Fathoming Porter’s five forces model in the internet era

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Abstract

Purpose – To investigate the impact of the internet in “traditional” market rules.

Design/methodology/approach – An opinion piece based on Michael Porter’s arguments for the new economy.

Finding – Michael Porter’s arguments for the new economy provide a useful starting point in the analysis of the environment. His arguments are based on exaggerated phenomena. Factors that determine a sector’s profitability could be enriched with the innovation that prevails in the particular sector.

Originality/value – An attempt to criticize Porter’s thoughts regarding internet and industry structure and to enrich the Porter’s five forces model with the “power of innovation”.

Keywords Internet, Market forces, Economics, Innovation

Paper type Viewpoint

Introduction

Distinguishing between internet and non-internet, or between the so-called new economy and the old economy is today as useless as it would have been a century ago to compare companies with telephones to those without. By using the infrastructure of the emerging electric and telephone networks, the manufacturers changed the US economy exactly as today’s Silicon Valley entrepreneurs gain power by using computers and communication infrastructure to change the international economy (Levis et al., 2002).

The internet is an extremely important new technology and it is comes as no surprise that it has received so much attention from all market elements. If someone wants to understand what the internet means to him and his company, he would learn a lot by reading what the phone meant to people 100 years ago (Evans and Wurster, 2000). Although technology is changing this does not change the way people evaluate the economic value created by companies or the traditional rules of competition. The creation of true economic value is the final arbiter of business success (Porter, 2001).

This article deals with the impact of the internet on “traditional” market rules and the way a company must formulate its business strategy. Answers and pitfalls of some of Porter’s arguments regarding the internet and strategy are presented. Finally, after re-evaluating Porter’s five forces model, the use of the “power of innovation” is suggested as an additional profit factor within industry.

Market-industry rules

It is very difficult to determine what is going to happen in the future and to evaluate what the real financial situation of a company is. Every company evaluation consists of uncertainties, assumptions, and estimations. The stock market is the reflection of the economy and approximately depicts the absolute value of companies. That is why it is understandable to look at the marketplace outcome for preliminary guidance, when something new is
happening – new business phenomena, and technological evolutions. The market place shows the acceptance or not of the new trend.

But, in the early stages of the rollout of any important new technology, market signals can be unreliable due to the cultivation of great expectations. During these periods it is easy to lose perspective, as it is possible to be dominated by extravagant investing and overzealous entrepreneurs. New technologies trigger rampant experimentations, by both companies and customers, and the experimenttion is often economically unsustainable (Porter, 2001). As a result, market behaviour is distorted, giving an upward trend to market prices. However, as in almost every system, no growth can continue indefinitely – no tree grows to the sky – especially if it is not rooted within solid ground.

This has been especially visible during the internet's initial growth spurts over the past few years. The traditional rules of competition were temporarily suspended as people tried to adjust to the altered realities that the internet seemed to present. Dot-coms multiplied rapidly because they were able, contrary to business laws, to raise capital without having to demonstrate viability and prove the valuable use of capital. For a time, executives and analysts alike concocted absurd ways of evaluating new internet businesses, building false lexicons by treating sticky eyeballs in the same way as paying customers. The code became accepted and even popular (Schonfeld, 2001).

The fact that old rules regain their currency and the creation of true economic value remains the main factor of business success does not mean that we can shrug off some of the new values that have arisen in the last few years (Kalakota and Robinson, 1999). It is not possible to ignore the ability of the internet to unlock a company's walls, to discover and exploit opportunities outside its existing businesses or beyond its current technical or operational capabilities (David, 1998).

**Internet and information**

In order to use the term “information”, it first needs to be defined. According to Shapiro and Varian (1998), information is anything that can be digitised. Information is important because customers value it differently. For example, some information has entertainment value and other has business value. Customers are willing to pay for accessing this information but in different ways according to their needs and their perceptions.

Information can be divided into codified information and non-codified information. Codified information is, for example, specifications that are captured in industry standards and design rules. Intellectual property rights can protect them and the companies that hold the trade secrets and the patents determine their value. Non-codified information is broader in comparison to the previous information category and cannot easily travel through the internet (Hagel and Brown, 2001).

Before the advent of the internet, every industry consisted of a physical part and an informational set. In this period the industry constraints were the high costs of communicating, gathering and processing information, and accomplishing transactions. In other words, the informational set was difficult to handle and access. Expensive customized informational systems were needed for this purpose. That was precisely why many pre-existing industries had difficulties in expanding and gaining more value (Maitra, 1996). Porter argues that five underlying forces of competition determine the industry attractiveness, but how can the five forces model explain, for example, the expansion of the distance learning industry?

The use of the internet has not changed the basic economic laws, but has changed the way the world does business, the way that information is digitalized, packaged and transferred (Evans and Wurster, 1997). Established companies that produced and merchandised physical products managed to digitise the information that is valuable to the consumer and use the internet to transfer it. This digitisation not only produced more value for the consumer, but also value and decreased costs for the company. These types of companies should stop deploying the internet on a stand-alone basis but use it instead to enhance the distinctiveness of their strategies.
On the other hand, companies that produce and merchandized products that could be
digitalized (CDs, movies, books, newspapers, etc.) are in a different position. They have
difficulties in creating and gaining the economic value that information has. The economics
of information are quite different from the economics of physical products that customers are
accustomed to (Whipple, 1999). The cost of producing informational products is structured
in a different way. Information is costly to produce, but cheap to reproduce. It contains high
fixed cost but low marginal cost.

Informational products are also empirical products, which means that the customer has to
use them in order to understand their value and finally buy them (Shapiro and Varian, 1998).
This can be compared to buying music (CD, mp3, etc.), as one does not buy a song/CD
without having “experienced” it in advance. The fact that dot-coms have drawbacks in
creating economic value does not mean that they have to widen their value chain to
encompass other activities besides those conducted over the internet, or to develop other
assets, including physical ones. As a result, dot-coms should focus on creating benefits that
customers will pay for, rather than pursuing advertising and click-through revenues from
third parties.

Porter’s contribution to the literature of business strategy

At this point it is necessary to make a reference to Professor Porter’s contribution to the
literature of business strategy. Before Michael Porter’s work, other researchers had sought to
uncover relationships between industry structure and performance through empirical work
focused on a limited number of structural variables. A new sub-field of economics known as
industrial organization (IO) had been introduced. But IO’s immediate impact on business
was limited by IO economists’ focus on public, rather than private policy and by emphasis on
using a short list of structural variables to explain industry profitability in a way that slighted
business strategy (Ghemawat et al., 2001).

In 1974 Michael Porter, who had worked on IO to study industry structure and business
strategy, prepared a “Note on the structural analysis of industries” and that was his first
attempt to turn IO on its head by focusing on the business policy of profit maximization,
rather than the public policy objective of profit maximization, and the public policy objective
of minimizing “excess” profit (Porter, 1979). In 1980, he published his first book, Competitive
Strategy, which owed much of its success to the “five forces” framework, that this paper
focuses on (Porter, 1980). This framework (see Figure 1) sought to relate the average
profitability of the participants in an industry to competitive forces.

![Porter's five forces model](image-url)
Porter’s framework for industry analysis broadened the supply-demand analysis of individual markets in several aspects. First, it slackened the assumptions of both large numbers and homogeneity – that is, of a large number of representative competitors. Second, along the horizontal dimension, it shifted attention from two-stage horizontal chains, each consisting of a supplier and buyer, to three-stage chains made up of suppliers, rivals and buyers. Third, along the vertical dimension, it accounted for potential entrants and substitutes as well as direct rivals. These generalizations, however, forced Porter to reach beyond scientific evidence into the realm of common sense.

A survey carried out by Porter’s opponents in the late 1980s revealed that only a few of the influences Porter flagged commanded strong empirical support. Despite the fact that the “five forces” framework focuses on business concerns rather than public policy, it also emphasizes extended competition for value rather than just competition among existing rivals, and the simpleness of its application inspired numerous companies as well as business schools to adopt its use (Wheelen and Hunger, 1998).

Given the impact of Porter’s “five forces” framework on business strategy landscape, we will hereafter present the framework in short.

**Force 1: the degree of rivalry**

The intensity of rivalry, which is the most obvious of the five forces in an industry, helps determine the extent to which the value created by an industry will be dissipated through head-to-head competition. The most valuable contribution of Porter’s “five forces” framework in this issue may be its suggestion that rivalry, while important, is only one of several forces that determine industry attractiveness.

**Force 2: the threat of entry**

Both potential and existing competitors influence average industry profitability. The key concept in analysing the threat of new entrants are the entry barriers. They can take diverse forms and are used to prevent an influx of firms into an industry whenever profits, adjusted for the cost of capital, rise above zero. In contrast, entry barriers exist whenever it is difficult or not economically feasible for an outsider to replicate the incumbents’ position. The most common forms of entry barriers, except intrinsic physical or legal obstacles, are usually the scale and the investment required to enter an industry as an efficient competitor.

**Force 3: the threat of substitutes**

The threat that substitute products pose to an industry’s profitability depends on the relative price-to-performance ratios of the different types of products or services to which customers can turn to satisfy the same basic need. The threat of substitution is also affected by switching costs – that is, the costs in areas such as retraining, retooling and redesigning that are incurred when a customer switches to a different type of product or service. The substitution process follows an S-shape curve. It starts slowly as a few trendsetters risk experimenting with the substitute, picks up steam if other customers follow suit, and finally levels off when nearly all the economical substitution possibilities have been exhausted.

**Force 4: buyer power**

Buyer power is one of the two horizontal forces that influence the appropriation of the value created by an industry. The most important determinants of buyer power are the size and the concentration of customers. Other factors are the extent to which the buyers are informed and the concentration or differentiation of the competitors. It is often useful to distinguish potential buyer power from the buyer’s willingness or incentive to use that power, willingness that derives mainly from the “risk of failure” associated with a product’s use.

**Force 5: supplier power**

Supplier power is the mirror image of buyer power. As a result, the analysis of supplier power typically focuses first on the relative size and concentration of suppliers relative to industry participants and second on the degree of differentiation in the inputs supplied. The ability to
charge customers different prices in line with differences in the value created for each of those buyers usually indicates that the market is characterized by high supplier power and at the same time by low buyer power (Porter, 1989, 1996).

Fathoming Porter’s thoughts regarding internet and industry structure

Michael Porter’s arguments about the new economy, as they are presented in “Strategy and the internet”, published in Harvard Business Review (Porter, 2001), provide a useful starting point in the analysis of the environment in a rapidly changing world. Nevertheless, the angle of his aspects can be criticized, as they are based on exaggerated phenomena that took place prior to this event, when great expectations of the growth of the new economy had been cultivated.

According to Porter “the internet technology provides buyers with easier access to information about products and suppliers, thus bolstering buyer bargaining power”. The fact that the buyer has access to information regarding products and suppliers does not mean that he will receive the product on time and in proper condition. Information about products does not prevent customers from buying useless things and products that do not meet their needs. The capability of the shops to provide consulting services can ensure additional safety for their customers and thus impairs shops bargaining power.

Porter argues, “the internet reduces the barriers to entry”. At first sight, this argument can be true. But upon more careful examination we will see that the major cost centres which determine the level of the barriers to entry are the same as for physical products. According to Shapiro, informational products such as software are costly to produce for the first time, but cheap to reproduce, and consist of a high fixed cost and a low marginal cost. This means that the barriers to entry are higher for companies which produce informational products.

Porter recognises that “internet technologies tend to reduce variable costs and tilt costs structures toward fixed costs, creating significantly greater pressure for companies to engage in destructive price competition”. When a company produces physical products variable costs are significant in proportion to fixed costs. The internet can reduce all the unnecessary costs that burden the product cost and which the consumer is not willing to pay for. On the other hand, for the informational products the reproduction cost converges to zero. It is not the internet that decreases the reproduction cost of informational products to zero, but the nature of the products. The internet allows this to happen. The use of intellectual property rights, licensing, lock-in and switching costs can prolong the period in which the price is reduced from the production price to the final reproduction cost. Figure 2 shows the differences between physical (regular) products and informational (digital) products.

Porter declares that “the great paradox of the internet is that its very benefits – making information widely available; reducing the difficulty of purchasing, marketing, and distribution; allowing buyers and sellers to find and transact business with one another more easily – also make it more difficult for companies to capture those benefits”. Porter’s view seems logical and justifiable, however, an established sales force or other professionals inside a company are still very much needed. Not all difficult questions can be answered through the internet. The information flow through the internet tends not only to answer questions, but to raise them as well. Human contact seems important in problematic situations; the internet is not very capable of providing customers with professional opinions (Hallowell, 2001). Moreover, by using the internet, manufacturers can sell directly to customers and provide customer support online. In this sense, traditional intermediaries are eliminated. This new phenomenon is called “dis-intermediation”. However, by using new
technology, intermediaries regain value; they are transformed into electronic intermediaries and participate in a new phenomenon called “reintermediation” (see Figure 3). These new intermediaries add value to products, increasing the difficulty of purchasing, marketing, and distribution, and making it easier for companies to capture some additional benefits (Turban et al., 2000).

The argument stated shows that “companies can still capture a lot of benefits and at the same time reduce the buyers bargaining power” (Kosiur, 1997).

Porter argues that “industry structure is not fixed but rather is shaped to a considerable degree by the choices made by competitors”. An argument like this can be true when the market signals are positive and companies without sufficient strategy can raise capital without having to demonstrate viability. But when the markets are unfavourable, competitors who do not have strategic plans cannot shape the industry structure because they cannot survive (Schulman and Smith, 1997). It is more difficult in these periods to cannibalise the industry competition.

The argument that the proliferation of dot-coms is a sign of the economic value of the internet is premature. On the other hand, it is not fair to use arguments based on the early market signals to prove that the internet has negative implications for industry profitability.

**Figure 2** Physical vs informational products

![Figure 2](image)

**Figure 3** Disintermediation and reintermediation by EC

![Figure 3](image)
Porter’s myths are not proved to be wrong!

One argument that Porter invokes is that “... the openness of internet makes it difficult for a single company to capture the benefits of the network effect. To have network effects, it is needed to have a critical mass of customers. Network effect is a self-limiting mechanism and after meeting the needs of a great magnitude of customers it becomes less effective in meeting the needs of the remaining customers in the market. Finally the experience curve advantage proved disastrous in many industries.”

The phenomenon of the network effect was observed in the previous decade, when all companies wanted to access the internet. The role of networks and network economics have make sense when virtual networks are present such as the network of Apple Macintosh computers, the network of owners of compact disk machines, the network of users of MS Office, etc. The majority of companies wrongly thought that “networking” with other companies would give them the opportunity to expand the value of the informational products they produced. In some cases, companies hoped to gain value only through networking, without having any product value.

Porter says that “as partnering proliferates within the internet, companies tend to become more alike, which heats up rivalry. Companies, instead of focusing on their own strategic goals, are forced to balance the many potentially conflicting objectives of their partners while educating them about their business. Rivalry often becomes more unstable, and since producers of complements can be potential competitors, the threat of entry increases.”

It is true that the vertical integration of companies is less favourable nowadays, especially for companies that produce and sell informational products. The ease to search, coordinate, contract and transact enables companies to have a greater number of potential suppliers. Suppliers know that there are other specialized suppliers around the world keen to replace them. Companies do not have high switching costs so they can exert pressure and finally reduce the bargaining power of the suppliers. In this partnering business model the crucial point for each company is to find out what their respective core competencies are and let the partners do the rest.

It is not necessary for companies to deploy all kinds of competencies that concatenate the final product. It is essential for a company to orchestrate an extensive “business web” (Tapscott, 2001). However, it would be difficult for a company to stay alive and gain profit from resources that do not belong to it, without having core competencies. The lack of core competencies was one of the mistakes made by companies that entered the internet. They saw their companies as a portfolio of end products and not as a portfolio of competencies. During the internet boom, top management lacked the vision to identify and build competencies and did not have the qualifications to administrate and assemble resources spread across multiple businesses. The new business-web needs network orchestrators to begin by undertaking a detached self-appraisal in which they identify those activities they do well enough in order to become the pre-eminent players in the market. Orchestrators, however, do not share their core competencies. It is unnecessary for them to do so, since the viability of a network of companies does not depend on attracting a huge number of partners but on facilitating the exchange of information between them.

Moreover, it seems that during the internet boom years, the barriers to entry were lower because the entry into some markets was primarily related to capital requirements, access to channels and sales forces. In reality this argument is not true. In the information economy it is harder to keep proprietary information, and the market boom has enticed many new entrants into many industries. It is difficult for a company to survive if it does not obtain strong partnering relations and it is almost impossible for a single company to build a vertical integrated company. Newcomers have to gain access to the knowledge and expertise, to realize efficiencies flowing from partners’ sharing of assets and to obtain privileged access to product and information (Hammer, 2001). In this sense the barriers to entry can be much higher than previously.

Another point that cannot be ignored is that no company is hermetically sealed. Outside perspectives and competencies flow into and out of organizations through many routes
(partnerships with universities, alliances and acquisitions, external venture investments, recruiting and hiring, customers and suppliers and the relationships and curiosity of individual employees) (Wolpert, 2002). But imagine an ideal world, where there is no fear of competitors. If company A develops a great idea that it cannot commercialise, it can more efficiently shift it to company B, which has the right skills to gain from the opportunity that arises.

At IBM, the internet division realized that the company had developed many promising software programs in research, which had yet to be commercialised. They could not find a compelling use for those programs. As an experiment, the division used the internet (AlphaWorks) to collect valuable ideas from outside companies in order to bring these programs to the market. A lot of unused ideas went to the market with this special kind of partnering. The broader question is: why don’t competitors simply help themselves to these ideas? For one thing, patents and licenses are easy to enforce. No one is naive enough to copy a technological development and then try to bring something similar to the market by violating licenses, patents and intellectual property rights.

**Innovation and industry expansion**

According to Porter’s opinion, the collective strength of the five forces model determines the potential profit of an industry (Porter, 1998). One of the critical comments made of the five forces framework is its static nature, whereas the competitive environment is changing turbulently (see Figure 4). Are the five forces able to foresee industry expansion? Is it the corporate strategist’s goal to find a position in the industry where his or her company can best defend itself against these forces or can influence them in its favour, or is the goal to become part of the ongoing commerce with the intention to produce innovative ideas that will expand the size of the industry? Is it true that the environment poses a threat to the organisation, leading to the consideration of suppliers and buyers as threats that need to be tackled, or does it offer the ground for a constitutive industry player co-operation?

**Figure 4 | Industry expansion by innovation**

![Diagram of Industry expansion by innovation](image)
Apart from competing with rivals, most organisations also co-operate with other organisations (Porter, 1985). Such collaboration is contrary to Porter’s five forces analysis. However, co-operation between organisations and others in their industry environment is also important to achieve sustainable competitive advantage, to produce lower costs, to deliver more sustainable relationships with those outside the organization, to produce innovative business opportunities (Chesbrough and Teece, 1996). According to Wolpert (2002), innovation needs to become a more open process and must become part of the ongoing commerce that takes place among companies. If a company stays locked inside its own four walls, how will it be able to discover and exploit opportunities outside its existing business or beyond its current technical or operational capabilities?

There are many examples (see also the section “Porter’s myths are not proved to be wrong!”) showing how innovation can evoke the expansion of an industry. Imitation of structural business innovations that dominant players are implementing can boost the magnitude of the industry (Wolpert, 2002). For example, in the general-merchandise retailing industry, productivity growth was more than tripled after 1995 because competitors started adopting Wal-Mart’s innovations more rapidly, including the large-scale (“big-box”) format, “everyday low prices,” economies of scale in warehouse logistics and purchasing, and electronic data interchange (EDI) with suppliers (Allen and Fjermestad, 2001).

Cooperation of key industry players or intermediation of management consultancy companies can facilitate innovation, and consequently industry expansion, by giving clients the infrastructure to share ideas and to discuss technological advances. Recently a major US oil company found commercial applications for a new molecule it had developed by brainstorming with 12 other companies in various industries; 11 business opportunities for the molecule, with potential revenues of $150 million were identified. One of these companies went on to pursue a joint project with the oil company and introduced a new consumer product based on the molecule. This kind of partnership expanded the industry magnitude and increased industry’s cash flow (Allen and Fjermestad, 2001). Can Porter’s five forces predict this additional economic value of the industry?

Conclusions

New factors that seem to dominate the ‘new economy’ are not entirely ‘new’. They are parts of the old, well-established economy. Porter’s five forces model – the collective strength of the bargaining power of suppliers and buyers, the threat of potential new entrants and substitutes and also the extent of competitive rivalry – is still valuable. Despite the fact that supply and demand curves cannot provide valuable help for the interpretation of factors regarding the new economy, concepts such as differential pricing, network effects and group of products were applied to the old market rules (Karagiannopoulos and Georgopoulos, 2004).

Companies that use the internet have to reconsider the way they do business. Depending on the occasion, companies must use some of the traditional rules in a new way. Before formulating their strategy, identifying the position of the company in the market area is the primary goal. Afterwards, a plan to fight against the competition that threatens their strategic position has to be determined. Questions concerning the customer’s target group, the products/services that must be produced, the selling price and the way to manage all the above issues, are important and all these should be answered regularly. The internet is a decision making tool for old companies regarding strategy. It gives valuable help in implementing the decided strategy effectively. Unfortunately, it cannot do everything. And it is not the “magic wand” that allows companies to accomplish radical changes in all their processes.

Despite being an extremely important new technology, the internet neither changes nor leaves everything untouched. It is not possible for distorted market signals to be the judging factors of industry changes. On the other hand, the market recession cannot set aside all changes caused by the internet with no discrimination. Old rules/values that produce economic value are not obsolete and need to be given proper attention and thus do not allow companies to rely on this observation. They need to facilitate several changes and to adopt
new ideas about the industry structure and the position their companies’ hold. It is impossible to predict the exact situation, but what is certain is that, in an increasingly complex world, the greatest growth opportunities will come more often by the interaction of multiple companies than from single visionaries acting on their own. The internet is capable of boosting the power of partnership and their benefits.

Moreover, defending the position that a corporation occupies is only necessary when the industry magnitude is static and an unconsidered market share loss may lead the corporation to collapse. In industries with great changing and expansion forces, where innovative ideas, technologies and products increase industry magnitude, companies must adopt a more dynamic strategy in order to defend themselves against industry structures and increase their market share. In this case cooperation is a necessity.

The factors that determine a sector’s profitability, apart from Porter’s five forces model, could be enriched with the intensity of innovation that prevails in this particular sector. Wrong evaluation of innovation is likely not only to destroy a company or make it non-competitive, but also to render and make obsolete an entire sector. It is worth mentioning that the internet has without doubt provoked major changes in traditional corporate processes whilst creating new business models. Still, traditional corporate procedures should not be ignored, as we are still in a transition phase. Stabilization will take place in the future, and until then Porter’s five forces model can be combined with each sector’s innovation intensity.

References


