

**DCU**  
**BUSINESS**  
**SCHOOL**

*Information Goods: A new way to sell*

DCU

*Siddharth Shrivastav*

*Under the guidance of Prof. Des McLaughlin*

## Introduction

In the modern age where the internet plays a vital role in the individual's lives, It is not the Internet which has created a much difference, but the amount of Information on the Internet has played a dominant role in the economy which is a fact about the information markets. In the recent decade, even though there is no miraculous expansion of data in the world but the accessibility of the information has increased dramatically (Shapiro & Varian, 1998). Due to the various technological advancement in the twentieth century, inventions like telephones, the radio, television and computers has served as a way of the availability of information. However, many information producers and suppliers make the blunders of assuming that their product is exempted from the laws of economics which govern most of the tangible goods and services (Shapiro & Varian, 1998). Let us consider the short story of *Encyclopaedia Britannica*, an established brand which was one of the robust and best-known brand names in the world (Evans & Wurster, 1996). Britannica had never seen an unprofitable year since 1930's and reached its peak revenue in the year 1990 & 1991, but their income declined rapidly after Microsoft launched Encarta in 1993, a new CD-ROM encyclopaedia (Greenstein, 2016). In 1994, Britannica's sales volume fell by 53.5% from its 1990's level in three years (Rayport, 1999), and a year later after 1995, it was sold to the new owner for \$130 million (Greenstein, 2016). Microsoft's CD-ROM coming from nowhere devastated the print encyclopaedia giant and set an example that how digital technologies can give a shock to the established firms. However, how it was possible is a mystery, The Encyclopaedia Britannica was selling its copies between the range of \$1500 to \$2200 on the contrast Encarta has sold their CD-ROM encyclopaedia in the range of \$50 to \$60 which was way too less than Britannica (Rayport, 1999). Also, many people can access Encarta for free as it came with personal computers or CD-ROM drivers (Evans & Wurster, 1996). Even the Britannica created a CD-ROM version when they saw competition and included it free with the print version and charged between \$950 to \$1000 from anyone buying only a CD-ROM (Rayport, 1999) but gave it for free to the person taking the printed version (Evans & Wurster, 1996). The cost of production was \$250, the sales margins were between \$500 to \$600 and the headquarters earned between \$650 to \$750 (Greenstein, 2016) on the contrary, the cost of producing a CD-ROM was just \$1.50 (Evans & Wurster, 1996). Britannica's downfall demonstrates that how the new economics of information can alter the rules of competition by allowing new players and substitute products to remove old traditional products. Britannica's helplessness was due to the overdependence on the economics of intensive personal selling (Evans & Wurster, 1996). It is clear that although the information goods have the unusual economics of production, however, they are dependent on the similar market and competitive forces that rule the destiny of any other product (Shapiro & Varian, 1998). The case of Britannica states that never to judge and ignore the threats from any business which is backed up by a strong idea and technology as in this case.

The rapid fall of Britannica stands as warning for the producers and suppliers of the information goods specifically those sold in the digital form which reveals that the new economy still subjects to old laws of economics. In this review, we will be focussing the above aspect of information goods by an understanding of what is information as an economic good, the unique economics of information goods and pricing strategies for the information products.

### **What is Information as an Economic Goods?**

Many authors have given their thoughts on information goods, but it is significant to understand that there is a difference between information goods and information as economic goods. According to (Varian, 1999), information goods are any goods which can be digitised. These goods can include a book, a movie, a telephonic conversation, data or information, a record. The digitised good is mainly in the sequence of binary digits which is 0's and 1's that affects the utility and payoff of economic outcomes (Quah, 2003). In the definition given by (Varian, 1999), even though the definitions appear to be perfect, but there exist some flaws in it initially. In the definition, the author did not give the precise definition of objects to be digitised as the object can also be an apple, a bottle, a tennis racket. According to (Shapiro & Varian, 1998), "goods capable of being distributed in the digital form" can be termed as information goods. In the definition given by (Shapiro & Varian, 1998), it is clearly stated that goods which are capable of the conversion in the digital forms can be said as information goods which were not stated in the definition by (Varian, 1999). Information as an economic good can be defined as, "everything that is or can be available in digital form, and which is regarded as useful by economic agents." (Linde & Stock, 2011). The above definition can be understood and elaborated as a quantity of data or information which deals with the digital format and the economics behind this information goods add the benefit to it. Advancement in the information technology and infrastructure is the driving force behind information goods wherein the ability to manipulate the information is the vital factor of technology by improving access, reducing the cost of storing and transmitting information (Shapiro & Varian, 1999). It is essential to understand the rules of competition in the information market which are given by (Shapiro & Varian, 1999),

- Information is expensive to produce but cheap to duplicate and in this kind of scenario value-based pricing works and not cost-based pricing.
- Information products are subject to network externalities which mean that the value of the information product depends on the number of other users. As the number of the user increases the value of the product also increases and more amount of people will feel worth to buy the product.
- Consumers like to experience the information product before buying the product to understand its value and to minimise difference of opinion and risk.
- Technology is not enough in the information goods to gain a mass amount of people to use it as customer expectation should be fulfilled that convince them to buy that product.

## Exceptional Economics of Information

Even though the technology changes but the economic laws remain the same (Shapiro & Varian, 1999) and to make an attractive strategy for information goods, it is vital for us to understand the economics of information production which is as follows explained by (Shapiro & Varian, 1998),

- ❖ The fixed cost of the initial creation of the information content is very high, but the variable cost of reproducing it is extremely low which makes them economically dangerous. For example, While a movie is made, the producers of the film spend an enormous amount of money on the cast, crew, location, sets and script but when the movie is finally made making a print from the final version costs only a few hundred dollars.
- ❖ The *sunk costs* ( a cost that has already has been incurred and cannot be recovered if the production halts) dominate the fixed cost. For instance, If the film flops the producer of the movie will not be able to retrieve the cost of making the film by selling the script or the set or if the CD made is not working it cannot be reused again. On the contrast, part of the fixed cost can be recovered by selling the facility of the office building or factory in other businesses.
- ❖ Not only the fixed cost of the information goods is unique, but also variable cost also has some unusual features, the unit cost for the creation of the surplus print or copy does not increase even if huge quantities of copies are made. In other words, information producers have limited capacity restrictions, which is different from traditional manufacturers. For example, When the traditional manufacturers like Intel and Airbus reach the edge of the existing capability for the production, the cost of producing an extra unit goes up, and they have to invest heavily in the new plants, machinery and people.
- ❖ Information products offer massive economies of scale due to their cost structure. The theory of economies of scale is simple in information goods, the more the company will produce, and the greater is the decrease in the average cost of production, the smaller will be the dispersion of price (Stigler, 2001). The gross profit margin represents sales minus direct cost of making those sales, but in the cases of software products or internet services the marginal cost is of duplicating that information product is negligible though internet firms require capital to maintain the servers. It is the reason why LinkedIn is the frontrunners in gross profit margin with 84%, followed by the Salesforce.com who is a leader in Software as a Service (SaaS) with 80%, then Microsoft with 78% and lastly Facebook with 77% (Cusumano, 2012).
- ❖ Due to the fixed costs are both large and sunk, companies that are not able to enjoy market dominance can be trapped in price wars. The company will face an economic disaster and will not be able to recover its initial investment if they are forced to reduce the price to a marginal level due to competition.
- ❖ Due to the production of information digitally, the dangers in the economics of production become even more evident. Any information goods in the digital form become easier and much cheaper to reproduce, for instance, printing photos can cost few dollars but giving that

pictures in the CD can be much cheaper than printing. However, if the photos are to be transferred through a network, the variable cost will disappear completely. Since the pictures are not in the physical form, there is no cost of manufacturing, packaging and shipping once the first copy is made transferring the surplus copies is free.

After a thoughtful approach towards economics of information goods, it is clear that if companies have ruined their capital to create an identical product, the competitive forces will enforce the product price towards the marginal cost. Since the marginal cost of reproducing information is extremely low, the price of the information goods will be likely to be low as well, and these lowering of price will end up having a devastating price war. So it is better to be safe in the market and avoid competition based on the price which can be done by developing unique products, finding new markets, benchmarking, building a reputation and bundling the products with services (Tice, 2011).

### **Pricing Strategies for Information Goods**

Pricing strategy plays a crucial role for any product if they want to have the mark in the market and the same logic goes with the information goods as well. Even though information product has a different economics altogether but if they want to survive in the market, they should have a unique strategy to capture the market instead of price wars. If a company want to succeed in the market, a company must either be the price and cost leader, or they must create a unique information product and charge it based on the value that is offered to the consumer (Shapiro & Varian, 1999). Due to the low marginal cost of the information production, the traditional pricing strategies like cost-based pricing and competition-based pricing (setting prices according to competition) are out of the way. The best possible strategy in deciding the price of an information product are according to the value placed by the customer which is Versioning as value for information if different for a different customer. Versioning in its simplest form is offering a line of product or services and allowing the users to choose the version of that product or services which are best suited to them (Shapiro & Varian, 1999). A different version of the same product can be offered to suit the needs of various customers and customers are differentiated by their need for various types of product or services. Though it will be hard to say how many versions a company should offer but two views should direct it: the features of the information and the value that different customer place on it (Shapiro & Varian, 1998). If the information is used in many ways then using versioning is a good strategy but if the information is utilised by the same number of users in the same format, then versioning does not make sense. Even though versioning is more of a pricing strategy which allows the company to give the information in various versions intended to appeal different type of customers but nowadays, there is a trend of giving a free version. The free version of digital goods is given because of the low marginal cost of creating copies of information product and to give customers a test experience of the digital product. If

information business is giving products for free, there has to be a strong business logic. The goal for giving the free versions are (Shapiro & Varian, 1998),

- **Creating Awareness** – The primary use of the free version is used to create awareness of the products, and the companies give the free version with limited features to tempt consumer to pay for the complete version. For example, LinkedIn gives a free version to create the awareness amongst the users and also to induce them to use the paid version of the LinkedIn (Damnjanovic, et al., 2015).
- **Gaining Follow-on Sales** – The free version is given to the customers to build a base of consumers which can be used to sell follow-on products, upgrades, extensions and services. For instance, Even though the Subway surfer game is free on the Android app which has become the fourth most downloaded game in history (Parungo, 2015), but the free games are given to have follow-up sales.
- **Developing Network effects** – The digital goods become valuable if a large number of people are using them. The free versions help to take these products to a large mass for wide circulation which in turn create benefits (Linde, 2009). For example, Adobe gives a free simple version of its Acrobat software that allows to view and print the electronic documents even if they are not with the software they are created
- **Attracting Eyeballs** – As the trend for online advertisements is increasing day by day, companies think that they can receive more money from advertisements than by selling the information product. For example, Even though Facebook do not charge any money for the accounts, but the revenues is increasing every quarter with 2016's fourth quarter earning \$8.81 billion revenue (Constine, 2017), which is mainly from advertisements.
- **Gaining Competitive Advantage** – The value of a small number of people buying the product is greater than a large number of individuals using it which creates more strategic value. For instance, Microsoft gives the internet browsers for free to have control over computer desktop and also to prevent Netscape from gaining the control.

As we talked about the logic behind the free versions, Versioning can be used to set different prices for the identical information without experiencing high costs or upsetting customers. It can also be used as a way to sell information to that customer who will value without using the existing high-priced and high-margin market (Shapiro & Varian, 1998). It is important to understand which version will be valuable for whom and then distinguish versions of the product. The different ways to distinguish digital products are (Shapiro & Varian, 1998),

- **Delay** – When the information products are based on timings where some people are much eager to get the product or services early than the others. For example, The reason why the movies are released in the theatres first and then it goes on the DVDs. Here the distributors take advantage of the eagerness to watch a film in theatres and recover rest of the money by selling the DVDs.

- Convenience – When the distinction is based on the access to the information or restriction by the time or the place at which the customer can access that information is a good way to make customers realise the value they place on information.
- Comprehensiveness – Different information offers different value for various customers, and because of that, some customers will pay a premium price for it. For example, A core researcher in the field of management can pay a premium price for recent HBR articles on Management, but a student will use a free version of HBR series.
- Manipulation – The ability of the user to store, print, duplicate or manipulate is a critical dimension for the basis of versioning. For example, Lexis-Nexis levies extra charges on users who want to print or download information rather than to view it on screen.
- Speed – Different speeds for different users, is a common strategy for the software producers to sell a different version of their program. The most dedicated users will use take the faster version even if they want to spend a higher price for it on the contrast people who are happy with slower version will use free versions or inexpensive version.
- Data Processing – Various data processing capabilities can be utilised as a basis to build an information product.
- User Interface – The way the customer access the information can be a good starting point for versioning. Serious users will be willing to invest time to learn the complex interface that offers powerful searching capabilities.
- Image Resolution – Many digital products will use a different resolution of goods for different users as they will place different values on the quality of the pictures. For example, PhotoDisk offers its photographs in various resolutions.
- Support – Some information providers offer different stages of technical assistance at various prices.

After understanding the several strategies for the versioning, it is clear that producing different versions is very simple when you have an established product. The firm offers several types of version for the customers for selection that suits him the best, but the aim of the enterprise should be to design inexpensive version to make customers happy, and also that matches the customer's willingness to pay for it. When online and offline versions of the similar information are offered, the key is to understand whether they are complements or substitutes. The online version should be charged to minimise the impact of cannibalization if it is a substitute and should be encouraged to boost sales of the offline product if it is a complement (Shapiro & Varian, 1999). The online version can be used to provide the value that the offline version cannot provide. If the company is introducing a high-quality version in the market that doesn't mean that the firm wants to sell more quantity of high-quality version, that simply means that firm want to encourage the low-end buyers to decide in favour of high-quality or medium-quality versions to increase acceptability (Linde, 2009).

## **Conclusion**

The opportunities of selling the information goods have become wide due to the advancement in the information accessibility and developments in the information economy also offers many opportunities to companies. It now becomes clear that why information providers offer their products at low price and many times free. The low price of information goods will influence customers to pay and make a purchase and completely free offers also appeal the customer in a different sense. Versioning provides the way to serve large market by modifying the core of information to the needs of diverse consumers. It not only give a basis for creative thinking that distinguishes you from competitors but also offers you with the chance to gain more revenue from the existing product. We can better define the customer's value by aligning the product line and monitoring the new markets for the new versions (Shapiro & Varian, 1998). It is also vital to understand that how the information economy helps different players in the market in the race to achieve competitive advantage. Even though there is a substantial distinction between the information economy and traditional economy, the central principles remain similar. It is all about giving the right value to the customer at right time, right place and the right price.

DCU



## References

- Constine, J., 2017. *Facebook beats in Q4 with \$8.81B revenue, slower growth to 1.86B users*. [Online] Available at: <https://techcrunch.com/2017/02/01/facebook-q4-2016-earnings/> [Accessed 20 April 2017].
- Cusumano, M. A., 2012. Technology Strategy and Management. *Communications of the ACM*, 55(10), pp. 20-23.
- Damjanovic, V., Matkovic, V., Kostic, S. C. & Okanovic, M., 2015. The Role of the LinkedIn Social Media in Building the Personal Image. *Management Journal for Theory and Practice Management*, 65(1), pp. 15-23.
- Evans, P. B. & Wurster, T. S., 1996. Strategy and the New Economics of Information. *Harvard Business Review*, 75(5), pp. 70-82.
- Greenstein, S., 2016. The reference wars: Encyclopædia Britannica's decline and Encarta's emergence. *Strategic Management Journal*, 38(5), p. 995–1017.
- Linde, F., 2009. Pricing Information Goods. *Journal of Product and Brand Management*, 18(5), pp. 379-384.
- Linde, F. & Stock, W. G., 2011. *Information Markets: A Strategic Guideline for the I-commerce*. 1st Edition ed. Newyork: Walter de Gruyter.
- Parungo, N. J. V., 2015. *Subway Surfers' Reaches A Billion Downloads, Becomes The Fourth Most Downloaded Game In History*. [Online] Available at: <http://www.ibtimes.com/subway-surfers-reaches-billion-downloads-becomes-fourth-most-downloaded-game-history-2115998> [Accessed 20 April 2017].
- Quah, D., 2003. Digital Goods and the New Economy. *Centre for Economic Performance, London School of Economics and Political Science, London, UK*, 27 April, pp. 3-44.
- Rayport, J. F., 1999. Encyclopaedia Britannica. *Journal of Interactive Marketing (John Wiley & Sons)*, 13(2), pp. 16-28.
- Shapiro, C. & Varian, H. R., 1998. Versioning: The Smart Way to Sell Information. *Harvard Business Review*, 76(6), pp. 106-113.
- Shapiro, C. & Varian, H. R., 1999. *Information Rules: A Strategic Guide to the Network Economy*. 1st Edition ed. Boston, Massachusetts: Harvard Business School Press.
- Stigler, G. J., 2001. The Economics of Information. *The Journal of Political Economy*, 69(3), pp. 213-225.
- Tice, C., 2011. *Seven Ways to Avoid Competing On Price*. [Online] Available at: <https://www.entrepreneur.com/article/220406> [Accessed 20 April 2017].
- Varian, H. R., 1999. Markets for Information Goods. *Institute for Monetary and Economic Studies*, 99(1), pp. 3-19.