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Value

Paul P. Maglio
IBM Almaden Research Center, San Jose, CA, USA

Abstract

There are two main senses of value relevant to strategic management: exchange-value and use-value. The traditional economic view relies on exchange-value, which refers to the utilities embedded in goods and services during production by a firm and which is measured by exchange (price) in a market. By contrast, use-value refers to the benefits gained through interactions of multiple stakeholders during the creation and use of goods and services, including stakeholders in the supply chain, producers, providers, customers and others. For strategic management, exchange-value focuses attention on products and transactions, whereas use-value focuses attention on processes, relationships and mutual benefit.

Definition Value represents enhanced capabilities that result from interactions among multiple economic actors. These enhanced capabilities benefit all actors by making them better fit, or better able to survive and thrive, in their particular environments. Conventionally, value is measured by exchange (price) in a market. For strategic management, the key is to understand and create processes for effective value creation among multiple actors.

All businesses aim to create value. They do this by engaging with customers, suppliers and partners in ways that leave all parties – including themselves – better off. In conventional terms, value is often viewed as the difference between benefit received and price paid. Because benefits cannot always be quantified, judgement of the value of goods or services is often viewed as subjective: what seems a bargain to one may not seem a bargain to another. This subjectivity makes value difficult to define. what is more, there are many different senses of the word, including ethical value, mathematical value and economic value. Here, I discuss two notions of value coming primarily from the domains of economics and marketing, namely use-value and exchange-value. Both are relevant for strategic management, the practice of setting organizational goals and executing organizational plans. In what follows, I first provide a very brief and unbiased perspective on the use of the term 'value', second discuss the notion of value creation more generally, and finally elaborate on some implications for strategic management.

On the Use of 'value'

In the fourth century BC, Aristotle distinguished between two kinds of value of an object, use-value

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and exchange-value. The use-value of an object refers to the benefit or satisfaction received by using it, whereas the exchange-value refers to what it can be exchanged for, such as money or other objects. Aristotle could not make sense of exchange-value because he could not find any intrinsic property by which all objects could be seen as comparable and could therefore provide a reasonable basis for exchange (see Fleetwood 1997). Throughout most of history, political philosophers and others followed Aristotle's lead and considered use-value – the utility of a thing – to be the basic notion of value (see Dixon 1990).

Similarly, Smith (1976) distinguished two meanings of value, one expressing the utility of an object (use-value) and the other the power of purchasing other goods obtained by virtue of having the object (exchange-value). Smith focused primarily on exchange-value, particularly value embedded in tangible goods, because he was primarily concerned with how a nation could effectively build up economic wealth (in a time long before well-established transportation and communication technologies). He distinguished *productive* activities, those that contributed to exchange-value through the manufacturing and distribution of tangible goods, from *unproductive* activities, those that did not result in output that was tangible and exportable such as service activities. Following Smith, goods with embedded exchange-value (or utilities) became the focus of neoclassical economics grounded in marginal utility theory (Marshal 1927; Walras 1954), leading to the standard view that value is created by a firm and distributed in a market, usually through exchange of goods and money (e.g., Desai 1987; Black 2008). Exchange-value is the traditional economic view of value.

Exchange-value measures the perceived benefit of some transaction or interaction to be relative to its cost. From the customer perspective, satisfaction and the experience created through the use of goods and services are critical to the evaluation of use-value and to assessing trade-offs between perceived benefits and cost (e.g., Anderson and Narus 1998; Pine and Gilmore 1998). Use-value refers to what can be done by virtue of having a good or using a service rather than what it can exchanged for. Thus, use-value is *co-created* among economic actors, resulting from sharing of resources and capabilities across actors (Vargo and Lusch 2004). That is, use-value results when interactions among entities or economic actors leave the entities better off – better fit to their environments, better able to adapt to changing circumstances – than they were before they interacted (Vargo et al. 2008). Incorporating the capabilities of others is one way to improve fitness. Goals and environments change, and better-fit entities are those that can adapt: for example, the ability of a manufacturing firm to transform itself into a service firm, such as IBM (Maglio et al. 2010) and Rolls-Royce (Ng et al. 2009), or the ability of a service firm to evolve its delivery processes and its offerings by focusing on core competencies and on establishing partnerships with customers and others (Prahalad and Ramaswamy 2000). Simply put, value results when entities work together to improve or enhance one another's capabilities to act in specific situations or environments in a mutually beneficial way (Vargo et al. 2008).

Strategic Value Creation

The traditional economic view of value, sometimes referred to as the goods-dominant view, is based on exchange-value (Vargo and Lusch 2004, 2008). According to this view, value is created (manufactured) by the firm and distributed in the market, usually through the exchange of goods and money. From this perspective the roles of 'producers' and 'consumers' are distinct, and value creation is often thought of as a series of activities performed by the firm. For instance, an automobile-manufacturing firm constructs an automobile out of metal, plastic, rubber and other parts, arranges them precisely and packages them together. In their raw form, the metal and other components cannot be used as transportation. The firm's production process creates value for customers through the manufacturing and delivery of an automobile. That is, the

automobile-manufacturing firm embeds value in the automobile by transforming raw materials into something that customers want. In this sense, value is created by the firm in the form of goods, and valuable goods are exchanged for money (or possibly other goods). Exchange-value is measured by this transaction.

An alternative view of economic value, sometimes called the service-dominant view, is based on use-value (Vargo and Lusch 2004, 2008). According to this view, the roles of producers and consumers are not distinct, meaning that value is always co-created in interactions among providers and beneficiaries through the integration of resources and application of capabilities. An automobile-manufacturing firm applies its knowledge, skills and capabilities to transform raw materials into an automobile. But the automobile is only an input into the value creation that occurs as a customer uses it (in transportation, self-identity etc.) and integrates it with other resources. If no one knew how to drive, had access to fuel and maintenance, and functioned in social networks for which particular automobiles had particular meanings, the car would have no value. It is only when the customer makes use of the automobile – in the context of his or her own life – that it has value. In this sense, customers and manufacturers co-create value: manufacturers applying their knowledge and skills in the production and branding of goods, and customers applying their knowledge and skills in the use of them in the context of their own lives. Value is co-created by this reciprocal and mutually beneficial relationship.

From a goods-dominant perspective, value of a good or a service is added by entities positioned along a value chain, making strategic management the art of positioning a firm in the right place on the chain (Normann and Ramirez 1993). More precisely, firms add value to goods or services before they are delivered to or used by customers; an automobile-manufacturing firm adds value to raw materials, such as steel, glass, rubber and so forth by configuring these parts to build an automobile that someone wants to buy. There is value in creating the thing, adding parts to the product, meaning the focus is on creation. The key question is where to position the firm to maximize the exchange-value it can add before the good is sold or used.

From a service-dominant perspective, value is created by interactions among a constellation of entities, making strategic management the art of continuous design and redesign of complex business systems to connect knowledge and relationships (Normann and Ramirez 1993). Establishing a system of interacting stakeholders – rather than establishing a position along a value chain – will result in improved leverage and resilience of connected resources (people, technology, capabilities). The service view is that value lies in the use of extended capabilities afforded by interactions with others rather than those added ahead of time. The furniture retailer IKEA provides a seminal example of how understanding the roles and capabilities of stakeholders in a value constellation can lead to improved value creation by changing how customers relate to home furnishings, harnessing customer capabilities to transport and assemble furniture (Normann and Ramirez 1993). IKEA worked with suppliers so that the furniture was designed, built and packaged for easy transport (in customers' vehicles) and assembly (enclosed tools and graphic instructions). IKEA did not simply transform its furniture: it transformed the roles and relationships of its stakeholders in a complex system of interactions. As the IKEA example suggests, one effective approach to improving value creation in a constellation is to keep improving the fit among firm competencies, supplier and other stakeholder competencies, and customer competencies (Normann and Ramirez 1993). The key point is that value is created at the time of use, rather than at the time of manufacturing, specifically through interactions among multiple stakeholders.

For a firm, exchange-value depends on creating units of output at the time of production, whereas use-value depends on processes that integrate resources at the time of use. Shifting the view from exchange to use means shifting attention from the product to the process of creation, and therefore focuses on the roles and economic actors involved (Normann 2001). Value results when multiple actors work together to create

mutual benefit (Vargo et al. 2008). That is, value creation emerges through the design and orchestration of the relationship and interactions among multiple actors (e.g., Normann and Ramirez 1993) as the actors gain access to and make use of one another's resources (Spohrer and Maglio 2010). Effective value co-creation results when both firm and customer bring together resources, including capabilities and competences, and take joint actions that leave one another better off (Vargo et al. 2008).

Implications

What are some implications for strategic management of taking a service-dominant perspective on value? First, because a firm provides only one set of capabilities needed for value creation in a value network made up of multiple actors, a firm should focus on what it does best (Prahalad and Hamel 1990). Yet focus is not enough. Effective firms orchestrate the activities of multiple actors, as in the case of IKEA (Normann and Ramirez 1993). One aspect of use-value is that firms can rely on partners and customers to provide part of the labour to produce goods and services, as with self-service technologies for customers and integrated supply chains for providers (see also Moon and Frei 2000; Bitner et al. 2002; Campbell et al. 2011). However, saving labour by shifting work around in the value network is not fundamental to value co-creation (e.g., Frei 2006). As the IKEA case shows, effective value co-creation means enabling different stakeholders to work together in ways that take advantage of one another's capabilities so that all get what they need – for instance, customers get quality furniture at an affordable price, suppliers serve new markets and IKEA's business grows.

A second implication is that focusing on use rather on exchange means building business relationships rather than merely increasing individual transactions. Because value co-creation depends on resource integration, sharing resources and capabilities to improve overall fitness in a system of actors (Vargo et al. 2008), value co-creation often depends on ongoing processes. For instance, a customer's relationship with IKEA often starts well before entering the store (through catalogues and online shopping) and exchanging money for goods, and often ends well after leaving the store (transporting items home and putting them together). It is critical for IKEA to enable customers throughout this experience, and so IKEA must measure itself not on transactions but on experiences, and ultimately on its long-term relationships with customers. The same holds for suppliers. The upshot is that relationship management must be a business core function (Hagel and Singer 2000).

Summary

There are many ways to think about value. Here, I have discussed exchange-value and use-value, a key contrast that has broad implications for strategic management. Exchange-value refers to the utilities embedded in goods and services during production by a firm as measured by price in a market. Use-value refers to benefits gained through stakeholder interactions during the creation and use of goods and services, as measured ultimately by improved adaptability of all stakeholders. Exchange-value focuses attention inward on core competences, products and transactions, whereas use-value focuses attention outward on the roles of multiple players in a value network, including their interactions, processes, relationships and mutual benefit.

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Variance Decomposition

Sea-Jin Chang
National University of Singapore, Business School, Singapore, Singapore

Abstract

Variance decomposition denotes a variety of techniques to decompose the variance of an interested dependent variable into different sources or classes of effects. It has been widely used in strategy analysis since the heated debate in the 1990s on the relative size of corporate effects vis-à-vis industry and business unit effects. We provide a brief examination of some representative techniques. We also highlight their underlying assumptions as well as their limitations, which require special care in interpreting the results.

Definition Variance decomposition denotes a variety of techniques to decompose the variance of an interested dependent variable into different sources or classes of effects. Depending on how we characterize individual effects, we can classify techniques into a fixed effects model, random effects model and mixed effects model; the latter combines both fixed and random effects in a model.

What Is a Variance Decomposition?

Variance decomposition analysis is a statistical procedure that uses some techniques to decompose the variance of an interested dependent variable into different sources or classes of effects. Depending on how we characterize individual effects, we can classify technique into a fixed effects model, random effects model and mixed effects model, which combines both fixed and random effects in a model. ANOVA (analysis of variance) may be the most well-known technique to perform variance decomposition analysis. Basically, it estimates a linear model using sets of dummy variables that represent different

qualitative treatments. As ANOVA essentially estimates the individual shift of parameters with a class of effects, it is a type of *fixed effects* model. An advantage of the ANOVA model is that it is rather straightforward in analysis and has less computational burden than alternative models. One can perform a simple F-statistic for the significance of each fixed effect. A critical limitation of the ANOVA approach is that it generates results that are sensitive to the ordering of how individual effects are added.

VCA (variance component analysis) is called a *random effects* model because it assumes that we draw random samples from infinite populations of individual effects and classify them accordingly. The sampling process involved in obtaining data is such that any one of many possible sets of data could be derived from repetitions of the data-gathering process (Searle 1971: 378). Unlike a fixed effects model such as ANOVA, which highlights the linear functions of any particular effects, it does not estimate the individual shift of parameters. Instead, it is used to make an inference about some population levels of the factors from which those in the data are presumed to have come (Searle 1971).

Debates on the Size of Corporate Effects

Variance decomposition analysis has become one of the important methodologies in strategy analysis since the heated debate on the relative size of corporate effects vis-à-vis industry and business unit effects. Schmalensee (1985) decomposed variances in profitability across firms from the 1975 FTC line of business data. He found that industry effects were the most important factor in explaining a firm's profitability, while corporate effects were negligible. This is inconsistent with a basic tenet of strategic management, which is that there is considerable firm-level heterogeneity and that firm-level effects (whether business unit or corporate) impact on financial performance. Rumelt (1991) re-analysed the FTC data by using 4 years (1974–1977) of time-series data. He could therefore generate across-year variation of industry-level performance. This pooled sample enabled him to add a major component – the business unit dummy variable – to the set used in decomposing line of business profitability. Further, Rumelt used the random effects model while Schmalensee used the fixed effects model. Rumelt found that business unit and industry effects, not corporate effects, are the main sources of firm profitability, thus implying that business units benefit negligibly, if at all, by being associated with a corporate unit.

To illustrate the problem of Schmalensee and Rumelt, let r_{ikt} denote the profit of a business unit affiliated with corporate k, in industry i, at time t. The subscripts for a particular business unit can be denoted as ik. The profit of a business unit, r_{ikt}, can be described as a linear combination of its mean, μ, industry effects, α_i, corporate effects, β_k, year effects, γ_t, business unit effects, φ_{ik}, and industry-year interaction effects, δ_{it}, and the error term, ε_{ikt}.

$$r_{ikt} = \mu + \alpha_i + \beta_k + \gamma_t + \phi_{ik} + \delta_{it} + \varepsilon_{ikt} \quad (1)$$

Variance Decomposition

The variance decomposition model does not require a distribution assumption in order for the variance to be decomposed. Many studies were largely descriptive and estimated the variance component without making any distributional assumptions (Schmalensee 1985; Rumelt 1991; McGahan and Porter 1997). The variance of profits in the random effects part of the model, σ^2_r, will be decomposed as the following:

$$\sigma_r^2 = \sigma_\alpha^2 + \sigma_\beta^2 + \sigma_\gamma^2 + \sigma_\phi^2 + \sigma_\delta^2 + \sigma_\varepsilon^2 \quad (2)$$

If we assume that the error term and the individual random effects are normally distributed with zero means, we can test hypotheses that certain variance components are zero (Searle 1971: 411). For example, we can test the hypothesis that an effect (e.g., the corporate effect) is significantly different from zero (H_a: $\sigma^2_\alpha > 0$), against the null hypothesis (H_0: $\sigma^2_\alpha = 0$). We use the likelihood ratio test by evaluating the value of the likelihood functions for the complete model (under H_a) and for the restricted model (under H_0). If we denote the likelihood function

as $L(\mu, \sigma^2_\alpha, \sigma^2_\beta, \sigma^2_\gamma, \sigma^2_\varphi, \sigma^2_\delta, \sigma^2_\varphi)$ the asymptotic distribution of −2 log-likelihood ratio under $\sigma^2_\alpha = 0$ is central chisquare with 1° of freedom:

$$-2\mathrm{Log_e}L\left(\mu, \sigma^2_\beta, \sigma^2_\gamma, \sigma^2_\phi, \sigma^2_\delta\sigma^2_\phi\right) + 2\mathrm{Log_e}L\left(\mu, \sigma^2_\alpha, \sigma^2_\beta, \sigma^2_\gamma, \sigma^2_\phi, \sigma^2_\delta\sigma^2_\phi\right) \sim \chi^2(1) \quad (3)$$

The decision rule is to reject H_0 if the −2 log-likelihood ratio is greater than $\chi^2(1)$.

Rumelt's controversial finding prompted several subsequent works either confirming or disconfirming it. Using the Compustat business segment database, Roquebert et al. (1996) found significantly large corporate effects. McGahan and Porter (1997) re-examined this Compustat database and found non-trivial corporate effects, although these effects were smaller than those reported by Roquebert, Phillips and Westfall. This divergence in findings may be attributable mainly to differences in samples. First, the Compustat database is more recent than the FTC database, which was available only for 1974–1977. Second, the Compustat database includes many small companies, while the FTC database consists mainly of large diversified corporations. Roquebert, Phillips and Westfall found that the variance component of corporate factors tends to be smaller for highly diversified corporations (in terms of the number of business units per firm). Third, the main difference between Roquebert, Phillips and Westfall and McGahan and Porter seems to hinge on whether single business firms are included/excluded from the sample. Bowman and Helfat (2001) argued that the inclusion of single business firms masks the true size of corporate effects since it is not possible to distinguish corporate effects from business unit effects for these firms. Similarly, Chang and Singh (2000) demonstrated that different industry definitions, inclusion/exclusion of small business units (SBUs) and firm size systematically change the populations from which we draw samples of corporations, industries and businesses, and thus significantly influence results. Fourth, the institutional context can also be significant. Chang and Hong (2002) indicate that corporate parents such as business groups play a more important role in developing countries, by circumventing market inefficiencies, than in developed countries.

Some Methodological Issues

Several researchers have raised methodological issues, in particular asking how we should interpret the estimated variance components. First, the variance decomposition model assumes that individual effects are uncorrelated with other effects. By assuming that the business portfolio of a specific firm is drawn randomly from the population of businesses, it contradicts a basic notion of ▶ corporate strategy, which emphasizes that firms use a particular logic to systematically seek businesses to enter or exit (McGahan and Porter 2002). Portfolio management should be reflected in a correlation between corporations and SBUs. Rumelt tried to relax this assumption by including a covariance term between corporation and industry. He could not, however, incorporate a correlation between a corporation and its SBUs due to the nested structure of the data. The lack of a covariance term between corporations and SBUs means that the model may underestimate the size of corporate effects.

Second, by assuming that corporate, business and industry effects are uncorrelated, this model cannot. If a firm uses its dominant position in an industry to leverage this advantage in a second industry, then the distinction between corporate and industry effects becomes blurred. In addition, if the industry structure is itself an outcome of firms' competitive interaction and preemptive behaviour, it is difficult to argue that industry effects really pertain to an industry or firms within that industry.

Third, the random effects model is specified in a way that assumes corporations have equal impacts on the profitability or market share of each SBU. It does not allow corporate effects to be stronger for some SBU combinations than others even though operating synergies may exist among only some related business units in a corporation. By imposing this restriction, this model may significantly underestimate the

importance of corporate effects. Brush and Bromiley (1997) demonstrated via simulation that the sizes of corporate effects diminish rapidly in a non-linear fashion when the corporate effects applied to only part of the entire set of SBUs in their models. This bias can be more likely for large corporations with more business units. Hawawini et al. (2003) similarly demonstrated that the estimated variance components might be sensitive to a small number of outliers in any given industry.

Despite the potential biases and limitations, the variance decomposition analysis remains a useful tool to identify sources of variation of a variable in question. The techniques themselves do not provide any clue on underlying causal relations because they are descriptive in nature. The techniques can be applied in many potential areas for strategy research. For instance, the variance decomposition technique has been applied to explain subsidiary performances of multinational corporations. Makino et al. (2004) found that corporate and subsidiary effects tend to be more critical in explaining the variance in foreign subsidiary performance in developed countries, whereas country and industry effects are more salient in developing countries.

See Also

- ▶ Corporate Strategy
- ▶ Strategic Business Unit (SBU)

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Venture Capital

Marco Da Rin
Tilburg University, Tilburg, Netherlands

Abstract

The financing of knowledge-based innovative companies that pursue the creation of new products and services is very risky, and requires special skills and the use of sophisticated contracts. Venture capital firms are small partnerships of highly skilled investors with business and entrepreneurial experience. They raise money from institutional investors and use it to fund companies selected through a thorough screening process. Venture investors become actively involved with their companies to help them commercialize their products and services. They also exert tight control on entrepreneurs by using sophisticated contracts. Originating in the US, venture capital is now a global industry.

Definition Venture capital is a specialized form of financial intermediation that provides funding to innovative companies with high-growth potential, with a goal to exit them within a few years and realize a capital gain. Venture investors use sophisticated contracts and become actively

involved with their companies to help them professionalize and commercialize their products and services.

Venture capital is a specialized form of financial intermediation that provides funding to innovative new ventures with high-growth prospects (Da Rin et al. 2013). Venture capital investors (VCs) are typically former entrepreneurs or industry executives with several years of experience in running and creating companies. They operate in small firms with few partners.

Venture finance developed in the postwar years in the US (Ante 2008), and has by now become a way of financing innovative companies that is common in most developed countries. While official statistics are not available, the amount under management in 2011 was likely to be about US$400bn, of which half was in the US and a third in Europe. Investments are usually small, ranging from under $1m for start-ups to several millions for companies that need to scale up and prepare for a stock market listing. Venture capital is a very cyclical industry, receiving large inflows of money at times of high stock market valuations, when investors hope to realize high gains by quickly bringing companies public (Gompers and Lerner 2000). Venture capital has attracted policy support in many countries, since policymakers appreciate its ability to contribute to economic growth and job creation. With some exceptions, the results of these policies have been disappointing, especially when public money has been blindly provided in the form of ill-designed subsidies to investors or companies (Da Rin et al. 2006; Lerner 2009).

Financial Intermediation

It is important to understand that VCs do not invest only their own money but are essentially financial intermediaries, that is, they invest money entrusted to them. More precisely, VCs raise funds from institutional investors and wealthy individuals through structures called 'funds' (Metrick and Yasuda 2010). Funds have a set horizon, typically 10 years, and may range from a few dozens to several hundred million dollars. The fixed-term horizon comes from the fact that it takes time to find suitable companies for investment, so that the money committed gets invested over a 4- to 6-year period. It then takes about 5 years to bring portfolio companies to a stage where they can be either sold to an industrial buyer or listed on a stock exchange.

There is an additional reason for having fund structures with a definite lifespan. VCs raise funds to profit from the management fees and performance fees they charge to investors. For investors it is difficult to assess the progress and valuation of a fund's portfolio companies, since these are private companies that are still in an early development phase. Only when the fund exits a company and realizes a capital gain (or loss) can one assess the profit that the investment has generated. By requiring the fund to have a finite life, institutional investors can therefore verify if their money has been well invested and decide whether to further provide funds to the venture capital firm that managed the fund. Since there are many VCs competing for institutional investors' money, competition should weed out those which are not able to consistently generate returns adequate to the risk involved in these investments.

A venture fund's finite lifetime also has an important implication for companies, since it gives a clear horizon to the support VCs provide to their companies. While VCs are relatively patient investors, they also need to exit companies within a few years (typically five) to meet the fund's end date. This will put pressure on entrepreneurs to put their company up for sale. Additionally, since the fund's money and the partners' time are both scarce, VCs may choose to focus their time, money and support towards those portfolio companies that manage to develop faster and appear more likely to provide a profitable exit within the fund's lifetime. This can penalize those portfolio companies that are weaker but also those that, even with good long-term prospects, are slower to mature.

While 'independent' VCs constitute the majority of venture investors, especially in the US, there are also many 'captive' venture investors that are

owned by banks, companies and governments. Captives do not need to return periodically to the market for funding, since this is provided by their owners. Therefore, their objective may differ from achieving high returns, and include obtaining access to new technologies (Hellmann 2002; Masulis and Nahata 2009), generating new borrowers (Hellmann et al. 2008) and fostering local employment (Lerner 1999).

Active Investing

One key feature of VCs is their active involvement with portfolio companies, which has been shown to improve the likelihood of a profitable exit (Bottazzi et al. 2008). Involvement begins at the time of screening companies, since the expert eye of VCs only admits a very small proportion of the companies that apply for funding (Eckhardt et al. 2006). Investors get involved since their business expertise and their industry-specific knowledge and network of contacts may make a difference in helping the company realize its full potential. They leverage their industry knowledge by remaining focused on one or two industries (Gompers et al. 2009). By getting involved, investors can substantially increase a company's value, and therefore the value of their equity stake. Involvement can take several forms: monitoring the entrepreneur's effort, providing strategic and operational support, helping with recruiting, as well as exerting control if the company's situation deteriorates. Several studies have documented that investor involvement leads to faster professionalization of the company (Hellmann and Puri 2002), more effective product commercialization (Gans et al. 2002; Hsu 2006), faster product innovation (Hellmann and Puri 2000; Kortum and Lerner 2000) and more strategic alliances (Lindsey 2008).

Sophisticated Contracting

Venture capital investing also differs from other sources of finance because of the extensive use of sophisticated contracting (Kaplan and Strömberg 2003). VCs provide funding through convertible securities that give them debt-like protection in case of default but can be converted into common equity if the company succeeds and goes public (Hellmann 2006). Moreover, venture funding is given in stages, so that no more than the necessary capital is contributed at any stage; and only when there is positive information on the company's progress is more capital provided (Tian 2011). Venture deals are also often syndicated, which allows investors to share knowledge, obtain second opinions and diversify their portfolio over time, with positive effects on both companies' success and investment returns (Sorenson and Stuart 2001; Hochberg et al. 2010). Several covenants give investors rights to obtain control of the company should it run into trouble, and to transfer control to the entrepreneur as progress towards a successful exit is made (Dessein 2005). Covenants also ensure that entrepreneurs obtain a larger equity stake as time goes by and the company makes progress. Overall, they ensure that both investors and entrepreneurs have incentives to provide high effort in making the venture succeed (Casamatta 2003; Bottazzi et al. 2009).

See Also

- ▶ Corporate Venturing
- ▶ Creative Destruction
- ▶ Innovation-Driven Capitalism

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Vernon's Contribution to International Business

John Cantwell[1] and Jessica Salmon[2]
[1]Rutgers University, New Brunswick, NJ, USA
[2]Rutgers University, Trenton, NJ, USA

Abstract

Raymond Vernon made seminal contributions that helped to establish two major streams of ► international business literature. The first, for which he is best known, is the product cycle model (PCM) which outlines a path of international trade and production for innovative new products. Although offering a good explanation of the growth of US foreign direct investment in Europe in the 1950s and 1960s, its explanatory power weakened in the 1970s, which led him to propose the PCM Mark II. The second track emphasized how corporate internationalization changes the relationships between multinational corporations (MNCs) and states.

Introduction

Raymond Vernon (1913–1999) was best known for his theorizing on the product cycle model (PCM) as a model for the growth of international trade and production, and for his research

regarding the relationship between governments and multinational enterprises (MNEs).

Stephen Hymer, John Dunning and Raymond Vernon are often recognized as the triumvirate of father figures of research in ▶ international business and the MNE, a research programme that emerged after the massive and until then unexplained influx of US ▶ foreign direct investment (FDI) to Europe following the Second World War (Ietto-Gillies 2012). Vernon's two main lines of research focused on the path of international production and the interplay between government and international business.

Product Cycle Model

Vernon's three-stage product cycle model, based on an already established marketing concept, was developed to explain the emergence of innovative new products as the platform for the expansion of international trade and investments (Cantwell 1989). During stage 1, New Product, entrepreneurs in an advanced country are particularly vigilant in search of opportunities to address the demands of high income consumers (Vernon 1966). A successful new product is expected to initially enjoy a monopolistic advantage, justifying the original expenditure on product development. The expected benefits of close, frequent and effective communication between consumers and the producers in this early stage of product development suggests that maintaining local production facilities in the home country would afford the means to adapt and revise a non-standard product under conditions of uncertainty (Vernon 1966). Once demand spreads to comparable advanced countries it can be met via exports (Ietto-Gillies 2012).

In stage two, Maturing Product, the product becomes standardized around some emergent dominant design, and demand continues to grow. These two parallel developments cause a shift in focus from improving product characteristics to a goal of economies of scale through consistent processes and mass output to cut production costs as imitators are now entering the market (Vernon 1966). As demand grows in other high-income countries at the next level of development down, exports from the home country may be replaced by local production in the target market, where local demand reaches sufficient size, especially if local competitors emerge.

In stage 3, Standardized Product, the product is supposed to be fully standardized, the international market parameters are well defined, markets are easily accessible, and a price-sensitive product produced by simple methods can lead to the building of a production facility abroad in a developing country (Vernon 1966). Fears of remoteness can be mitigated by a high level of product standardization where every input is quantifiably specific, if obsoleteness is not an issue (Vernon 1966), and transport costs are offset by the lowered cost of labour (Vernon 1966). Advanced country demand can then be satisfied in whole or in part through importation.

Many of Vernon's ideas pertaining to the PCM were advanced alongside the development of the Harvard Multinational Enterprise Database. This database, and other conceptual arguments related to the PCM, also served as the foundation for other important international business research conducted by various students of Vernon such as Seev Hirsch (1965), Louis Wells (1969), John Stopford (Stopford and Wells 1972), Frederick Knickerbocker (1973), Edward Flowers (1976), and Monty Graham (1978).

Defects/Decline

For a long time Vernon's product cycle model was the only widely discussed dynamic theory of international trade and investment (Cantwell 1989), albeit a US-centric model which reflected the hegemonic technological leadership of the US in the 1950s and 1960s. Several major defects were observed from the late 1970s onwards (e.g., Giddy 1978; Cantwell 1989). First, the PCM treats innovation as if it were being driven by market demand alone. The theory of technological accumulation, however, asserts that

technological change, symbiotically represented by new processes and products, is continuous and motivated by firms seeking technological improvements through problem-solving efforts (Cantwell 1989).

Clearly demand-side focused, the PCM is based on the product level alone. Therefore, its applicability was limited in industries characterized by locational differentiation and specialization, and for firms engaged in bilateral or multilateral intra-industry international production and trade (Cantwell 1989). This theory also lacked recognition of diversification strategies prevalent among MNEs (Ietto-Gillies 2012), which imply multiproduct firms.

Vernon acknowledged that the explanatory power of the PCM had weakened substantially by the mid- 1970s (Vernon 1979) because the original precepts had radically changed when income levels rose in Western Europe and Japan (Vernon 1979). Thus, he devised a new version based on international oligopolistic interaction, sometimes referred to as the PCM Mark II (Buckley and Casson 1976). In the PCM Mark II, Vernon (1974) proposed explicitly introducing oligopolistic considerations to explain two-way FDI in an industry. Graham (1978) expanded upon such two-way FDI as a notion of an exchange of threats, building also on the contributions of Knickerbocker and Flowers to thinking about the connections between oligopolistic structures and FDI.

Vernon also spoke of global scanners, which, drawing upon the extended geographic reach of entrepreneurial MNEs, can begin by serving foreign markets first (Vernon 1979), further marginalizing the product cycle hypothesis (Vernon 1979). Later, the global scanner concept became a crucial aspect in contemporary MNE research (Hedlund 1986).

Governments and International Business

In the often-cited book *Sovereignty at Bay*, Vernon asserted that MNEs have led the way to a greater opening of economies and governments. Naturally, nation-states exercise a sovereign right for independent action (Vernon 1968), but he postulated perceptively that the links between nations will become much deeper and present new challenges (Vernon 1968).

As he observed, this increased range of contact may manifest itself in reactions of various kinds unfolding between countries as a result of the intertwining and overlapping of jurisdictional authority and requirements (Vernon 1968). Governments may pursue political agendas in the realm of international business, imposing their strength and power though economic policy, especially affecting foreign-owned MNEs when they are perceived to be a conduit for foreign governments or interests (Vernon 1981). Such long-term interactions and organic relationships can decrease the ability of the state to govern and regulate MNEs effectively (Vernon 1968). As an illustration of this potential outcome, regulatory capabilities at a national level were diminished with the emergence of new legitimate channels for international fund movements (Vernon 1968). Further asymmetries concerning sovereignty were suggested by the greater ease of transferring resources, power and capabilities between nation-states (Kobrin 2008).

In a later assessment, Vernon noted how, in the other direction, MNEs occasionally exert influence so that various jurisdictions create bilateral agreements, setting ground rules for appropriate taxation methods (Vernon 1981). However, for Vernon, inter-governmental coordination appeared to be a distant concept and MNEs had done little to coordinate similar dealings (Vernon 1981) as orchestration would probably limit their freedoms (Vernon 1968).

Conclusion

The work of Vernon, together with that of the other great pioneers of the international business field, John Dunning and Stephen Hymer, offered a myriad of platforms from which scholars have advanced our subsequent understanding of international business.

See Also

- ▶ Demand for Innovation
- ▶ International Business
- ▶ New Product Development
- ▶ Technology Transfer

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Vertical Integration

David J. Teece
Berkeley Research Group, LLC, Emeryville, CA, USA
Haas School of Business, University of California, Berkeley, Berkeley, CA, USA

Abstract

Vertical integration, in which one company owns and controls two or more stages of a supply chain, can have many causes, including avoiding contractual difficulties (high transaction costs), remedying capability deficits and achieving informational efficiencies. Sometimes vertical integration that is justified when intermediate markets are underdeveloped becomes burdensome once vigorous competition emerges for provision of the intermediate goods. A general guideline is that, from a strategic management perspective, the assets in the 'supply' chain that are most critical to own and control, subject to certain conditions, are those that are not readily available in the market and are difficult to replicate. These can be thought of as 'bottleneck assets'.

Definition Vertical integration involves a single company having ownership and control of two or more stages of the supply chain, such as manufacturing and distribution, or components and assembly.

Vertical integration exists when any two stages of the input-to-end-user supply chain are brought under common ownership and control within a single organization. Often, the rationale for vertical integration is compensating for the absence of, or deficiencies in, market-based contracting. Managerial actions and commands inside the vertically integrated company are used to achieve the necessary coordination in place of arm's-length contracts. In a sense, vertical integration results from the 'make' outcome of the make-or-buy decision; it often requires as much management focus as corporate diversification (Harrigan 1986). Vertical

expansion can take the form of backward integration (e.g., Samsung designing the processors that go into its phones) or forward integration (e.g., Sony or Apple opening their own chain of retail stores).

In practice, vertical integration is not a binary choice. In many instances, firms can both make and buy the same input, or, in the downstream direction, own some retail outlets while also using independent distributors. In the early 1970s, the industrial organization literature referred to this as quasi-vertical integration (Blois 1972). Jacobides and Billinger (2006) call such hybrid outcomes a 'permeable architecture' and identify one of the benefits as the ability to benchmark internal activities against their external counterparts. The ability to optimally balance concurrent insourcing and outsourcing of a single good or service is an important aspect of the firm's asset orchestration capability (Rothaermel et al. 2006).

Another type of quasi-integration occurs when a customer maintains ownership of specialized tooling used by a supplier (Monteverde and Teece 1982a). Apple, for example, owns no factories but spends billions of dollars each year on machines, often under exclusive licence, that are used by its suppliers to produce Apple products (Satariano 2013).

Explanatory Factors

The explanations advanced over time for why a firm would find it advantageous to integrate backwards or forwards have included ▶ market power, the need for technology integration, transactions cost and control rights. These have been developed and assessed in the economics literature and also in the strategic management literature. Other theories of vertical integration, particularly capabilities, have been explored primarily in the strategic management field.

In the market power case, a firm with some level of freedom from price competition might theoretically be able to increase (total) profits by investing in another stage of production for a number of possible reasons related to its pricing power (Perry 1989). The market power hypothesis has been of particular interest in the field of antitrust because the resulting integration would raise prices to customers without creating more economic value. Empirically, however, in most cases that have been studied, 'efficiency considerations overwhelm anticompetitive motives' for integration (Lafontaine and Slade 2007: 677).

A non-technological type of efficiency motive, the minimization of transaction costs (Williamson 1985), has become one of the dominant explanations for vertical integration. The focus in transaction cost explanations is on the risks associated with the possibility of opportunistic recontracting after one party has made transaction-specific investments. Investments at one stage of production that have limited alternative uses ('asset specificity') can be subject to a renegotiated contract ('hold up') by parties in the next stage if the two stages are under separate ownership.

The first empirical test of the transaction cost economics paradigm was by Monteverde and Teece (1982b), followed by Masten (1984). Both studies showed a statistically significant relationship between asset specificity and the choice of firm boundaries. Since then, the predictions of transaction cost economics for firm boundaries have been confirmed many times. The evidence is overwhelmingly supportive of an effect, particularly for backward integration, that is, buyer–supplier linkages (Lafontaine and Slade 2007: 658).

However, there is much more at work in outsourcing/insourcing decisions in addition to transaction costs. Property rights theorists (e.g., Grossman and Hart 1986) combine elements of the transaction cost and technological explanations in an explicitly contractual approach. In property rights models, the essential trade-off is between control and efficiency, under the assumption that management of a stage of production is most efficient when it operates independently. Vertical ownership may prove optimal when there is a high cost to specifying a complete contract. This approach has found the most empirical support in cases of forward integration, that is, manufacturer–retailer or franchisor–franchisee (Lafontaine and Slade 2007: 660). The framework

has also been applied to R&D/innovation (Chesbrough and Teece 1996).

Another factor driving vertical integration that has not garnered much attention in the economics field is the absence of firms in the market with the requisite capabilities. For example, in the early stages of an industry's evolution when certain inputs are not yet available in competitive supply, vertical integration may be necessary to assure the quality or quantity of supply (Langlois 1991). Business historian Alfred Chandler documented how Pabst Brewing, Singer Sewing Machine, McCormick Harvester and Ford invested in in-house supply or retail at a time when 'the supply network was unable to provide the steady flow of a wide variety of new highly specialized goods essential to assure the cost advantages of scale' (Chandler 1992: 89). The problem is not that markets had failed because of 'transaction costs that can be attenuated by substituting internal organization for market exchange' (Williamson 1971: 114), but rather that no 'market' able to provide the requisite supplies in the necessary quantity had yet come into existence. Such industries are likely to dis-integrate as the supply base matures and/or the links between stages of the supply chain become better defined, enabling product (and organizational) modularity (Stigler 1951; Langlois 2002).

It is not generally claimed that capabilities, by themselves, explain integration decisions. More typical are claims that capabilities are a necessary complement to transaction costs for fully explaining the decision. This is hardly surprising, because transaction cost economics generally abstracts from production-related considerations, but vertical integration is more likely in cases where relevant internal capabilities are already present (Masten et al. 1991). In the computer industry, IBM in the 1990s demonstrated the benefits of bucking the then-current trend towards dis-integration by building on the firm's well-established capabilities to provide complete hardware and service solutions, even if this meant supporting competitors' hardware in some cases (Davies et al. 2007).

Vertical structures can also bring informational advantages that the leading theories have not yet fully embraced (Arrow 1975; Teece 1976, 2007). These informational benefits have been noted in the context of some applied studies. For example, in the case of natural gas pipelines and the 'merchant' function (buying and selling gas), integration permits 'informational efficiencies' from the sharing of data about supply interruptions, demand shifts and transportation bottlenecks. This degree of transparency might be too transitory and/or too business-sensitive to be worth sharing between a stand-alone pipeline and multiple merchant partners (Teece 1990). Similarly, a high or low need for 'unstructured technical dialog' between design and manufacturing engineers for various product types in the semiconductor industry is correlated with the vertical and specialized structures, respectively, of firms in the industry (Monteverde 1995).

Strategic Considerations

A vertical integration strategy has inherent benefits and risks. A vertically integrated structure may bring better access to resources, the ability to tightly coordinate the integrated stages of production and the ability to obtain parts or services without paying for someone else's profit margin. However, the integrated firm also has less flexibility to reduce costs in a downturn or following a radical change in technology. Furthermore, because the integrated activity often loses the discipline of the market, the integrated firm may sacrifice access to best-in-class goods or services in favour of using its internal source.

As mentioned above, there are times when investment in self-supply is necessary to launch a new market. Chandler (1977: ch. 12) described the evolution of forward integration in retail sales, service and education by the Singer Sewing Machine Company in the late 19th century. Singer's high-volume production needed a marketing organization capable of not just demonstrating its products, but actually teaching customers how to use sewing machines and providing repairs and maintenance. Although Singer started with a network of independent agents, it replaced them over time with salaried employees.

A similar logic explains the purchase of networks of service stations by petroleum refiners (Teece 1976, 2010).

A modern example of this logic is Apple's decision to open its own retail stores. These stores allow Apple to control the level of knowledge and service provided by sales staff. The careful training of store employees is an essential element of the strategy.

A similar situation can arise when suppliers have the desired capabilities but are unwilling to make required investments. In 1985, Qualcomm, now a leading supplier of mobile phone technology, was offering an untested digital cellular technology that some doubted would work. Faced with the prospect of limited support by the leading telecom equipment suppliers, Qualcomm decided that it needed to offer an end-to-end solution of its own. Beginning in 1995, when its technology began to be deployed commercially, Qualcomm entered into the design and manufacture of the infrastructure equipment, handsets and key chips that they require. In 1999, as its technology began to gain traction in the market, Qualcomm exited the infrastructure and handset businesses, focusing on microchips and licensing.

In general, vertical integration should be considered whenever a supply chain is being constructed in the service of a systemic innovation (e.g., an aircraft). It is also potentially beneficial in any business model that relies on the tight coordination of its elements for success.

The ▶ profiting from innovation framework (Teece 1986, 2006), which recognizes transaction cost considerations as relevant to the make-or-buy decision, provides some guidance for firms as they enter – or create – new markets. The framework shows that vertical integration makes sense in the case of inputs that are not available in competitive supply and are difficult to replicate, conditional on in-house capabilities, time-to-market requirements and other concerns. If such an input resides outside the firm, it may not only become a bottleneck for growth, but the owners of the bottleneck asset may also drain away some of the ▶ economic rents accruing from innovation elsewhere in the supply chain.

Viewed from the other side, it's often strategically advantageous to own a bottleneck asset. The 'Wintel' nexus in the personal computer (PC) industry is one example (Morris and Ferguson 1993); other participants in the PC value chain receive at best moderate returns compared with the owners of the bottleneck assets, that is, the microprocessor and operating system.

The integration calculation is dynamic; in some cases, the value of an input may be anticipated to rise when the focal firm introduces its new product, making it worthwhile to integrate in advance. However, there are methods of achieving the necessary degree of control short of complete ownership, such as joint ventures and ▶ alliances. For example, Apple doesn't own any factories, but it maintains exclusive to capacity and know-how by making direct, non-equity investments with its suppliers (Gobry 2011).

Vertical integration is becoming less necessary in many instances because globalization has made a growing number of goods and services readily available on a competitive basis. Vertically integrated structures have been replaced by 'modular production networks' in numerous industries, such as electronics (Sturgeon 2002). Competitive supply raises the attraction of 'buy' over 'make' because it reduces (but does not eliminate) the potential for building (or acquiring) an internal substitute that can provide competitive differentiation.

This tendency of global specialization to reduce vertical integration has an analogue at a local level. In Italian industrial districts, for example, where many small, specialized firms are clustered together, vertical integration is less common (Cainelli and Iacobucci 2012). There is seldom a reason to build internally what can be bought on the market at competitive prices.

V

See Also

- ▶ Acquisition Strategy
- ▶ Alliances
- ▶ Capability Development

- ▶ Competitive Advantage
- ▶ Economic Rent
- ▶ Market Power
- ▶ Profiting from Innovation

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Virtual Corporation

Neil M. Kay
Department of Economics, University of Strathclyde, Argyll, UK

Abstract

The 'virtual corporation' represents cases where companies outsource many of their activities to a variety of partners with the help of advances in information technology. It is often associated with rapidly changing environments, and the issue of competitive advantage can depend on the nature of innovation in such contexts. It has been argued that the virtual corporation can have efficiency advantages where innovation can be pursued independently of other innovations rather than when it requires related, complementary innovations on the part of other partners in the organizational system.

Definition 'Virtual corporation' (or virtual business/enterprise/organization) in strategic management generally refers to an organizational form in which individual companies outsource many of their activities to a variety of partners with the help of advances in information technology.

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The term 'virtual corporation' was developed in the 1990s to refer to the confluence of two mutually supporting trends in outsourcing and in electronic data exchange and activity coordination at distance (Chesbrough and Teece 1996). Virtual corporation is best seen as an ideal type since most organizations lie on a spectrum with complete virtuality at one end and full integration and internalization at the other. The virtual corporation can be distinguished from the network organization, where groupings or clusters of firms may form interdependent cooperative relationships (Miles and Snow 1986, 1992; Thorelli 1986). The focus of attention on work on network organization tends to be at the level of the network, which can, in turn, take many different forms. The focus of attention in the virtual corporation tends to be at the level of the corporation. This latter perspective helps to highlight the role of individual firm capabilities and competences in the context of strategy and ▶ innovation.

The concept of a modular organization, in which individual building blocks can be treated as easily detachable and substitutable, is closely related to notions of both virtual and network organization. However, while both virtual and network organization cooperative relations can apply to functions, processes and products, the notion of cooperative relations in modular organization has tended to be applied more narrowly to production components and subsystems (Schilling and Steensma 2001: 1149; Anand and Daft 2007: 336). What joins each of these cooperative forms of organization is that they tend to be applied to what has been described as nearly decomposable systems (Simon 1996; Simon and Ando 1961) or loosely coupled systems (Orton and Weick 1990; Schilling and Steensma 2001) where interactions within the constituent subsystems tend to be much stronger than interactions between the subsystems.

Despite these common distinctions, a difficulty that remains in this context is structural ambiguity (Kay 2008) arising from different terms being used to describe the same concept or the same term being used to describe different concepts. Schilling and Steensma (2001: 1149) note that a variety of terms that include virtual organization, network organization and modular organization can be used to describe the same phenomenon, though 'the terms are sometimes invoked in slightly different ways'. The term 'hollow corporation' is sometimes used to describe what can also be described as a virtual corporation (e.g., Anand and Daft 2007; Parmigiani and Mitchell 2010), while the use of the term 'virtual organization' (or virtual form or virtual corporation) has also been used to describe a temporary organization such as a joint venture putting together

different partners with complementary skills to pursue a fleeting opportunity (Anand and Daft 2007: 338–340, 344). However, this is a rather different conception from the more stable configuration typically associated with the virtual corporation and it does not necessarily involve considerations of near decomposability or loose coupling.

As far as the nearly decomposable or loosely coupled virtual corporation is concerned, work on it represented a counterpoint to conventional strategic management thinking in terms of 'visible hand' growth of the large diversified integrated organization (Chandler 1977) where transaction costs of market failure could encourage internalization of activities (Williamson 1975). At the level of relationships between the parts, the work reflected growing interest in cooperative arrangements of various kinds, such as subcontracting, licensing, joint ventures, alliances and networks. Furthermore, organization design perspectives had historically been based solely or mostly on internal organization (Chandler 1977; Mintzberg 1979; Rumelt 1974; Williamson 1975), and this helped shift focus to solutions in which interorganizational relationships also featured.

The role of competitive advantage in relation to the virtual corporation has generally been examined at two levels: (1) the nature, sources and distribution of competencies and capabilities within the virtual corporation; and (2) the nature and sources of competitive advantage/disadvantage for virtual corporations in the marketplaces in which they operate.

The virtual corporation is often associated with rapidly changing environments. Whether (and for whom) the virtual organization may help generate or support competitive advantage can depend on the nature of innovation in such contexts. Langlois and Robertson (1992) build ▶ David Teece (1986) distinction between autonomous and ▶ systemic innovation to argue that production in the modular organization with multiple partners can have efficiency advantages when innovation is autonomous (that is, it can be pursued independently of other innovations in the modular organization) but that when innovation is systemic (that is, requiring related, complementary innovations in other parts of the organizational system), vertical integration may be the preferred outcome. Chesbrough and Teece (1996) make the more general point that the virtual corporation can have efficiency advantages where innovation is autonomous rather than systemic.

The fluctuating fortunes of the ▶ business model adopted by IBM, Dell and Apple help illustrate these points. Until the introduction of the IBM PC in 1981, the dominant business model in the computer market was based on vertical integration, with IBM in mainframes and Apple in microcomputers. But IBM outsourced major components for its PCs to companies with the requisite capabilities (such as Intel and Microsoft) and mostly used outside retailers for distribution. Within 3 years it had displaced Apple as the leading supplier of microcomputers. Yet by the late 1990s Dell had become the leading supplier of PCs and IBM was to sell its PC business in 2005. In turn, in 2011 Apple became (at least temporarily) the world's most valuable company by market capitalization.

The fact that the requisite capabilities for producing and distributing PCs were largely available or easily developed in the marketplace gave IBM the speed and flexibility needed to introduce this systemic innovation, and quickly overtake Apple. However, such a systemic innovation created dependency of the partners on each other for future developments. After its initial success with the PC, IBM encountered problems in exercising control and direction over partners whose interests and incentives were not fully aligned with its own (Chesbrough and Teece 1996). This created opportunities for other firms to enter the PC market, one of which was Dell.

Dell successfully developed the competencies and capabilities appropriate to a virtual corporation, with the company's founder, Michael Dell, describing the 'virtual integration' of its close supply chain relationships with suppliers and customers (Magretta 1998). However, the major component innovations in Dell PCs could generally be treated as autonomous, in turn reducing the potential long-term dependency of the partners in this virtual corporation on each other.

By contrast, Apple has, to a far greater extent than its rivals, pursued vertical integration from software to retailing in pursuit of successive systemic innovations (with its retailing an integrated, integral and highly successful component of the overall system). This has enabled it to internally control and optimize the performance of the constituent complementary innovations.

However, in some contexts open innovation has been encouraging shifts towards the virtual end of the virtuality/integration spectrum. Open innovation has been defined as 'the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively' (Chesbrough et al. 2006). Even Apple relied on an outside source to develop the idea of the iPod, and a major multi-firm alliance to develop the system (Gassmann et al. 2010). While open innovation has been most strongly associated with high technology sectors, especially the software industry, there is evidence that it is becoming more widely adopted and practised outside these sectors (Chesbrough and Crowther 2006; Dodgson et al. 2006).

The strategic question of where on the virtuality/integration spectrum a firm settles at any point in time may be influenced by the options open to it. Ultimately, the major trade-offs identified in the literature tend to lie between the leveraging advantages of economies of scale and scope and enhanced pool of competences and capabilities (including innovation potential) that virtuality may deliver, and the advantages of reduced appropriability problems, transaction costs and improved integration that in-house organizations may provide.

See Also

- ▶ Autonomous Innovation
- ▶ Business Model, the
- ▶ Cooperation and Competition
- ▶ Innovation
- ▶ Innovation Networks
- ▶ Inter-firm Cooperation
- ▶ New Organizational Forms
- ▶ Organizational Design
- ▶ Systemic Innovation
- ▶ Teece, David J. (Born 1948)

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