Durable purchases and replacement	
Brand-specific training	
Information and data	
Specialized suppliers	
Search costs	
Loyalty programs	

Table: Main lock in mechanisms during the entrenching phase

Degree of lock in

high

Crisis to handle

Establish proprietary standard

4. Defending phase

Focus

In the defending phase the challenge is keep the evolution going and incorporate new standards and technologies. The idea is to stay back ward compatible.

Contractual commitments	
Durable purchases and replacement	
Brand-specific training	
Information and data	
Specialized suppliers	
Search costs	
Loyalty programs	

Table: Main lock in mechanisms during the defending phase

Degree of lock in

Very high

Crisis to handle

Avoid revolution