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Machiavellianism

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Abstract

Machiavelli's sixteenth-century suggestion that effectiveness counts more than ethics has become a discussion point in strategic management. This article provides an overview of Machiavelli's impact in personality psychology, evolutionary psychology, behavioural ▶ game theory and strategic thought. Since full trustworthiness by all is not an evolutionarily stable state, Machiavellian strategies such as deception or manipulation must exist to some extent in any social system, and individuals must differ in the degree to which they apply such strategies. Individuals low on the personality trait of Machiavellianism tend to get emotionally involved in situations, while high Machiavellians are cool strategic thinkers.

Definition Machiavellianism, a concept associated with Italian Renaissance political philosopher Niccolò Machiavelli, refers to the degree to which individuals advocate or apply an approach that values effectiveness in interactions over ethics and morality. Machiavellianism has become a measurable personality trait that reflects, among other things, individuals' ability or willingness to engage in manipulation, deception and detached strategic reasoning.

Origins of the Term

Machiavellianism is the belief that effectiveness, and not ethics, counts in social, political or strategic interaction. This principle grew out of the writings of the Italian Renaissance political philosopher Niccolò Machiavelli (1469–1527). In his treatise *The Prince* (1961), Machiavelli advised rulers of Italian citystates on strategies towards rivals and subordinates. *The Prince* combines a dispassionate assessment of human self-interest and moral and cognitive frailties with advice on exploiting them in order to maintain and increase one's power and outmanoeuvre opponents. The book spread quickly, yet also elicited broad negative responses. By 1559, the Catholic Church had prohibited it. This slowed publication in Catholic regions (see, e.g., Croce 2008: 142–143, for a discussion), but interest in Machiavelli's pragmatic (Burnham 1987) approach to strategic interaction never ceased. In recent decades, *The Prince*, reinterpreted for a contemporary environment, has been recommended by numerous authors as a handbook in business strategy, management and corporate governance (e.g., Galie and Bopst 2006).

M. Augier, D. J. Teece (eds.), *The Palgrave Encyclopedia of Strategic Management*,
https://doi.org/10.1057/978-1-137-00772-8

Machiavellianism as an Evolved Strategy in Social Units

Complete trustworthiness by all is not an evolutionary stable state (Maynard Smith and Price 1973) because it allows the emergence of cheaters who abuse the resulting interpersonal trust (Trivers 1971). Machiavellian strategies such as manipulation and deception are therefore bound to exist among humans, who throughout their evolutionary history have balanced the benefits of cooperation with the benefits of exploiting and outmanoeuvring others (Mealy 1995; Wilson et al. 1996). The Machiavellian intelligence hypothesis (Humphrey 1976; Byrne and Whiten 1988; Dunbar 1992; Gavrilets and Vose 2006) suggests that primate and human brains expanded in order to keep up with social competition, manipulation and deception. Machiavellian strategies are also observed in apes (Byrne and Whiten 1988; de Waal 1989). Machiavellian behaviour, while undesirable from the viewpoint of the collective, may thus convey reproductive benefits (Jonason et al. 2009) to 'selfish genes' (Dawkins 1976).

Measuring Machiavellianism in Individuals

In their book *Studies in Machiavellianism*, Christie and Geis (1970) describe the construction and validation of personality scales designed to measure individuals' level of Machiavellianism. Their 20-item self-report measures consist of statements taken from Machiavelli's *The Prince* and his lesser-known work *Discourses on Livy* (2008). Test takers express their agreement or disagreement with these statements. The most widely used of their tests, the Mach-IV, is relatively transparent, thus allowing test-takers to make themselves appear less Machiavellian than they really are. The lesser-known forced-choice Mach-V (Christie 1970a) is designed to remove social desirability effects, but it is less reliable than the Mach-IV (McIlwain 2003). Nachamie's (1969; Christie and Geis 1970: chapter 16) 'Kiddie Mach' is an adaptation of the Mach-IV for children.

The personality trait of Machiavellianism defined by Christie and Geis (1970) consists of three categories: cynicism about human nature, manipulativeness, and detachment from norms and values. Most factor analyses suggest that Machiavellianism is a multidimensional trait consisting of views and tactics (Fehr et al. 1992; McHoskey et al. 1998; McIlwain 2003). Machiavellianism is *not* correlated with intelligence (Christie 1970b; Wilson et al. 1996), major psychopathology (Christie 1970c: 3), class or political ideology. It is inversely correlated with faith in human nature (Geis 1978; Fehr et al. 1992), resistance to social pressure (McIlwain 2003) and the Big Five personality traits of conscientiousness and agreeableness (Paulhus and Williams 2002; Vernon et al. 2008).

Christie and Geis's Mach scales have been used on thousands of participants in well over 700 published demographic, correlational and experimental studies. In experiments, participants are typically classified as 'High Machs' or 'Low Machs' based on a median split of Mach scores. The behaviour of the two groups is then compared. Citation counts indicate that interest in Machiavellianism among psychologists peaked in the late 1970s (Fehr et al. 1992). More recently, there has been interest among evolutionary psychologists in High Machs' ability at strategic and game-theoretic reasoning (e.g., Wilson et al. 1996).

Contrasting High and Low Machs

A pervasive 'cool syndrome' (Christie and Geis 1970: 285) characterizes High Machs. It expresses itself in flexibility towards values and norms, interpersonal detachment and goal orientation, an instrumental stance towards others, willingness and ability to manipulate (Christie and Geis 1970; Geis 1978; Fehr et al. 1992; Wilson et al. 1996), and materialistic self-interest (Effler 1983). High Machs test rather than accept limits (Christie and Geis 1970: chapters 8 and 17), deplore inefficiency rather than injustice (p. 353), are vindictive for strategic purposes only (p. 306) and are perceived as

‘“opportunistic” by those who deplore [their behaviour], and “realistic” by more admiring observers’ (p. 303). Highs thus appear to be prototypical *homini economici* or *gamesmen*.

Low Machs, in contrast, tend to get emotionally involved with people and situations, and are distracted by non-monetary utility such as reciprocity or compliance with norms and values (Christie and Geis 1970: chapters 15 and 17; Fry 1985; see Fehr et al. 1992: 91, for an overview). Summing up the literature, Geis (1978: 344) states that High Machs are, overall, better strategists.

High Machs’ Advantage in Short-Term Interactions: Experimental Evidence

High Machs consistently outperform Low Machs in short-term interactions, including most experiments, especially if there is face-to-face contact, ambiguity and latitude for improvisation, and if the situation requires resisting social influence, taking control of others and emotional detachment (Christie and Geis 1970: chapter 15; Geis 1978). For example, Highs excel at manipulation (Geis 1978; Fehr et al. 1992; Wilson et al. 1996) and face-to-face bargaining (Christie and Geis 1970: chapter 15). They are less easily persuaded yet more persuasive (Christie and Geis 1970: 312; Fehr et al. 1992), and often more credible liars (e.g., Exline et al. 1970; Geis and Moon 1981) than Lows are. While Highs tend to behave unethically for strategic reasons, Lows do so because of emotional involvement (e.g., Bogart et al. 1970; Exline et al. 1970; Cooper and Peterson 1980). With their instrumental stance towards others, Highs are more likely to take advantage of extended trust (e.g., Harrell and Hartnagel 1976) and to opportunistically abandon an alliance (Christie and Geis 1970: chapter 10). Highs are, furthermore, hard to size up for Low Machs, to whom they appear to be more predictable and less Machiavellian than they really are (Geis and Levy 1970). (For overviews of the experimental literature, see Christie and Geis 1970: chapter 15; Fehr et al. 1992; Wilson et al. 1996).

High and Low Machiavellianism as Interpersonal Strategies in Equilibrium?

In spite of High Machs’ broad and well-documented short-term advantage over Lows, the long-term payoffs of the two strategies appear equal. Highs and Lows do not differ in their need for achievement (Christie 1970b: 44) or their upward mobility and socio-economic status (Christie and Geis 1970: chapters 16 and 17; see Fehr et al. 1992, for an overview). Different Mach scores thus probably do not reflect different ability but rather different social and interpersonal strategies of equal long-term success (Christie and Geis 1970: chapter 17; Mealy 1995; Wilson et al. 1996; Jonason et al. 2009).

Determinants of Individuals’ Levels of Machiavellianism

Women are, on average, less Machiavellian than men (Christie and Geis 1970: 32; Mealy 1995: 534; Wilson et al. 1996; Gunnthorsdottir 2001: chapter 2). Low-Mach females are preferred as partners by males in all Mach categories (Novgorodoff 1974), possibly pointing to genetic selection favouring them (Figueredo et al. 2005: 866).

Research on identical and non-identical twins indicates that Machiavellianism is somewhat heritable but to a large degree acquired (Vernon et al. 2008). The ‘cool syndrome’ manifests early, allowing young High Machs to manipulate others successfully (Braginsky 1970) and relatively guilt-free (McHoskey et al. 1998), which reinforces these behaviours (McIlwain 2003: 59, 61). Mach scores appear relatively stable after adolescence (Christie 1970c; Gunnthorsdottir 2001: chapter 2).

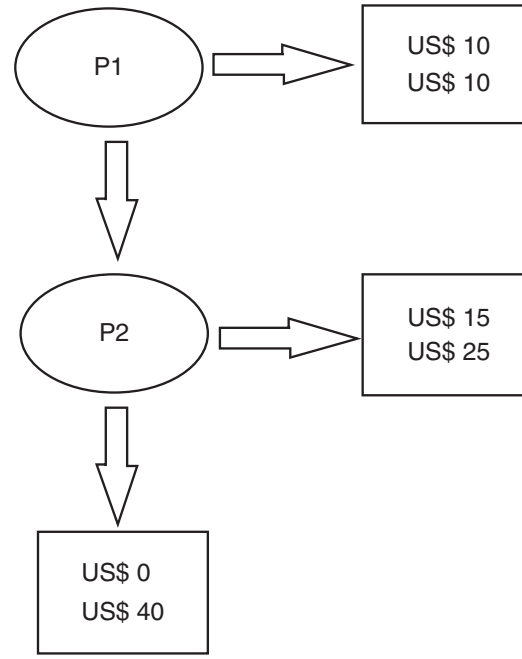
Geographic mobility and urbanization increase the frequency of the one-shot or short-term interactions at which High Machs excel. This, together with social competition, is broadly linked to increases in Machiavellianism (Christie and Geis 1970: 341; Mealy 1995). Mach scores are higher in urban areas, non-traditional societies and younger cohorts (Christie 1970c; Mudrack 1990), and

have increased, at least in the United States, in recent decades (Gunnthorsdottir 2001: chapter 2).

Machiavellianism in Behavioural Game Theory and Strategic Thought

Early experimental tests of the relationship between Machiavellianism and strategic aptitude – for example, in the Prisoner's Dilemma or the Game of Chicken – did not yield meaningful results. Wilson et al. (1996) suggested that High Mach behaviour should differ between one-shot and repeat games: Highs should, at least initially, reciprocate in repeat play in order to manipulate their counterparts into mutually advantageous cooperation, but should defect in one-shot games. Lows, by contrast, should be cooperative throughout. Meyer (1992) confirmed this with an Ultimatum Game: Highs accepted low offers in single play and resisted them in repeat play, where refusing an early low offer can induce the proposer to raise her offers in the future. Lows refused low offers in both situations. In studies of Machiavellian performance in games, it is thus crucial to select games where non-monetary utility (e.g., norms, reciprocity) drives Lows away from rational, self-interested strategies that Highs, in contrast, would adopt.

A sequential Trust Game captures the precarious nature of exchange, an interaction ubiquitous in society (Fig. 1). The boxes show payoffs, with Player 1's payoffs above Player 2's. Player 1 (P1) can either trustingly move down, or move right, ending the game with the lowest possible joint payoff. If P1 moves down, joint payoffs double. P2 can either reciprocate P1's trusting downward move by moving right so that both parties gain from the exchange, or selfishly defect by moving down himself. If the game is played anonymously and once, self-interested materialistic reasoning and detachment from reciprocity and other norms should lead P2 to move down. Gunnthorsdottir et al. (2002) found that High-Mach P2s overwhelmingly moved down, while, in the remainder of the population, the majority of Player 2s moved right. From a societal viewpoint, a downward move by P2 is undesirable: in the long run, if a large enough



Machiavellianism, Fig. 1 The $10 trust game

proportion of P2s move down, P1s must learn to always move right, exchange ceases, and society loses out on the benefits of mutual cooperation. A downward move by P2 is, however, individually rational in an anonymous one-shot game, reflecting High Machs' superior ability at rational strategic thought and gamesmanship.

See Also

- Cooperation and Competition
- Game Theory
- Nash Equilibrium
- Social Cognition

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Make-or-Buy Decisions: Applications to Strategy Research

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Abstract

Make-or-buy decisions represent an area of enquiry in several fields: economics, organizations, strategy and the law. Although early empirical and theoretical efforts focused on make-or-buy decisions, that is, the decision by a firm to either vertically integrate or use a supplier, transaction cost research has moved well beyond this initial problem of economic organization. This article provides a brief summary of the development of the theory, highlights key insights and offers an assessment of recent developments.

Definition Make-or-buy decisions refer to the choices firms have in terms of how they organize a given economic transaction. The spectrum runs from a firm deciding to keep complete control of the transaction within its boundaries, thereby engaging in vertical integration, to a firm deciding to rely completely on another entirely separate entity, thereby utilizing the market. Hybrid forms of exchange in which some ownership or control is shared lie somewhere along this make-buy continuum.

The study of make-or-buy decisions has long been a focus of researchers in several disciplines. Economics, organizational theory, strategy, operations management and the law have all considered key aspects of this fundamental firm decision. This article highlights the primary research on this question from the perspective of the strategy scholar. The focus will therefore be on reviewing the literature likely to be most relevant to strategy. Recent research that explores the performance implications of vertical integration decisions, the impact of technological evolution on vertical integration decisions and the complexity of vertical integration decisions will also be discussed.

One of the most prosaic decisions a firm can make is the decision to make or buy a given component. Yet, as several scholars have observed, these seemingly simple decisions can have impacts on the firm that extend far beyond the consideration of production costs (see Williamson 1985; Teece 1992; Argyres 1996; Jacobides and Winter 2005). We now have evidence that make-or-buy decisions can impact on technological innovation (Teece 1992; Sampson 2004), the development of capabilities (e.g., Jacobides and Winter 2005; Mayer and Salomon 2006), the transfer of knowledge (e.g., Poppo and Zenger 1998), access to international markets (e.g., Anderson and Gatignon 1986; Madhok 1997; Henisz 2000) and overall firm performance (e.g., Leiblein et al. 2002; Nickerson and Silverman 2003; Argyres and Bigelow 2007).

In order to understand how firms make these decisions, researchers rely on the theoretical insights first developed among a group of economists, who, from the 1960s, sought to better understand why we observe different forms of exchange. In essence, if markets work so well, why is there a need for firms at all? Why are contracts between firms specialized? With the publication of *Markets and Hierarchies* (1975) ▶ Oliver Williamson began laying the theoretical foundation for modern ▶ transaction cost economics. This and his later work (e.g., Williamson 1985, 1991, 1993, 1996) as well as the work of other economists (e.g., Coase 1937; Klein et al. 1978; Grossman and Hart 1986; Hart and Moore 1990) focused on addressing fundamental questions of the structure of economic exchange and how firms resolve the risks inherent in exchange.

The majority of early empirical investigations of make-or-buy decisions in the strategy field relied heavily on the theoretical insights or transaction cost economics (e.g., Monteverde and Teece 1982; Walker and Weber 1984; Masten et al. 1989). By shifting the emphasis from minimizing production costs to economizing on transaction costs, researchers were able to delineate the advantages and disadvantages of vertical

integration. Much of what we empirically observe in the make-or-buy decision may be explained with the understanding that the objective of managers is to economize on transaction costs.

And what are transaction costs? These costs may be thought of as the economic equivalent of friction in physical systems. They are the costs of considering, crafting, negotiating, monitoring and safeguarding contracts. The ability of firms to economize on transaction costs begins with the premise that they must choose between alternate modes of organizing (either vertically integrate or outsource) and that this choice is made in conjunction with an appraisal of the features of the focal transaction. In one of his most important statements in *Economic Institutions of Capitalism* (1985: 18) Williamson explains that '[t]he underlying viewpoint that informs the comparative study of issues of economic organization is this: Transaction costs are economized by assigning transactions (which differ in their attributes) to governance structures (the adaptive capacities and associated costs of which differ) in a discriminating way.'

Williamson (e.g., 1975, 1985) highlights three crucial differences between vertical integration and ▶ outsourcing: incentive intensity, the ability to adapt and dispute resolution features. Markets offer high-powered incentives, can adapt quickly but autonomously, and any disputes that arise are resolved through the court system. Firms contrast sharply to markets on all three dimensions. Incentives within firms are muted compared with markets but managers can control the nature of adaptation and disputes are resolved internally.

Transactions are differentiated according to three variables: asset specificity, uncertainty and frequency (i.e., is this an exchange that you intend to repeat over time), of which asset specificity is deemed to be the critical factor. Williamson first identified three different types of asset specificity, but that list has now been expanded to six. They are physical asset specificity, human asset specificity, site specificity, brand name specificity, dedicated assets and temporal specificity. Asset specificity may be thought of as the degree to which idiosyncratic investment is required. Highly specific assets are those which are much more valuable to a firm in the context of a given transaction and whose value is negligible outside this exchange.

The central insight of transaction cost alignment is that, with an increase in asset specificity (as well as uncertainty and frequency), the potential hazards of relying on market-like forms of exchange increases. The question of economic exchange, make or buy, thus becomes one of how to select the right governance structure. The answer to this question depends on the characteristics of the transaction. In the presence of highly specific assets, contracting hazards increase, transaction costs rise and the optimal form of exchange is vertical integration. In the absence of asset specificity, market exchange is favoured. In a seminal study of vertical integration, Klein et al. (1978) describe the evolution of the relationship between car manufacturer GM and car supplier Fisher Body. Prior to agreeing to build components for General Motors, Fisher Body had tool-and-die equipment which could be tailored to stamp out body parts for any car manufacturer. These industrial machines had little physical asset specificity. However, once Fisher Body agreed to produce parts for GM, these machines needed to be calibrated to technical specifications unique to the GM components. Now these same tool-and-die machines would be categorized as being highly asset-specific. Managers at both Fisher Body and GM would recognize that the idiosyncratic (asset-specific) investments required to stamp out customized components would lead to potential contracting hazards and thus increased transaction costs – costs that could not be remedied through pricing. As a result, transaction cost economics predicts that the best form of governance, the form that is best able to economize on these costs, is hierarchy. And indeed, after several years of exchange, GM did adjust its governance structure accordingly and acquired Fisher Body, transforming it from an exchange partner to an embedded division within the GM organization.

This famous example of how a make-or-buy decision is fashioned so as to economize on transaction costs hints at the future directions of such research. As stated above, recent research has

investigated the impact of make-or-buy decisions on access to markets, the ability to innovate and the overall performance of the firm. Future research is likely to continue to investigate the degree to which capabilities and governance structures co-evolve (e.g., Zenger et al. 2011; Argyres and Zenger 2012) as well as the degree to which intermediate forms of exchange such as strategic alliances (e.g., Reuer and Arino 2007) and dual-sourcing (e.g., Parmigiani 2007) compare with make-or-buy decisions.

See Also

- ▶ Coase, Ronald (Born 1910)
- ▶ Firm Size and Boundaries, Strategy
- ▶ Governance
- ▶ Outsourcing
- ▶ Transaction Cost Economics
- ▶ Williamson, Oliver E. (Born 1932)

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Management Buyouts

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Abstract

A leveraged buyout entails the purchase of a corporation or division financed primarily by debt. A management buyout most frequently refers to a leveraged buyout wherein managers of a public corporation or division take the entity private. Management buyouts can change the ownership, operational and financial complexion of the firm, and therefore involve all relevant aspects of corporate restructuring activities. Tax benefits are a common source of value creation from both leveraged buyouts and management buyouts. Additional sources of value creation derived from management buyouts include realigned managerial incentives and increased fiscal discipline, both of which spur performance improvements.

Definition A management buyout is a corporate takeover wherein a firm's existing managers and/or executives purchase a controlling interest in the firm, typically with the help of substantial external debt financing.

A leveraged buyout (LBO) entails the purchase of a company or division financed primarily by debt. A management buyout (MBO) most frequently refers to an LBO wherein pre-buyout management plays an active role in taking the company or division private. While proportions vary over time and by specific deal, the firm's managers will contribute a portion of the equity (typically a year's salary or more), and together with an institutional sponsor, the management buyout group will borrow up to 80 or 90% of the firm's purchase price. Existing public shareholders in non-divisional MBO transactions receive takeover premiums – the offer price relative to the pre-buyout share price – of 20–60% (DeAngelo et al. 1984; Lowenstein 1985). MBOs typically change the ownership, operational and financial complexion of the firm, and therefore involve all relevant aspects of corporate restructuring activities. The new ownership will no longer be accountable to public shareholders, but the pressure of making payments on increased debt obligations and fewer, more actively involved owners typically precipitates cost-cutting moves, streamlined processes and/or strategic changes. Because MBOs typically involve high leverage, not every firm is suited for these transactions. Ideal candidates have ample and stable cash flows, low and predictable capital investment needs, a relatively liquid balance sheet, an established market position and operate in industries less sensitive to recessions. Many potential reasons have been advanced for going private via a management buyout; evidence concerning potential motivations is discussed in greater detail below. Reasons include: the value of the interest tax shield and other tax shelters; increased incentives for management through equity ownership; reducing excess cash flows that might be squandered on poor projects or empire building; buying undervalued assets; transferring wealth from employees or pre-transaction bondholders to stockholders; unlocking dormant firm resources in large diversified firms; avoiding the direct and indirect costs of maintaining a listing; as an anti-takeover device.

Motivations and Evidence

In addition to tax benefits, LBOs are often motivated by synergistic gains; that is, improved efficiencies achieved through horizontal or vertical integration, and/or through replacing poorly performing incumbent management. Importantly,

the motives behind MBOs cannot be synergistic. Operational gains realized by management buyout organizers must originate from more efficient exploitation of the firm's own resources, including its managerial talent, or from the ability of the organizers to buy the firm for less than its intrinsic worth under the existing operating strategy.

The most easily quantified benefits, and hence motives, behind MBO transactions are tax shelter benefits. The market value of a firm's assets may significantly exceed the book value or tax basis of the assets. Prior to the US Tax Reform Act of 1986, assets carrying a low book value provided a significant tax shelter opportunity, because the assets could be revalued and depreciated or amortized over their allowable tax lives. The increased depreciation and amortization then reduced taxable income and taxes, and therefore improved cash flows. After 1986, this benefit was largely eliminated. MBOs financed with large amounts of debt create an additional tax shelter benefit that endures today: the interest tax shields. The interest tax shields arise because interest payments are deductible from a firm's taxable income. As a result of these tax benefits, MBO firms often significantly reduce intermediate-term tax obligations. Both interest tax shields and stepping up the cost basis of undervalued assets are largely predictable and justify a large part of the takeover premium offered for the public shares of the target firm (Morck et al. 1988; Lehn and Poulsen 1989; Kaplan 1989a; Newbould et al. 1992).

Both theory and evidence suggest that MBO transactions engender substantial benefits derived from managerial incentive effects. The separation of ownership and control in public corporations give rise to conflicts between the interests of the managers (agents) and the principals (owners, or stockholders); the costs of managing this tension are called agency costs (Berle and Means 1932; Jensen and Meckling 1976). The central dilemma is how to get the manager to act in the best interests of the stockholders when the agent has interests that diverge from those of the principals, and has an informational advantage. In MBO transactions where the managers increase their equity ownership, yet own less than a controlling stake, gains in total stockholder wealth should arise as a result of providing greater rewards for managers that induce them to act in line with the interests of the co-owners. In this type of transaction, the remaining equity is held by active institutional investors, and the resulting concentration of ownership leads to improved monitoring of management. In these cases, increased managerial rewards and heightened monitoring are purported to reduce agency costs. In cases where managers become the sole, 100% owners of a division or firm, the interests of the owners and managers are one and the same, thus largely eliminating agency costs.

Michael Jensen posits another form of agency cost arising from the separation of ownership and control. Jensen (1986) argues that when the firm's cash flows exceed its investment opportunities, these excess resources ('free cash flows') are subject to self-interested managerial discretion, and may be squandered on bad investments or wasted through organizational inefficiencies. Because management's compensation is often based upon the growth in firm size, managers will tend to use these excess cash flows to fund marginal or even unprofitable projects rather than making payments (such as dividends) to shareholders. Leveraged MBOs increase mandatory debt payments and force managers to pay out free cash flows. The high leverage prevents managers from growing the firm beyond its optimal size (so-called empire building) and at the expense of value creation. Thus, MBOs help to resolve and reduce these agency costs in two ways: the reward of ownership and the risk of possible financial ruin create significant incentives for management to maximize free cash flow and spend it for the benefit of owners. Empirical evidence generally supports the notion that MBOs align incentives and improve operating efficiency, profitability and investors' returns, while not causing material decreases in headcount or ongoing reinvestment in the business (Kaplan 1989b). Kaplan (1989b) finds improvements in industry-adjusted return on operating assets, and impressive realized returns to investors. Muscarella and Vetsuypens (1990) show improved gross and operating margins in the years after the buyout. Singh (1990) finds significant improvements in performance, including

improved working capital management and higher sales growth rates than industry peers. Singh (1990) surmises that performance improvements are due not only to increased financial and operational control but also to a more aggressive, autonomous and entrepreneurial management team. Muscarella and Vetsuypens (1990) posit that increased managerial ownership may motivate management to take cost-cutting actions that might otherwise be unacceptable, and find that shareholder gains are positively correlated with the fraction of shares owned by management. Smith (1990) finds sustained improvements in operating returns, and that these increases do not result from layoffs or reductions in important expenditures. Ofek (1994) finds that successful MBOs are associated with improved operating performance, while firms attempting MBOs that were not completed show no subsequent improvement in operating performance.

Firms are not entirely transparent – ► asymmetric information can exist between the management and outsiders concerning the maximum value that can be realized with the assets in place. If management and the buyout group possess inside information and believe that the share price is undervalued in relation to the firm's true potential, they might privatize the firm through an MBO. However, the evidence to date does not support favourable inside information or undervaluation as a motivation for MBOs (Kaplan 1989b; Smith 1990; Lee 1992).

Similarly, the hypothesis that MBOs transfer wealth from employees to new owners, via layoffs, is not supported by the evidence. In addition to the findings (Kaplan 1989b; Smith 1990) cited above, research suggests that buyouts encourage investment in human resource management. Bacon et al. (2004) contend that many buyouts involve an increase in employment, innovations in reward systems and an increase in employee involvement methods. To avoid instability in the ownership transition, management in buyouts will refocus on human assets, and buyout performances are dependent on making employees committed to the new organization.

Going private via an MBO might benefit stockholders by expropriating value belonging to pre-transaction bondholders (Marais et al. 1989). There are three mechanisms through which a firm can transfer wealth from bondholders to stockholders: an unexpected increase in the asset risk ('asset substitution'); large increases in dividends; or an unexpected issue of debt of higher or equal seniority, or of shorter maturity. In a going-private transaction, the last mechanism in particular can lead to substantial expropriation of bondholder wealth if protective covenants are not in place. However, empirical studies generally do not support this theory (Lehn and Poulsen 1988; Billet et al. 2004).

MBOs can reduce the ongoing costs associated with a public listing. Although the direct costs (fees paid to the stock exchange) of maintaining a stock exchange listing are relatively small, the indirect costs of being listed are substantial (for example, the cost of complying with corporate governance/transparency regulations, the cost of investor relations managers and the cost of management time in general). For a medium-sized listed company these indirect costs are estimated at US$750,000–1,500,000 annually. The going-private transaction eliminates many of the listing costs. However, the transaction cost of an MBO transaction is also significant and should be compared to any potential direct savings from going private. Travlos and Cornett (1993) cast doubt on shareholder-related expenses as an important motivator for MBO transactions.

In addition to improving managerial incentives, Wright and colleagues (2000) theorize that MBOs enable significant entrepreneurial progress through a cognitive shift from a managerial to an entrepreneurial mindset.

When hostile takeovers threaten continued management control, target management might respond with an MBO, among other available takeover defences. Although executed under pressure, this transaction accomplishes two goals: the enterprise survives as an independent entity under current management, while tax and other benefits are realized, thus relieving the pressure for change. Shleifer and Vishny (1987) provide anecdotal evidence that for very large firms the primary impetus behind the MBO is often not making large acquisition profit but, rather, the

threat that someone will do so at management's expense.

Critics contend that managers exploit their position to get a lower price for the firm. The informational asymmetries between insider managers and outsider stockholders create a conflict of interest between management's fiduciary responsibility to sell at the highest possible price and its natural self-interest to buy at the lowest possible price (Lowenstein 1985; Bruner and Paine 1988). Because the information that shareholders and other outsiders have is, to an extent, controllable by the firm's managers, they may have an incentive to manipulate the information to understate the firm's value and then buy it at a bargain price. However, several mechanisms restrict potential wealth transfer from pre-buyout shareholders to the management buyout group. Directors of an MBO target are required to serve the interests of the existing shareholders, and can take steps such as bargaining or actively seeking rival bidders to fetch a higher price. Shareholders have access to legal recourse, including seeking appraisal remedies or alleging the transaction involves conflicts of interest without arm's-length negotiation. Both actual and potential competing offers could also limit the ability of managers to underbid. Since 1979, SEC rules have required firms to make statements on the fairness of the transaction. In most buyouts, the board hires investment bankers to make independent appraisals.

See Also

- ▶ Acquisition Strategy
- ▶ Agency Problems
- ▶ Agency Theory
- ▶ Asymmetric Information
- ▶ Theory of the Firm

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Management by Objectives and Self-control

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Abstract

When properly implemented, management by objectives and self-control is an effective philosophy of management. It has been used with positive results in both private and public service institutions. It does not substitute for sound management; rather, it provides the discipline and the process needed to achieve sound management. Management by objectives' effectiveness depends on top management support, clear specifications of objectives and managers who are trained to implement it. Testimonial and empirical evidence supports these claims.

Definition

Management by objectives with self-control is a conceptual and practical process that has been in existence since the 1930s in one form or another. Peter Drucker gave it central prominence in his landmark book *The Practice of Management*, published in 1954.

In *The Future of Industrial Man* (Drucker 1942), Peter Drucker began to address the question of how individual freedom can be preserved in an industrial society given the dominance of managerial power and the corporation. Management by objectives (MBO) coupled with self-control is the managerial philosophy he proposed, originally in *The Practice of Management* (Drucker 1954: 121–136), for resolving the tension between individual freedom and the authority the individual must yield to the corporation. Even in professional service organizations within today's knowledge economies, evidence suggests that MBO with self-control is the best answer we have to the dilemma of how to protect individual freedom in organizations (Dirsmith et al. 1997).

Achieving freedom in the corporation and in other institutions of society requires that all individuals assume responsibility for their own objectives. MBO incorporates methods for setting objectives and for monitoring performance within organizations. The MBO process, if properly designed and used, requires both *freedom for individuals and responsibility from individuals*.

Peter Drucker, in an interview, defined the nature of individual responsibility required to realize individual freedom in organizations.

> Responsibility is both external and internal. Externally it implies accountability to some person or body and accountability for specific performance. Internally it implies commitment. The Responsible Worker is not only a worker who is accountable for specific results but also who has the authority to do whatever is necessary to produce these results, and who, finally, is *committed* [italics mine] to these results as a personal achievement. (Beatty 1998: 79)

This is the nature of responsibility that will provide conditions for genuine freedom for individuals in organizations. It is also the kind of responsibility required to make MBO with self-control effective.

The History of Management by Objectives

Drucker provides a historical account of the origins of MBO in his article 'What results should you expect? A users' guide to MBO' (Drucker 1976: 12–19):

> The basic concepts are strongly advocated by Luther Gulick and his associates in the mid- and late '30s, in their studies of the organization and administration of the federal government. Yet, the concept of management by objectives and self-control originated with the private sector. It was first practiced by the DuPont Company after

> World War I. By the mid-'20s, Alfred P. Sloan (1875–1966) Jr., of General Motors used the term 'Management by Objectives and Self-Control' systematically and with great conceptual clarity. (Drucker 1976: 12)

While Drucker did not actually invent the term 'management by objectives', he did invent its central position in management. In John J. Tarrant's *The Man Who Invented the Corporate Society* (1976: 77), Drucker clarifies his contribution to the development of MBO: 'I didn't invent the term "Management by Objectives"; actually ► alfred sloan used it in the 1950s. But, *I put it in a central position* [italics mine], whereas to him it was just a side show.'

Drucker's full development of management by objectives and self-control followed shortly after his work with General Motors and the publication of his *Concept of the Corporation* (1946). With assistance from Harold Smiddy, a vice-president of ► general electric (GE) and many others at the company, including CEO Ralph Cordiner, Drucker developed MBO as a philosophy of management. MBO was implemented as an integral part of GE's massive reorganization from departments to autonomous decentralized units in the early 1950s (Greenwood 1981).

Two significant passages cited by Greenwood (1981) from the third volume of the series *Professional Management in General Electric: The Work of a Professional Manager* (General Electric 1953) describe the central relationship of MBO and self-control to the implementation of GE's corporate ► decentralization.

> One does not need to be 'controlled' or 'commanded' if he knows what is to be done and why; if he knows, from continual measurements of results, whether the work is getting done as planned, and on schedule, or if not, why not. (General Electric, cited in Greenwood 1981: 73)

And:

> Decentralization of managerial decision-making requires that objective goals and objective measurements of progress towards these goals be substituted for subjective appraisals and personal supervision. Through a program of objective measurements, managers will be equipped to focus attention on the relevant, the trends, and on the future. To the extent, therefore, that we are able to develop sound, objective measurements of business performance, our philosophy of decentralizing authority and responsibility will be rendered more effective. (General Electric, cited in Greenwood 1981: 133)

MBO coupled with self-control is the managerial philosophy Drucker proposes in *The Practice of Management* (Drucker 1954: 121–136) for resolving the tension between individual freedom and the authority the individual must yield to the organization upon employment. When properly designed and supported, MBO with self-control is the best solution we have to the central concern of Drucker's, *how to protect individual freedom while individuals yield to authority in organizations*. Achieving freedom in the corporation, and in other institutions of society, requires individuals at every level to assume responsibility for their objectives and results. Therefore, MBO with self-control provides methods for setting objectives, for establishing commitments to objectives, and for monitoring performance against objectives for each individual in an organizational unit.

Key Features of the MBO Process

MBO is characterized by *upward communications* in which each manager clarifies the objectives of his or her superior and then sets objectives that are both achievable by the manager and congruent with the superior's objectives. Next, the superior reviews all objectives and negotiates agreement with each manager while seeking to integrate the objectives of all subordinates on whose performance the superior depends. In the process, the superior seeks to gain enthusiastic acceptance and commitment for agreed-upon objectives from subordinates. If the superior is successful, this process of communication and participation will encourage subordinates to internalize their agreed-upon objectives as their own.

Next, the superior coaches subordinates to achieve objectives and seeks to eliminate any known barriers that might impede achievement of objectives. Finally, the superior ensures that subordinates have timely and accurate information to assess their own progress towards objectives and take their own corrective action without any interference.

The Management Letter

Drucker proposed the 'management letter' as a tool to assist with upward communications in MBO. Each manager clarifies the objectives of his or her superior in the letter and then sets objectives that are both achievable by the manager and congruent with the superior's objectives. The letter should contain proposed performance objectives applied to the manager along with work the manager must do to attain these objectives. The manager then identifies the assistance she needs from her superior and from her colleagues to attain her objectives. If the superior accepts the recommendations in the letter, these recommendations become the agreed-upon set of objectives and actions for the manager during the subsequent period.

MBO with self-control is neither easy to accomplish, nor is it fun. For Drucker, these are ideals to aspire to, and he readily acknowledged that MBO is more widely used than is self-control. For MBO to function at all, executives must clearly define their objectives. These and many additional difficulties of achieving both freedom and individual responsibility in organizations should eradicate any belief that Drucker proposed a 'utopian' approach to the practice of management, as has been alleged by some critics (Kanter 1985).

Evidence of MBO Effectiveness

There is abundant evidence of the effectiveness of MBO and numerous other concepts that have been patterned after it. This evidence takes the form of testimonials from executives, such as the following from Bill Packard, co-founder of Hewlett-Packard:

> No operating policy has contributed more to Hewlett-Packard's success … MBO … is the antithesis of management by control. The latter refers to a tightly controlled system of management of the military type … Management by objectives, on the other hand, refers to a system in which overall objectives are clearly stated and agreed upon, and which gives people the flexibility to work toward those goals in ways they determine best for their own areas of responsibility. (*The Economist* 2009)

Empirical evidence supporting MBO also can be found within the huge body of MBO literature. This literature shows that MBO is effective if it is enthusiastically modelled and supported by top management, if clear specifications of objectives exist, and if the management team is trained in each step of the MBO process.

The most impressive evidence is contained in Rodgers and Hunter's meta-analysis of 30 years of research on the positive impact of management by objectives upon productivity in companies whose top management was highly committed to the process. In 68 of the 70 studies examined, gains in productivity were found after the introduction of MBO. The support and participation of top management was the defining attribute of successful MBO applications. 'The gain in productivity dropped from 56.5% to 32.9% to 6.1% as top management commitment dropped from high to moderate to low' (Rodgers and Hunter 1991: 329, 331).

The study by Dirsmith et al. (1997) contains impressive evidence on the effective use of MBO in professional service firms. The 'Big Six' public accounting firms in their study integrated the use of a formal MBO control process, which included personal incentives for achieving objectives and an informal mentoring process. These combined processes were helpful in the development of professionals in these firms.

Conclusion

MBO and self-control is a philosophy of management that has proven itself effective in many different industries as well as in the public sector. It is not a panacea and does not substitute for effective management. But, properly used, it is likely to provide the context for achieving *individual freedom* and *personal responsibility* as well as desirable results for organizations.

See Also

- ▶ Business Strategy
- ▶ Decentralization
- ▶ General Electric

- ▶ Performance Measures
- ▶ Profit Centres
- ▶ Sloan, Alfred P. (1875–1966)

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Management Gurus

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Abstract

This entry considers the evolution of the term 'management guru' and outlines the contributions of some of the leading figures to have emerged over the last half-century. It is pointed out that some of the earliest leading figures in the development of ▶ business strategy – such as Sunzi, Machiavelli and Clausewitz – were actually writing about different areas of human endeavour. The entry then moves on to the modern era, dealing with some of the early pioneers of business strategy, such as ▶ Peter Drucker, Alfred Chandler and ▶ Igor Ansoff. There then follows some discussion of some of the more important contributions of the 1980s and 1990s, considering in particular the work of ▶ Tom Peters and Robert Waterman, and the separate work of Henry Ohmae and Gary Mintzberg. The final section considers the reasons why we may now be considered to be entering a 'post-guru' age.

Definition A management guru is the name given to a management thinker or writer who develops a broad popular reputation and whose ideas are widely taken up – sometimes uncritically – within the business world. They were particularly prevalent in the period from the 1970s to the 1990s.

There is no consensus as to what exactly a 'management guru' is, nor are there clear criteria for inclusion into (or exclusion from) the ranks of management gurus. Huczynski (1994), in perhaps the best analysis of the concept of the management guru, draws specifically on the original religious meaning and identifies a guru as 'an acknowledged leader or chief proponent of a cult or an idea' (Huczynski 1994: 725). He also states that 'from the turn of the [twentieth] century onwards management gurus have played a central role in the manufacture, transmission and application of management knowledge' (p. 1725). This statement is at once both too broad and too narrow. The term 'management guru' only began to appear in the 1970s, and Witzel (2012) has identified the 1970s to 1990s as the period when the term 'management guru' was most widely in use, and suggests that there has been a decline in the status of gurus since the mid-1990s, for reasons we will discuss below. At the same time, managers have ascribed what might be described as 'guru' status to key thinkers for hundreds of years before the twentieth century.

Witzel (2012) defines management gurus as figures 'who disseminated management ideas

widely and became, at least for a time, household words in management circle', making the point too that 'some of the gurus were academics; others were consultants or practising managers' (p. 198). He also points out that in most lists of gurus, the overwhelming majority of modern guru figures are American, with only a few British, other European or Japanese. Whether this is because America is naturally more fertile ground for management theories, American managers are more receptive to gurus and their ideas, or American gurus had access to better channels of communication to disseminate their ideas is still very much a moot point.

There have been gurus in fields such as organization and human behaviour (Charles Handy, Elton Mayo), production management and re-engineering (Frederick Taylor, Michael Hammer), marketing (Philip Kotler) and many others. Given the nature of this volume, this entry will concentrate on gurus in the field of strategy. In general, it can be said that historically the strategy gurus have fallen into two schools of thought: those that emphasize the importance of preparation and thinking about strategy, and those that concentrate on the development of strategic options and precepts.

Early Strategy Gurus

The discipline of ▶ business strategy emerged surprisingly late, given the early growth of other disciplines such as marketing and human resource management (Wren 1994; Witzel 2012). Yet businesses in earlier times were clearly aware of strategic concepts and followed certain strategic rules of thumb, even if they did not always have fully developed strategic plans in the modern sense (Witzel 2009).

Early business leaders looked outside the business world for inspiration when thinking about strategy. One of the most important strategy gurus in premodern times was the Chinese writer Sunzi (▶ Sun Tzu), who probably flourished in the sixth century BC. The work known today as *The Art of War* was heavily amended and added to after his time, and is known to have been substantially rewritten by the warlord Cao Cao in the late second century AD. Sunzi's work has had an enduring appeal for business leaders in East Asia, and in the twentieth century became popular in the West as well. It continues in print today, and is still widely read.

Sunzi's work is popular because of its simplicity. It breaks strategy down into convenient principles, and expresses them in direct language. He argues for a rational approach to strategy-making:

> Now the general who wins a battle makes many calculations in his temple ere the battle is fought. The general who loses a battle makes but few calculations beforehand. Thus do many calculations lead to victory, and few calculations to defeat: how much more no calculation at all! It is by attention to this point that I can foresee who is likely to win or lose. (Sunzi 1963: chapter 1, § 26)

Yet, unlike some modern writers, Sunzi is not prescriptive in his approach to strategy. He emphasizes the need for preparation, and urges that the most important prerequisite for good strategy is knowledge:

> If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle. (Sunzi 1963: chapter 1, § 26)

Sunzi steers away from offering prescriptions for successful strategy, however, focusing instead on preparation and knowledge. Another very popular early Chinese work which is still read today, the anonymous *Thirty-Six Stratagems*, takes the opposite approach and lays out a series of maxims that encapsulate key strategic concepts, which, it is said, if followed will lead to success.

Influential Roman writers on strategy also divide into two schools. Sextus Julius Frontinus (AD 40–103), like the author of the *Thirty-Six Stratagems*, developed a series of 'strategic options' from which leaders could choose depending on the situation in which they found themselves. Like Sunzi, Vegetius (early fifth century AD), whose *Epitoma Rei Miltiaris* (Epitome on the Art of War) was popular for at least a thousand years after its first publication, urged

the importance of preparation, training and gathering adequate knowledge, rather than elucidating particular strategic principles.

One of the most notable and original writers on strategy was the Florentine statesman Niccolò Machiavelli (1469–1527). In his major works *The Prince*, *The Discourses* and *The Art of War*, Machiavelli introduced the concept of purpose into strategy. Whereas Sunzi and Vegetius had looked only to the medium term, to the defeat of an enemy, Machiavelli took a more long-term approach and regarded the survival and prosperity of the organization (in this case, the state) as the main purpose of strategy. Machiavelli also developed the idea of the importance of environmental factors in strategy. He argued that the two important factors in strategy are *fortuna*, literally 'luck', but in fact referring to a whole concatenation of circumstances and environmental factors outside the strategist's control, and *virtù*, the inner strength and mental agility which allows people to adjust to the demand of *fortuna*, meet challenges and spot opportunities. This ability to adjust, said Machiavelli, is the key to success: 'he errs least and will be most favoured by fortune who suits his proceedings to the times' (1970: Book 3, chapter 9). There are similarities between the work of Machiavelli and the twentieth-century school of emergent strategy.

Machiavelli qualifies as a guru because he influenced several centuries of later strategists, especially the Prussian strategy guru Karl von Clausewitz (1780–1831). His book *Vom Kriege* (On War) was the best-known strategy textbook of the nineteenth century and is still taught at many military colleges today. Like Machiavelli, Clausewitz eschewed formal strategic principles (apart from a few very generic ideas such as concentration of force) and argued for preparation, knowledge and clarity of purpose. One of Clausewitz's disciples, Field-Marshal Helmuth von Moltke, was the victorious commander in the Franco-Prussian War (1870–1). His methods were widely studied by many within the scientific management movement in America and many of Clausewitz's ideas were thus disseminated into management theory.

The Modern Era

The first modern guru to write on strategy was the 'arch-guru' ▶ Peter Drucker. Drucker became a best-selling writer on business, whose books were widely studied by executives, and his approach and writing style were followed by many later gurus. In *The Practice of Management* (1954), Drucker linked strategy once again to purpose. He argued that the two key questions every business needs to ask are (1) What kind of business are we? and (2) What kind of business should we be? Strategy, for Drucker, is about creating the steps that get from the one position to the other. He also argued that all strategy should be focused on creating value for customers, as this was the only certain way to achieve objectives. Again, Drucker was not prescriptive in his approach to strategy, talking instead in often quite philosophical terms about the need for focus on objectives and the qualities needed by successful organizations.

The two gurus who defined 'business strategy' as a discipline were the business historian Alfred Chandler and the engineer turned academic ▶ Igor Ansoff. Chandler's translation to guru status happened almost by accident. In *Strategy and Structure* (1962), Chandler identified the development of the multidivisional form (M-form) corporation as the vital factor in American economic growth in the twentieth century. He argued that the strategic needs of American industry led to the development of an organizational form perfectly suited to match those needs. Chandler summed up his views in the dictum 'structure follows strategy'. According to Jones and Lefort (2005), this concept and the idea of the M-form corporation were picked up by consultants at McKinsey & Company, who used them for inspiration in developing their own consultancy tool and sometimes gave copies of Chandler's book to clients. Chandler thus became a guru in way that he probably did not intend when writing the book.

Even more so than Chandler, Igor Ansoff was in favour of developing strategic precepts. In *Corporate Strategy* (1965), Ansoff attempted to deduce a set of generic strategic principles He himself was never entirely satisfied with the result and, in a later work, *The New Corporate Strategy*

(1988), Ansoff admitted that the search for strategic principles might be a myth, and adopted a position closer to that of the 'thinking' or 'emergent' school of strategy. However, his early work was influential in the development of the 'formal planning' school, and was widely read and disseminated into the business world through business schools. Ansoff was undoubtedly an influence on ▶ Kenneth Andrews, whose *The Concept of Corporate Strategy* (1971) became a standard strategy textbook for generations. Andrews set out a highly deliberate approach to strategy: companies should scan the environment, analyse the options, take rational decisions and make formal plans, which are then implemented in a linear fashion. The formal approaches to planning structures present in many large Western corporations today owe their existence to the influence of Andrews and Ansoff.

This view was challenged by other gurus from the late 1970s onwards. The publication of *In Search of Excellence* by the McKinsey consultants ▶ Tom Peters and Robert Waterman in 1982 was a landmark event in that it represented a breakthrough for non-academic strategy gurus, until then represented only by Peter Drucker. But although *In Search of Excellence* challenged the formal planning view of strategy, claiming that it was excessively rigid, Peters and Waterman still belong very much to the 'precepts' school. Their 7-S model is a roadmap for creating a successful strategy, and has been criticized for adopting a 'box-ticking' approach.

More thoughtful critiques come from the Japanese consultant Kenichi Ohmae and the Canadian academic Henry Mintzberg. Ohmae's *The Mind of the Strategist* (1982) is not always treated as seriously as it deserves to be. There are, unsurprisingly, strong instances of Eastern thinking in Ohmae's work, which is in the tradition of Sunzi in that it emphasizes thinking and preparedness. Strategy, for Ohmae, was a mental discipline:

> a thought process which is basically creative and intuitive rather than rational. Strategists do not reject analysis. Indeed they can hardly do without it. But they use it only to stimulate the creative process, to test the ideas that emerge, to work out their strategic implications . . . Great strategies, like great works of art or great scientific discoveries, call for technical mastery in the working out but originate in insights that are beyond the reach of conscious analysis. (Ohmae 1982: 4)

There are similarities between his views and those of Mintzberg, who wrote of 'crafting strategy' and compared it to the art of a potter throwing on a wheel (Mintzberg 1987). Mintzberg argued that the process of planning strategy distorts strategy-making and leads to mismatches between the chosen strategy and the real needs of the business; recall Machiavelli's urging that strategists should adapt to the requirements of circumstance:

> the crafting image better captures the processes by which effective strategies come to be. The planning image, long popular in the literature, distorts those processes and thereby misguides organizations that embrace it unreservedly. (Mintzberg 1989: 26)

Mintzberg and Ohmae qualify as gurus because their work was very widely read and discussed, including within the business community. Indeed, Ohmae wrote primarily for a business audience, and Mintzberg has maintained a consistent policy of engagement with the business community, a fact which makes him somewhat unusual in modern academia. The same is true of Michael Porter, the best-known guru of the 'positioning school' of strategy, who tried to chart a middle way between the thinking approach and the precepts approach. In bestselling books such as *Competitive Strategy* (1980) and *Competitive Advantage* (1985), Porter tried to create frameworks that were broad enough to accommodate a flexible approach. Unfortunately, his broad frameworks have been interpreted in quite a narrow way, and the net effect is to put Porter, willingly or not, into the precepts school.

The Post-Guru Age?

While the period from the late 1990s onwards has produced many notable works on strategy, many of them bestsellers, it is hard to assign 'guru' status to these later writers because it is difficult to detect any strong impact on the world of business. An exception might be made for C. K. Prahalad and Gary Hamel, whose writings

on core competencies (for example, Prahalad and Hamel 1990) may have helped to inspire the trend towards outsourcing. More common is the fate of Arie de Geus (1997), who produced works that were at first widely admired but then slipped into obscurity. Similarly, Kim and Mauborgne's *Blue Ocean Strategy* (2005), a publishing phenomenon in its time, is also now a fading star.

Why are there so few gurus in strategy today? It could be argued that this absence is a sign of greater maturity in the business world. Today's executives are more self-aware and better able to think for themselves, and therefore they have no need of gurus to tell them what to do. This is an interesting theory, but there is not a shred of empirical evidence to support it. Another possibility is cynicism: after well-publicized fiascos such as business process re-engineering, executives have grown wary of gurus. They realize that many aspiring gurus are emperors in new clothes, with nothing of substance to offer. The lack of consensus over the best way to do strategy is undoubtedly also a factor. Instead of the old split between the 'thinking' and precepts approach, academia has now created up to a dozen different and often competing approaches (McKiernan 1996), and in recent years consultancy has been marked by a dearth of new ideas.

Not all would agree that this is a bad thing. The guru movement was heavily criticized during the 1980s and 1990s. Non-academics such as Peters and (less justifiably) Ohmae were attacked by academic writers for being insufficiently rigorous and prescribing unsound methods. Academics, in turn, have been criticized for not being sufficiently grounded in real-world practice (the most noted critic in this case being Mintzberg, himself an academic). Not everyone was, or is, comfortable with the idea of gurus dispensing knowledge to the unenlightened masses of managers, when the people who know the business best and are best capable of understanding its strategic needs are very often the managers themselves. And, finally, the commercial success of the gurus has overshadowed the work of other, often very fine writers on strategy whose ideas were not widely disseminated because they failed to break through into the mass publishing market. As Witzel (2012) has argued, many good ideas in strategy, and in management more generally, get lost along the way.

Nevertheless, the guru movement did make some positive contributions. It got managers reading, thinking and talking about strategic ideas, and made them consider alternatives. It established direct channels of contact between some highly original thinkers and practising professionals, and created dialogues, especially between professional managers and academia. Those dialogues still exist, but they have grown weaker. Perhaps we should not try to recreate the era of the gurus, but channels to aid the flow of ideas between 'thinkers' and 'doers' are still required.

See Also

- ▶ Andrews, Kenneth (1916–2005)
- ▶ Ansoff, H. Igor (1918–2002)
- ▶ Business Strategy
- ▶ Drucker, Peter: The Drucker Strategic Management System
- ▶ Machiavellianism
- ▶ Peters, Tom (Born 1942)
- ▶ Sun Tzu

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Management of Technology

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Abstract

The management of technology (MOT) covers all the procedures needed to design and use technology by organizations to achieve economic and social objectives (Collins et al., Int J Technol Manag 6:3–28, 1991: 6). As such, it covers the acquisition, exploitation and transfer of technology, 'new product development, project management, entrepreneurship, technology forecasting and planning, innovation and R&D management, knowledge management, intellectual property management and [the] strategic management of technology' (www.iamot.com).

Definition The management of technology (MOT) covers the numerous, interconnected processes that are used to design, implement, use and exploit technology by organizations to achieve strategic, economic and social goals.

Historical Developments

Technology became an explicit element of managerial practice in the late nineteenth century with the emergence and rapid growth of large chemical and electrical firms in the USA and Germany (Pavitt 1990). Today technology is a key feature of almost all firms, and the management of technology (MOT) is becoming increasingly central to corporate strategy. Two related streams of research and practice feed into modern MOT. The first has its origins in operations management, and explores the management of increasingly complex manufacturing and process technologies. Important developments in this body of knowledge include diffusing 'lean thinking' practices from the automobile industry and using information technology to improve process management. The second stream focuses more on new product development. Research and practice here has moved from analysing 'success factors' to exploring sectoral diversity, project-based and complex innovations and, most recently, service development. Current work increasingly integrates these two streams, for example, in the emerging discipline of service systems science which explores interactions between innovations in processes, products and services.

Process Technology Management

The management of process technology can be narrowly focused on specific production

technologies such as robotics, expert systems, computer-aided manufacturing (CAM), flexible manufacturing system (FMS), and decision support systems (DSS), or it can have a broader focus on operations management. This broader view sees production technologies as part of an interlinked system and focuses on improving their performance. One of the most important developments here were the lean production and lean thinking paradigms. These drew on studies at the Massachusetts Institute of Technology and Harvard of leading Japanese automobile firms that had developed management techniques to eliminate wasted materials, process bottlenecks and unnecessary inventories (Womack et al. 1991). New management practices that have emerged from lean production, such as Just-in-Time inventory co-ordination, quality circles, strong relationships along the supply chain and continuous learning, have now diffused across the global economy and into the public sector.

This has been part of a wider trend within MOT from regarding innovation as the *substitution* of one machine with another to seeing innovation as the *integration* and extension of previously separate functions. Attention has moved from integration *within* functional areas, to integration *across* functions and now beyond the boundaries of the firm. This co-ordination will often be based on electronic systems, such as Business Process Reengineering (BRP) and Enterprise Resource Planning (ERP) systems that can allow different firms to share design processes or order components from shared inventory management systems. Such systems can also link forwards into the distribution chain, eventually allowing firms to work directly with their customers.

The implementation of these manufacturing systems often fails because they require complementary changes in organizational structures and working practices. While these complementary changes are difficult to manage, they can generate additional potential for innovation in products and services, which has generated increased interest in a more integrated approach to product and process innovation (Tidd and Bessant 2013).

Product Technology Management

The second stream of research and practice in the MOT has attempted to understand what makes an industrial innovation a success. Early work consisted largely of anecdotal descriptions of the attributes of successful innovators. The pioneering SAPPHO project (Scientific Activity Predictor from Patterns with Heuristic Origins) advanced the field by using a comparative methodology to explain differences between successful and unsuccessful innovators in organizational terms (Rothwell et al. 1974). It showed that more successful organizations had: (1) better understanding of user needs, (2) more attention to marketing and publicity, (3) more efficient development work, (4) more use of outside technology and scientific advice, and (5) more senior individuals as project champions. Moreover, it showed that these factors worked together rather than in isolation.

Rothwell's (1977) review of nine previous studies identified similar success factors such as: (1) effective communication and collaboration, (2) seeing innovation as a corporate wide task, (3) efficient development work, (4) use of planning and management techniques, (5) quality and style of management, (6) attention to marketing and user needs, (7) provision of after sales service and user education, and (8) championing of innovation by key individuals. Cooper's seminal work (1979, 1994) and Cooper and Kleinschmidt (1995) had a more explicit focus on new product development (NPD) rather than innovation more generally and showed that the three most import success factors are (1) product uniqueness and superiority, (2) market knowledge and marketing proficiency, and (3) technical and production synergy and proficiency. Other important success factors identified in Cooper's studies were: (1) sharp and early product definition, (2) a cross-functional team approach, (3) sharper evaluation, (4) high-quality execution, and (5) a multi-stage innovation process with stage-gates for project evaluation.

Sectoral Diversity

While both streams of work attempt to find widely applicable lessons, firms and industrial sectors differ greatly in whether their innovation focus is on products or processes, and this focus can change over the product life-cycle (Utterback and Abernathy 1975). They also differ in where they get their innovations from (suppliers, customers, academic science), where innovation takes place in the firm (R&D labs, production engineering and design departments), and what their customers require (price, performance or both). This diversity cautions against generalizing from the experiences of one firm or sector, or from unthinkingly applying population level findings to individual firms. To take this diversity into account Pavitt (1984) developed his famous taxonomy, which provides a very useful guide to the strategic management of technology. While the taxonomy has held up well to subsequent empirical testing, it has become increasingly clear that there are generic patterns of INNOVATION that cut across all the categories in the taxonomy, for example, related to the use of information technology and scale-intensive process technology.

Towards an Integration of MOT

Today there is a move towards a generic framework for MOT, which integrates process, product and service innovation, and takes into account both firm diversity and patterns of innovation that are widely shared. This addresses both the blurring distinction between products and services, and the growing dependence of services on complex technological systems. This emerging field has been referred to as Service Science (Carlson 2008; Chesbrough and Spohrer 2006) and presumes that the basic steps in new service development are broadly similar to those in manufactured goods.

This seems reasonable since both manufactured goods and services use technology to generate functions, but differ because customers buy manufactured goods to produce the service themselves, while in services the technology is retained by the service supplier (Nightingale and Poll 2000) – hence the familiar distinction between manufactured goods being durable and services being consumed as they are produced. As a consequence, the inputs, throughputs, and outputs involved must meet customer needs regardless of the ownership or type of product, or whether the transformation process is physical, symbolic or experience-based.

Current research and practice seeks to integrate all aspects of MOT, including process, organization, technology and systems (Tidd and Hull 2003). This is very different from earlier and narrower approaches, such as BRP and ERP, which aimed to optimize processes around *existing* products and services (BRP), or improve control over *existing* processes (ERP). MOT is no longer simply about automation, or optimizing individual aspects in isolation, but, rather, aims to optimize their interactions to improve efficiency, speed, quality and innovation (Tidd and Bessant 2013).

See Also

- ▶ Business Strategy
- ▶ Innovation Strategies
- ▶ Operations Management and Strategy

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Managerial Discretion

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Abstract

Managerial discretion is the latitude that executives have to affect the activities of the companies they run, as opposed to merely accepting internal and external influences. There are two distinct streams of literature. In one, ▶ agency theory, managers are assumed to be opportunistic and likely to misallocate firm resources to their own use unless restrained by well-designed incentives, weighty governance or heavy debt burdens that limit the availability of discretionary capital. The other stream is sanguine about managerial motivation and measures discretion by the financial latitude that management has to allocate or reallocate resources to high-yield purposes. Empirical research is ongoing in both streams.

Definition Managerial discretion is the latitude that executives have to affect the activities of the companies that they run. It may sometimes refer to managerial objectives that diverge from those of the owners and/or actions that differ from organization or industry norms.

Managerial discretion is the latitude that executives have to affect the activities of the companies that they run. Economics and management theories have identified both positive and negative aspects of executive freedom of action.

Shen and Cho (2005) draw a useful distinction between two different meanings of the phrase 'managerial discretion' that underlie two lines of research. The first they call 'latitude of objectives', the degree to which an executive is able to pursue goals (e.g., growth instead of profits) that diverge from those of the owners. The second meaning they call 'latitude of actions', the degree to which an executive is able to pursue strategies distinct from those determined exogenously by the business environment, industry norms or organizational inertia.

Although the notion that managers have some degree of discretion may appear self-evident, it has not always been part of theories of the firm. Early economic models of the firm assumed profit maximizing behaviour and perfect information that left little scope for managers to affect outcomes. Early strategy theories reserved a significant role for executives, but by the 1970s attention had turned to operational efficiency and financial engineering, leaving the critical contribution of corporate executives to be 'rediscovered' by business historians such as Alfred Chandler (1977) and by management theorists in the 1980s (Hambrick 1989). Managers are again seen as central to performance differences in strategy

frameworks such as ▶ dynamic capabilities, which views managers as having the potential to build enterprise value and stockholder wealth through the creation and orchestration of organizational resources (Augier and Teece 2009).

Opportunism and Non-maximization of Profit

In the early 1960s, Herbert Simon, Richard Cyert and James March, William Baumol, Robin Marris and others began to sketch out theories in which managerial preferences play a role in organizational decision-making. In these theories of the firm, managerial decisions set the goals of the organization and determine the resource allocation within the firm. The preferences of executives may include self-aggrandizing objectives such as a higher salary, job security, the prestige of running a larger company and an organizational design that centralizes power.

The phrase 'managerial discretion' was first used in this context in an article by Oliver Williamson (1963). Williamson modelled managers as preferring non-productive expenditures on higher salary, more staff and other self-serving goals. Profits are not maximized but rather brought to a level acceptable to those with influence over the executives. This approach was consistent with the work of Berle and Means (1932), who wrote about the potential for misallocation of resources by non-owner managers, which stemmed from the gap between ownership and control.

Subsequent research (e.g., Mueller 1969) applied the model of self-interested managers to the subject of corporate ▶ DIVERSIFICATION. Studies (e.g., Hoechle et al. 2012) continue to look for evidence that most corporate diversification leads to the destruction of value in terms of stock price, presumably as the cost of providing the CEO of the diversifying firm more power and prestige.

The opportunistic – some might say cynical – view of discretion also gave rise to the principal-agent literature in finance, which originated in work by Ross (1973) and by Jensen and Meckling (1976). In this perspective, the ownership structure of the corporation (insider shareholders, external shareholders and bondholders) is determined by optimizing among the corresponding agency costs, which include monitoring costs and a loss that is assumed to result from the separation of ownership and management control. In other words, managers cannot be trusted to make the most productive investments and will waste resources pursuing their personal goals. Ownership structures are selected to minimize these costs.

Jensen (1989) went so far as to argue prescriptively that high debt loads resulting from leveraged buyouts were good precisely because they limited management's discretion. He saw high debt burdens as a way to reduce the free cash flow at the disposal of profligate managers.

Managerial Scope of Action

A separate stream of literature on managerial discretion takes a neutral view of the role played by managers. This line of research is primarily concerned with building predictive theories about observable outcomes such as firm performance and compensation in which managerial discretion serves as an independent variable.

This approach addresses a tension that runs through strategic management research into how much difference executives actually make to the fates of the firms they lead. While much management literature takes the influence of the executive as a given, an important stream of articles (e.g., Hannan and Freeman 1977; Barnett 1997) develops the proposition that corporations are slow to change and are as likely to learn the wrong lessons from the past as the right ones. Some studies (e.g., Lieberson and O'Connor 1972) claim that CEOs have relatively little effect on firm performance, although the result has not stood up to scrutiny (Finkelstein et al. 2009: 23–24).

'Managerial discretion' was advanced by Hambrick and Finkelstein (1987) as a moderating variable that could explain why the characteristics

and actions of executives matter for enterprise performance in some contexts but not in others. The notion expands on an idea percolating up through earlier research that some circumstances impose more constraints on the internal influence of executives than others. Hambrick and Finkelstein identified three groups of factors that affect managerial discretion: (1) the business environment, such as whether economic growth is weak or strong; (2) the organization, such as whether it is large and bureaucratic or small and agile; and (3) the individual, such as whether the manager's ability to manage complexity is high or low. Empirical research helped to identify meaningful factors within each of the three groups (Finkelstein et al. 2009: 26–34).

Finkelstein and Hambrick (1990) show how the influence of top management team tenure on organizational outcomes varies across a high-, a medium- and a low-discretion industry. To systematize the identification of discretion at the industry level, Hambrick and Abrahamson (1995) used an expert-panel rating process to deduce the implicit weights for the factors evaluated by the experts. They found that discretion is highest in industries with high R&D and advertising intensity (indicators of differentiability), low capital intensity (less long-term commitment to investment plans) and high market growth (more room for experimentation with less severe consequences for miscalculations).

At the firm level, possible determinants of discretion include an organization's size and age, with older and larger firms offering managers less room to manoeuvre, while managers at start-ups, especially in high-tech fields, have a broad scope for instigating change and renewal. Structural features, such as the dispersion of ownership and whether the CEO is also the board chair, also play a role. Large shareholders are much more able to exert pressure on management to restructure, for example, than if ownership is fragmented (Bethel and Liebeskind 1993).

Crossland and Hambrick (2011) used expert panel ratings of discretion to identify national differences in managerial discretion, hypothesizing that significant structural differences, such as the dispersion of corporate ownership and employer flexibility, would lead to varied levels of constraint on managerial decisions. Across 15 countries, they found a wide range of average managerial discretion. On a 7-point scale, US discretion was rated 6.6 while Japan, at the other extreme, was rated 3.

One area in which the managerial discretion concept has been applied empirically is executive compensation. Rajagopalan and Finkelstein (1992) found that, as electric utilities deregulated (arguably increasing discretion), compensation for top management increased. While this might be explicable as a case of opportunism, as agency theorists would hold, research on other industries suggests a different interpretation. Magnan and St-Onge (1997), in a study of 300 commercial banks, found that executive compensation was most related to bank performance in a context of high managerial discretion. Finkelstein and Boyd (1998) found the same relationship for a sample of 600 firms from the Fortune 1,000, where discretion was measured by six firm-level variables including growth, R&D intensity and capital intensity.

These results go beyond the relationships that ▶ agency theory would predict because compensation is highest not only when discretion (the ability to influence outcomes) is high, but when the outcomes are positive (the extra margin of influence has been used to good effect). It suggests that latitude of strategic action is consistent with the interests of shareholders.

See Also

- ▶ Agency Theory
- ▶ Bureaucracy
- ▶ CEO Compensation
- ▶ Corporate Strategy
- ▶ Diversification
- ▶ Dynamic Capabilities
- ▶ Hambrick, Donald C. (Born 1946)
- ▶ Organizational Change
- ▶ Path Dependence in Technologies and Organizations
- ▶ Williamson, Oliver E. (Born 1932)

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Managerial Rents

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Abstract

Superior management skills, and the use of those skills, are necessary to generate (Ricardian) managerial rents. Management skills, also termed 'managerial resources', stem from human capital in the form of innate and learned abilities, expertise and knowledge, and from social capital and cognition. Management resources generate rents when managers possessing these skills use them to achieve above-average business performance. Central to the managerial rents argument is that managers with superior skills will use them to generate rents only when they have incentives to do so. Variables affecting rents appropriation include information asymmetry, institutions and social capital.

Definition Managerial rents are those rents that top executives and other managers generate using their superior management skills. Managerial rents can be of two types: Ricardian rents and

quasi-rents. Managerial resources generate Ricardian rents when managers that possess superior skills use them to achieve above-average business performance. The ability of managers to obtain these rents provides an incentive to generate them.

Managerial rents are those rents that top executives and other managers generate using their superior management skills (Castanias and Helfat 1991). This idea is imbedded in the ▶ resource-based view of strategy (Barney 1991), which argues that firms' competitive positions should be evaluated in terms of how valuable, rare, inimitable and non-substitutable their resources are. Top management and their skills may be valuable ▶ firm resources (Penrose 1959).

Managerial rents can be of two types: ▶ Ricardian rents and ▶ quasi-rents. Ricardian rents stem from resource scarcity (Ricardo 1817); quasi-rents derive from resource particularity, or the difference between the value of a resource's first-best use and its next-best use. If a firm has access to a scarce and valuable mineral, it can obtain Ricardian rents from that mineral. If a firm owns a design for a component that can only be used in a specific product, the firm can generate quasi-rents from that design. These rents are particularly valuable if there are ▶ isolating mechanisms, which impede rent dissipation (Rumelt 1987).

Superior management skills, and the use of those skills, are necessary to generate (Ricardian) managerial rents. Management skills, also termed 'managerial resources', stem from human capital in the form of innate and learned abilities, expertise and knowledge, and from social capital and cognition (Castanias and Helfat 2001). Some literature breaks down managerial skills into the different types, such as firm-specific, team-specific, industry-specific and generic (Bailey and Helfat 2003; Kor et al. 2007). Other literature has similarly expanded on the original approach and applied the managerial rents perspective to the skills of all knowledge-based employees of the firm (Chacar and Coff 2000) and to independent board of director members (Kor and Sundaramurthy 2009).

Management resources generate rents when managers possessing these skills use them to achieve above-average business performance. Central to the managerial rents argument is that managers with superior skills will use them to generate rents only when they have incentives to do so. The incentive to generate rents for the firm comes from the ability to bargain for the rents they generate (Castanias and Helfat 1991). Managerial rents can take the form of bonuses and salary, but they may also be found in categories that are unsuspected and hard to observe (Coff 1999). In addition, Castanias and Helfat (1992) point out that the threat of losing quasi-rents from firm-specific skills works to prevent managerial misbehaviour that can result in job loss.

Although managerial skills may generate rents, and managers will seek to appropriate the rents that they create, it is not clear who will actually appropriate the rent generated. Traditional ▶ resource-based theories seem to implicitly assume that all rents generated by a firm accrue to shareholders. The managerial rents theory introduces the possibility that managers will, and should, appropriate the portion of firm rents that they create (their 'earned' rents).

The extent to which managers actually succeed in appropriating those rents is a subject of concern in the managerial rents literature. Variables affecting rents appropriation include information asymmetry, institutions and social capital. Information asymmetry occurs when managers have knowledge about potential rents that shareholders lack. This can result in insider trading by managers when a valuable innovation is discovered, but before the patent is approved and the value of the innovation is widely known (Ahuja et al. 2005). Institutions, or 'the rules of the game' (North 1990), affect manager rent appropriation by limiting the bargaining power or contractual freedom of individuals (Chacar and Hesterly 2008). Finally, social capital may play a strong role in who appropriates managerial rents (Blyler and Coff 2003).

Analyses of managerial rents in economics generally presume that managers appropriate

rents at the expense of shareholders or other claimants. In contrast, the managerial rents model points out that managerial rent appropriation may instead align shareholder and manager interests, and thereby increase efficiency (Castanias and Helfat 1991). In the case of insider trading, managers signal value with their trades, and shareholder reap gains from this value (Coff and Lee 2003). In the case of ▶ succession management, CEOs from outside the firm and outside the industry earn higher initial salary and bonuses, which can compensate them for the loss of returns to their firm or industry-specific knowledge (Harris and Helfat 1997). The knowledge that these external CEOs possess is valuable to the hiring firms and their shareholders, and worth the compensation for lost potential income.

See Also

- ▶ Firm Resources
- ▶ Isolating Mechanisms
- ▶ Managerial Resources and Capabilities
- ▶ Quasi-Rent
- ▶ Resource-Based Theories
- ▶ Resource-Based View
- ▶ Ricardian Rents
- ▶ Succession Management

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Managerial Resources and Capabilities

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Abstract

The concept of managerial resources and capabilities has helped to explain when management can constitute a valuable firm resource, how management can become such a resource and how management can affect competitive

advantage. Managerial resources consist of human capital, social capital, and cognition of top management, other managers throughout an organization and boards of directors. Incentives are key to the deployment of managerial resources. Incentives to managers to create rents from their resources can come in such forms as salary, stock options and grants, and bonuses for superior performance.

Definition Managerial resources refer to intangible assets in the form of managerial skills. Managerial capabilities denote the capacity of managers to run organizations, and to make and implement strategic and operational decisions by directly affecting and coordinating other resources, inputs and capabilities. Superior managerial resources and capabilities generate Ricardian rents.

Concern with managers, particularly those at the top of an organization, is central to the field of strategic management. Examination of managerial resources and capabilities has helped to explain when management can constitute a valuable firm resource, how management can become such a resource and how management can affect firm performance. The concept of managerial resources and capabilities has also been brought to bear on several related strategy questions.

Research on managerial resources and capabilities is founded in the ▶ resource-based view (RBV) of business strategy. The RBV analyses firms as a collection of resources (Wernerfelt 1984). Rare, difficult to imitate and non-substitutable firm resources can create lasting competitive advantage, because other firms find it difficult to obtain an equivalent bundle of resources (Barney 1991).

The resource-based view of strategy allows for a broad and inclusive definition of resources. Early RBV theory argued that resources include tangible assets such as factories as well as intangible assets such as firm culture and leadership experience (Penrose 1959). Amit and Schoemaker (1993) further distinguished between ▶ firm resources, which refer to strategic assets, and firm capabilities, which refer to the capacity to utilize firm resources and inputs to conduct activities. It has long been understood in entrepreneurial theory that individuals often possess important personal knowledge and experience (Polanyi 1962). From the RBV definition of resources and an understanding of entrepreneurial aptitude, it follows naturally that managerial skill is one type of firm resource. Managerial capabilities refer to the capacity of managers to run organizations, and to make and implement strategic and operational decisions, through an impact on and coordination of other firm resources, inputs and capabilities. A manager with especially strong skills can lead a firm or team to superior performance, thereby creating competitive advantage.

Types of Managerial Resources and Capabilities

Managerial resources were initially analysed in terms of human capital (Castanias and Helfat 1991), used to represent expertise and knowledge acquired through education and experience (Harris and Helfat 1997). Subsequently, Castanias and Helfat (2001) noted that social capital and cognition are likely to contribute to managerial resources and capabilities as well. The original managerial resources and rents model focused on top management, including the CEO and other members of the top management team (Castanias and Helfat 1991). Castanias and Helfat (2001) later noted that the skills of managers throughout the firm, as well as members of the board of directors, affect firm performance, and can be analysed using the managerial resources and rents framework.

A manager can be skilled and constitute a valuable firm resource in a variety of ways. RBV and strategy scholars have sought to categorize different types of managerial resources, in an effort to understand the relationship between managerial resources and competitive advantage. Castanias and Helfat (1991) proposed a hierarchy of three types of skills, based on their transferability to different settings (see also Rajagopalan and Prescott 1988; Kor et al. 2007). The most transferable are generic (or general) skills, which are

transferable across all industries, businesses and firms. Somewhat less transferable are industry-related skills, which represent knowledge about and experience in a specific industry. Finally, there are firm-specific skills, or knowledge about a specific firm that is applicable only to that firm (Helfat 1994). To this hierarchy of skills, Bailey and Helfat (2003) added cross-industry skills, which are transferable across related types of industries (e.g., commodity processing industries such as steel and paper). Yet another type of managerial skill is team competence. Team skills are developed when members of a team gain experience working together and attain success at accomplishing tasks together (Kor 2003). More fine-grained distinctions such as business-specific skills within firms can also be drawn.

Development and Acquisition of Managerial Resources and Capabilities

One question often asked is how managers develop their skills and thereby come to serve as firm resources. One answer suggested by Castanias and Helfat (1991) comes from human capital theory. This theory goes back at least to Adam Smith, and looks at employees as a stock of competences, experience and knowledge (Becker 1964). Mintzberg (1973) argues that, although education through books is important, managers acquire and improve their skills through work experience – in effect, learning by doing. Katz (1974) argues that managerial skills develop through repeatedly relating learning and experience to present tasks. In more recent research, experience and repeated interaction are also recognized as critical for developing managerial skills (Kor 2003; Kor et al. 2007).

Alternative explanations for the origins of managerial resources focus on governance mechanisms and the hiring of skilled individuals. Wang et al. (2009) argue that effective employee governance mechanisms can align management and firm goals, thereby encouraging managers to invest in valuable firm-specific skills (see also Castanias and Helfat 1991, 1992). The key to aligning goals is mitigation of management concerns regarding control and compensation. The authors argue that employee stock ownership as well as trusting, positive employee relationships are effective governance mechanisms to assuage these concerns, and thereby align management and firm goals.

Firms also can obtain valuable managerial resources by acquiring managers. Wulf and Singh (forthcoming) show that firms pursue top management with valuable human capital by acquiring other firms. CEOs of these target firms can sometimes be wooed effectively through governance mechanisms that allow ▶ managerial discretion. Kor and her co-authors also argue for the importance of acquiring the right people, and combining that effort with other compatible strategies. Kor and Leblebici (2005) show that firms have the ability to acquire individuals with diverse skills and to delegate tasks well for competitive advantage. This advantage can disintegrate, however, if too much diversity in skill and businesses is pursued simultaneously. Kor and Misangyi (2008) also find that industry experience is critical for the success of young firms that may suffer from a liability of newness. Young firms can acquire industry-specific skills by acquiring management with industry experience or by acquiring directors who can substitute their industry skills for a lack of managerial experience within the firm.

Impact of Managerial Resources and Capabilities

Managerial capabilities have been shown empirically to have a positive impact on organizational performance. For example, Holcomb et al. (2009) found that in professional sports teams managerial ability has a positive effect on the productivity of other resources, including through an effect on the synchronization of firm resources. Team skills also have been shown to have a positive effect on entrepreneurial growth. However, within a team, industry and firm-specific skills must be balanced, so that certain skills and management

team members do not dominate the decision-making process (Kor 2003).

Penrose (1959) was concerned that managerial capabilities can constrain the firm, its growth and its profit. Nevertheless, recent research has identified several ways in which managerial skills can improve strategic effectiveness, the ability to seize opportunities and the generation of rents. In an analysis of the performance of law firms, Hitt and colleagues (2001) find that, initially, the costs of investments in managerial skills outweigh the marginal productivity benefits. Yet, as managerial skills increase, synergies between these skills and productivity eventually rise. This suggests that human capital moderates the relationship between strategy and firm performance, and that managerial skills enable high-quality strategy to be effective.

Managers with superior skills may also be able to recognize and seize opportunities better and faster than their peers, an aspect of ▶ dynamic capabilities (Teece 2007). Management capabilities relevant to the seizing of opportunities include tacit knowledge of employee skills, seeing the potential of R&D investments and diverting funding accordingly, and matching employees to the appropriate R&D projects (Kor and Mahoney 2005). Management can deploy these skills to seize opportunities before other firms do so, and potentially create superior returns (Helfat et al. 2007).

An often unrecognized key to the deployment of managerial resources is the incentive to do so. Incentives to managers to create rents from their resources can come in such forms as salary, stock options and grants, and bonuses for superior performance (Castanias and Helfat 1991). CEOs, members of the top management team, other managers throughout the organization and entrepreneurs with superior capabilities are more likely to utilize resources if they feel confident that the rents that they produce will not be appropriated by others (Castanias and Helfat 2001).

Managerial resources and capabilities not only affect our understanding of firm performance, but also inform other debates in strategic management. Some of the most important debates involve ▶ succession management, ▶ ceo compensation, firm governance and rent appropriation. Several of these topics have been touched upon previously. However, managerial resources theory provides a different perspective on these issues.

Firms face difficult choices when selecting new CEOs. The CEO succession literature often distinguishes between internal successors, who possess firm-specific skills, and external successors, who may possess industry-specific skills, cross-industry skills or only generic skills. Harris and Helfat (1997) show that external CEOs earn higher compensation than internal successors at the time of hiring, consistent with the observation that external successors must abandon returns from firm-specific skills at their prior place of employment and expose themselves to risk by accepting a position at a firm that they are not as well equipped to evaluate. Also, as previously noted, Wulf and Singh (forthcoming) show that, during mergers and acquisitions, firms seek to keep valuable managerial resources by providing governance systems and high compensation levels to retain successful CEOs.

As the evidence regarding CEO succession suggests, compensation can signal the extent and nature of managerial capability. Higher compensation than industry peers may indicate relatively greater firm and industry-specific managerial skills. Finkelstein and Hambrick (1989) show empirically that CEO compensation is positively associated with managerial experience; experience generates capability, which in turn is compensated with higher pay. This study also shows a relationship to firm governance. CEO ownership and CEO family ownership are strongly related to CEO compensation, which in turn reflects CEO experience and capability.

To appropriate rents, managers who create organizational rents for the firm can use bargaining power. In contrast to other perspectives such as ▶ agency theory or managerial power, managerial appropriation of rents may help rather than harm the firm. As noted above, the ability to appropriate the rents that they create may motivate managers to tap their superior capabilities and generate rents for the firm (Castanias and Helfat 1991; Coff 1999). Bargaining power is affected by a number of

factors including stakeholder composition, knowledge asymmetries and opportunities for *ex ante* bargaining. All these factors must come together to successfully motivate managerial capability development and use in order to increase firm performance (Coff 2010).

See Also

- Agency Theory
- CEO Compensation
- Dynamic Capabilities
- Dynamic Managerial Capabilities
- Firm Resources
- Human Resources
- Imperfect Resource Mobility
- Managerial Discretion
- Managerial Rents
- Penrose, Edith T. (1914–1996)
- Resource-Based Theories
- Resource-Based View
- Ricardian Rents
- Succession Management

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March, James G. (Born 1928)

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Abstract

While the fields of management, business education, organization theory, organizational economics and strategic management have different intellectual roots, one author stands out for his contributions to the evolving field of organizations and management: James March. March was co-author of the two books that were particularly influential in initiating the field that is now broadly recognized as behavioural theories of organizations: *A Behavioral Theory of the Firm* (with Richard Cyert); and *Organizations* (with Herbert Simon). Both books set the stage for several subsequent developments in organization and strategic management theory, including research on learning, organizational economics, cognition, and organizational routines. March's work has also constituted a central foundation for recent developments in the field of strategic management (especially involving capabilities, competencies, learning and dynamic capabilities).

James G. March (born on 15 January 1928 in Cleveland, Ohio) received his Ph.D. in political science from Yale University in 1953 and went to Carnegie Mellon University (then Carnegie Tech) where he contributed to the origins of modern organization and management theory, particularly through his co-authorship of the two classic books, *Organizations* (March and Simon 1958) and *A Behavioral Theory of the Firm* (Cyert and March 1992). March remained at Carnegie until 1964, when he became a professor of psychology and sociology and the dean of the School of Social Sciences at the University of California, Irvine. There, he began (with Michael Cohen) a study of leadership and ambiguity in the context of American college presidency (March and Cohen 1974). This book discusses the loose coupling between decision-making problems and solutions to these problems and gives reasons for leaders to encourage ambiguity, rather than prediction and control. The idea that choice is fundamentally ambiguous is a central theme to ideas about 'Garbage can decision processes' (March et al. 1972) which also emphasize the temporal sorting of problems and solutions. The general implications of such ideas were explored with Johan P. Olsen in the book *Ambiguity and Choice in Organizations* (1976), a collaboration that led to two books exploring an institutional and organizational perspective on politics and governance.

Viewed in a historical context, March's work is a continuation of the behavioural economic programme developed at the Carnegie school in the 1950s and 1960s, a tradition deeply influenced by its roots in behavioural social science, including political science. March's formal education was in political science, as was the education of ▶ Herbert Simon, though they both diverged later from their early territories. March's central research question was in many ways similar to those that inspired Simon and ▶ Richard Cyert: what is the proper way to understand human action and decision-making, and, more specifically, how can theories on rationality and intelligence be aligned with the facts of the world? In order to pursue these questions, *Organizations* was written, as was *A Behavioral Theory of the Firm*, both part of the development of the behavioural programme at Carnegie Mellon University that became influential to breakthroughs in economics, management and strategy.

March's research has spanned six decades and (at least) as many disciplines, and his research

centres on fundamental themes in organization theory, learning and human behaviour (in organizations and elsewhere). His academic career has been focused on understanding and analysing human decision-making and behaviour. His basic thesis is that human action is neither optimal (or unboundedly rational) nor random, but nevertheless reasonably comprehensible (March 1978). The ideas that March developed in his early work in order to understand human behaviour and an analysis of how people in organizations deal with an uncertain and ambiguous world included the concepts of ▶ bounded rationality and ▶ satisficing (March and Simon 1958). These ideas are crucial to the field of strategic management today.

Early Ideas and Work

March finished his high-school education in 1945 in Madison, Wisconsin, where the March family had moved in 1937. He studied for his bachelor degree in political science at the University of Wisconsin. March then went on to graduate school at Yale. The time at Yale was fruitful in the sense that, because of faculty disputes, March was afforded a high degree of intellectual freedom. 'Mostly for perverse reasons', March explained in the preface to his thesis (1953):

> the political science department at Yale was a good place for a Wisconsin innocent in 1949–1953. One large segment of the faculty had recently left in a huff; several senior faculty members were hardly talking to each other; there were mutually abusive intellectual and personal factions; some of the smartest people were also the least house-broken; and the university kept trying to find an outsider who would take over as chairman and somehow bring order to it all. There were young faculty doing their work and ducking the shrapnel, students wondering whose side to pick, and the main combatants providing an utterly unbearable but charming introduction to the low correlation between I.Q. and good sense. (March 1980, p. iii)

One result was that faculty had little time to interfere with the student's education, and March received must of his education from the library. He also took a job at the Yale Center for Alchohol Studies, originally to study drinking habits in college. However, March was as much influenced by the ideas of people as he was by books. Interaction with political scientists such as Robert Dahl and V. O. Key, economist Charles Lindblom, anthropologist George Peter Murdoch and sociologist Fred Strodtbeck, awakened in March a broad interest in the social sciences. Taking courses in such different fields didn't bother March in the least; on the contrary, what might seem to some a schizophrenic existence, March found essential for pursuing his interest and lived quite happily in several disciplinary worlds at once.

Determined to analyse and understand human decision-making and behaviour, from the earliest days March felt comfortable with the tools of linear algebra and statistics, and felt that these were important to model-building in the social sciences. At the same time, however, he also had a deep concern for empirical data and for historical and institutional approaches to economics, political theory, psychology and other social sciences. This interdisciplinary and cross-disciplinary interest had been fostered early on; he grew up in Wisconsin with a father who had been a student of J. R. Commons. Later on, March's interdisciplinary interests made him an interesting candidate for the behavioural perspective on human decision-making, which was just emerging around Herbert Simon at Carnegie Institute of Technology (later Carnegie Mellon University).

In 1953 he left Yale for a business school at Carnegie Mellon University (then Carnegie Tech) where he would spend the next 11 years of his career. The move to Pittsburgh was a decision to continue living in an interdisciplinary space and to pursue research on decision-making in organizations, and to collaborate with Herbert Simon, who at the time was helping to recruit for the Carnegie Institute of Technology's business school. Simon knew Robert Dahl, March's principal dissertation advisor, and asked him for prospective students to meet and Simon went to interview March. Simon recalled their first meeting:

> We were building up this faculty, so Lee Bach and I were doing most of the hiring. In those days, you didn't have those big committees, advertising jobs for six months and such nonsense. We went to schools where we thought that interesting things

> were happening and where interesting people were. And then we asked our friends about who were the good doctoral students. So someone gave me Jim March's name, and we had dinner, and I think I phoned Lee back that same night and told him that I was offering Jim a job. That simple it was then. He was tops. (interview with Simon, in (Augier 2001: 271)

March decided that it would be interesting to work with Simon, and off he went to Pittsburgh where he helped shape the development of Carnegie Mellon University's new Graduate School of Industrial Administration (GSIA).

The 1950s and early 1960s was an important period for the history of ideas, and Carnegie Mellon University during those years proved to be a stimulating and productive place where several important ideas were fostered. March, along with Richard Cyert and Herbert Simon developed the field of behavioural organization theory and the early roots of behavioural economics, which has proved an important alternative to neoclassical economics. Furthermore, it was the place where other modern developments in economics and organization theory were initiated, such as transaction cost theory and evolutionary economics (Augier and March 2007, 2011; Williamson 1996), not to mention rational expectations theory and linear and dynamic programming. Transaction cost theory and evolutionary economics would, in turn, become foundations stones for modern theories in strategic management (Augier and Teece 2005). Carnegie was also an important place for the development of US ► business schools that became the institutional home for most recent developments in strategy (Augier and March 2011).

Organizations (March and Simon 1958) and *A Behavioral Theory of the Firm* (Cyert and March 1992) are two significant results of the early work on business research at Carnegie. In addition to filling a need in the establishment of the behavioural sciences, research on organizations became the emerging discipline of business school education, bringing together different disciplines in the study of decision-making and behaviour in organizations.

In addition to March, the early faculty at Carnegie included scholars such as Harold Guetzkow, Franco Modigliani, Bill Cooper, Charlie Holt, Jack Muth, Richard Cyert, and Allan Newell. Soon, the Carnegie group consisted of many talented young scholars, all of whom were eager to contribute to this newly formed vision of behavioural science. The spirit at Carnegie was such that everybody interacted with everybody else; discussing each other's ideas and research in a way that encouraged collaboration, as well as team-working across projects. Despite different disciplines, interests and varying degrees of admiration for the idea of rationality, these teams always worked together in a friendly way. This interdisciplinary, yet disciplined, way of working became pioneering for subsequent developments in economics – and spurred entirely new areas of interdisciplinary research on organizations and organizational decision-making.

The Emerging Behavioural Perspectives on Firms and Organizations

At Carnegie, March worked mainly on organizations (March and Simon 1958), the behavioural theory of the firm (Cyert and March 1992), and the concept of power in the study of social systems. The major goal of *Organizations* was to make a 'propositional inventory' about organization theory in order to list generalizations and to assess empirical evidence to support them (March and Simon 1958: 1). In their view, organization theory builds on ideas from sociology, social psychology and economics, but also borrows from game theory and statistical decision theory.

Although organization theory was then a new field of study, they examined classical theory types – Taylor's scientific management and Gulick and Urwick's departmentalization models and discussed the limitations of these approaches, in particular at the behavioural level (neglect of conflict in organizations; incomplete motivational assumptions; ignoring limitations on rationality, etc.). The bureaucratic theories of Merton and Selznick were discussed and seen as incomplete because they did not explore the different motivations in organizational behaviours.

Acknowledging debts to Parsonian social theory, the conceptual framework of structural-functional analysis was seen as underlying much of existing organization theory. A good example is the Barnard-Simon inducement-contributions schema as it is evident in the use of terms such as 'purpose' and 'process' in the description of departmentalization and generally, in the view of organizations as adaptive, self-maintaining systems.

The issue of conflict is discussed in particular in terms of the variable of being able to change the contract, and they distinguish between intra-individual, organizational and inter-organizational conflict (as well as the possibility of game theory to contribute to the understanding of conflict). Throughout the book March and Simon emphasize the important connections between cognitive factors and motivation that are essential to theories of organizations today; thus both elaborating on Simon's earlier ideas and anticipating themes that March develops later on.

By the time *Organizations* was written, March was also publishing articles relating to The *Behavioural Theory of the Firm*. So for a time, the two projects overlapped. Cyert and March's first co-authored paper, 'Organizational behavior and pricing behavior in an oligopolistic market' was published in the *American Economic Review* in 1955, and 7 years later they completed *The Behavioral Theory of the Firm*.

Behavioural Theory of the Firm

The set-up for *A Behavioral Theory of the Firm* was a little different from that of *Organizations*. While both grew out of the Ford Foundation's concern for behavioural theory, *Organizations* was largely written by two people, Simon and March (assisted by Harold Guetzkow). On the other hand *A Behavioral Theory of the Firm* was a truly collaborative effort, led by Cyert and March, assisted by graduate students including William Starbuck, Edward Feigenbaum, Julian Feldman and Oliver Williamson. Perhaps this difference was as much a function of the growth of GSIA as anything else; by the time *A Behavioral Theory of the Firm* began, there were more students available to work on the projects.

A Behavioral Theory of the Firm was also more oriented towards economics. The authors wanted to present a theory of the firm that was not so much an alternative to the neoclassical theory of the firm as it was an attempt to develop a theory that could be used to study decision-making in firms, not just comparative statistics, as in mainstream price theory.

At the centre of *A Behavioral Theory of the Firm* is the idea of the firm as an adaptive political coalition (also presented in March 1962), a coalition between different individuals and groups of individuals in the firm, each with different goals and, hence, the possibility of conflict of interest. 'Since the existence of unresolved conflict is a conspicuous feature of organizations', the authors stated, 'it is exceedingly difficult to construct a useful positive theory of organizational decision making if we insist on internal goal consistency. As a result, recent theories of organizational objectives describe goals as the result of a continuous bargaining-learning process. Such a process will not necessarily produce consistent goals' (Cyert and March 1963: 28). Another insight from the behavioural theory of the firm is the idea of the firm as an adaptive system, whose experience is embodied in a number of 'standard operating procedures' (routines); procedures for solutions to problems which the firm has managed to solve in the past. As time passes and experience changes, the firm's routines change through processes of organizational search and learning. As a result, the firm is seen not as a static entity, but as a system of slack, search and rules that changes over time in response to experience, as that experience is interpreted in terms of the relation between performance and aspirations. Elements of this view of the firm can now be found in modern developments, such as transaction cost economics (Williamson 1996, 2003) and evolutionary theory (Dosi 2004; Dosi and Marengo 2007; Nelson and Winter 1982) and strategic management (Teece et al. 2002).

Despite the stronger influence of economics in behavioural theory of the firm, the books, however, also had many similarities. They were both written at a time when the interaction between March, Simon and Cyert was strong and their

ideas merged a great deal. In retrospect, March thinks of the two books as having different objectives, rather than different ideas. March and Simon was an attempt to create an inventory; to organize everything known about organization theory; whereas Cyert and March was much more oriented towards finding something relevant to say about the theory of the firm. The latter focused on issues such as problemistic search; on the relevance of learning to the theory of the firm. A more substantial difference between the two books, perhaps, is that, although there is at least one chapter on conflict of interest in *Organizations*, it was much more central to *A Behavioral Theory of the Firm*.

Furthermore, although March and Simon (1958) is predominantly a descriptive theory, it also makes occasional forays into the prescriptive domain, more than does Cyert and March (1992). However, the idea of organizational slack is more important to Cyert and March (1992) than it is to March and Simon (1958), as is the idea of uncertainly avoidance. On the other hand, classical issues such as satisfaction, planning and motivation are importance ingredients in March and Simon (1958), but less so in Cyert and March (1992).

In both of these works, March and his early coauthors proposed to include a more inclusive range of limitations on human knowledge and human computation that prevent organizations and individuals in the real world from behaving in ways that approximate the predictions of neoclassical theory. For example, decision makers are sometimes confronted by the need to optimize several, sometimes incommensurable, goals (Cyert and March 1992), goals that are unclear, changing, and to some degree endogenous (March 1978; March and Olsen 1976). Furthermore, instead of assuming a fixed set of alternatives among which a decision maker chooses, March postulated a process for generating search and alternatives and analysing decision processes through the idea of aspiration levels (March and Simon 1958), a process that is regulated in part by variations in organizational slack (Cyert and March 1992). These are all themes deeply embedded in today's work on organization theory and strategy (Teece et al. 2002).

Some Themes in March's Other Work

In March's work the followed behavioural theory of the firm, the irrational and adaptive aspects of human behaviour become more, not less prominent.

After finishing two foundational works in the field of organization studies (and after moving from Carnegie to Irvine), March's own works (at least some of them) followed in the footprints laid out in *Organizations* and *Behavioral Theory of the Firm* (the field, to a large extent, did too, especially early on). He also became involved in a project to identify some of the core research areas, disciplinary approaches, and methodologies involved in the study of organizations: shortly after completing these core books, March was the editor of the first *Handbook of Organizations* (March 1965).

Writing in the 1970s and 1980s, March also started to develop the point that one of the most important aspects of behaviour and decision-making in organization was its essential *irrationality*. The early phrase (used in March, Simon and Cyert's work) of 'bounded rationality' did capture some of that notion. However, March was interested in exploring not only the *constraints* on decision making that the less-than-fully-rational behaviour constitutes, but also the more positive implications. He wanted to understand how limits to rationality both constrain and enable certain decision-making behaviours (the issue of learning as well as identity and rules-driven behaviours, for example, result *because* of not in spite of human irrationalities).

The language of economics (and much of political science, and even rational-choice sociology), which would have one believe that human behaviour is all about maximizing utility (and ultimately to predict behaviour of agents), seemed to March to gain its persuasive force from a false analogy between theory and the world. People and organizations are forced by the logic of choice to adopt rational rules, but real world behaviour faces no such shaping environment, and the behaviour of organizations is, therefore, more readily explicable as a phenomenon of disciplines as well as just economics. This was the perspective at Carnegie

which March carried with him to Irvine (and later Stanford) as he went on to develop further many of the Carnegie ideas and also became the dean of the school of social science at UCI. Being a dean gave him the opportunity of trying to establish another interdisciplinary success story; a school without departments, with scholars from different backgrounds working with each other across disciplines. It also, perhaps, helped to develop March's interest in the field of education as is clear in his writings from that period.

While at Irvine, March worked on many parallel tracks. For example, March, (along with Charles Lave) developed a set of ideas about the art of formal modelling in the social sciences (Lave and March 1975). Developed both as a class he taught at Irvine and a book, *Introduction to Models in the Social Sciences* showed his continuing interest in models. One student (and reader of the book) reported that the class dazzled him with insight after insight about how relatively simple logical and mathematical models of social phenomena such as decision-making, diffusion through social networks, trial and error learning, and economic exchange could be assembled and exercised to make powerful predictions of micro and meso-level organizational outcome that could, in turn, be tested, and the models progressively refined. And the work on the Handbook demonstrated (March 1965), not only March's continuing interest in the field, but also a maturing of the field itself; the fact that the field was ripe for a handbook signals that it already had elements of foundations and methods in place to become a more structured or systematic field of study. In this way, the Handbook represented an important step in the professionalization of the field of organizations.

The inter- as well as cross-disciplinary organization of the Handbook's contributions reflected both March's vision for the *future*, the then-nascent field, as well as reflecting the-then *current* state of the art of the field. So, too, does the introduction to the Handbook where March notes that, despite coming from many different disciplines, the area of organization studies is developing a 'shared language and shared set of concerns'. But he also mentions that the field had 'a history but not a pedigree' (March 1965: ix). In searching for the structure of the intellectual genealogy of the field, March then identifies the books most frequently cited in recent work on organizations by sampling literature and citations within that literature. The books were selected on the basis of being concerned mainly with organizations; representing a variety of disciplines and methodological approaches; and being well respected (p. x). Two out of six different disciplines were selected (sociology, anthropology, management, economics, political science and psychology) and the references they cited resulted in a list of 'ancestral books' that were cited relatively frequently in at least two of the books. He also recorded the citation of these ancestral books in the sample of two from each discipline. The results, he suggested, illustrated some of the suggestions about the 'immaculate conception' of the field of organization studies (p. xii): that the roots were in basic social science books (rather than in organizations-oriented books); the field had roots in different disciplines (and tended to cite from more than one); and the field was relatively young. (A similar illustration using March's Handbook as well as more recent ones illustrated that the field has, not surprisingly, become older, but as it has matured, it has also distanced itself from the disciplines) (Augier et al. 2005). One could probably find many of the same traits in strategic management, especially in its early days.

March's later work on institutional and political theory, developed especially after his move to Stanford (March and Olsen 1989, 1995), saw institutions and organizations as fundamentally social in nature, embedded in the larger institutional and historical context of which they are part. Like the more general work, the work on political institutions emphasizes the inefficiency of history, the ways in which history is path dependent and how its action stems from social identities as much as from incentives. The notion that rules are central is brought to the fore through an emphasis on action as stemming, not from a calculation of consequences, but from matching a situation to rules of behaviour.

His focus on rule and identity-driven behaviour also leads to a natural concern with the ways

in which rules change over time. In recent work with Martin Schulz and Xueguang Zhou, March has explored the development of rules through a quantitative study of rule change over an extended period (March et al. 2000).

Another key theme in his later work is how to achieve a balance between 'exploration' and 'exploitation' (see, in particular, March 1991). Exploiting existing capabilities is highly rewarding in the short run, but doesn't prepare people for changes in technologies, capabilities, desires, tastes and identities. For such preparation, exploration is necessary. Exploration involves searching for things that might come to be known, experimenting with doing things that are not warranted by experience or expectations.

March has advocated a 'technology of foolishness' (1971) and advises us to engineer choice in such a way as to strike a balance between exploration and exploitation (1991, 1996), avoiding traps that lead to imbalance (Levinthal and March 1993). He also has examined the determinants of risk-taking behaviour, particularly the ways in which risk taking is situational (March 1988, 1991, 1996; March and Shapira 1987, 1992); learning, strategy and adaptive intelligence.

Throughout March's work, a central question has been the way in which organizations and their decision makers deal with and resolve uncertainties and ambiguities, both in goals and preferences and environments that surround organizations. As he emphasized in an article published in the *Bell Journal of Economics*:

> Rational choice involves two kinds of guesses: guesses about future consequences of current actions and guesses about future preferences for those consequences . . . Neither guess is necessarily easy. Anticipating future consequences of present decisions is often subject to substantial error. Anticipating future preferences is often confusing. Theories of choice under uncertainty emphasize the complications of guessing future consequences. Theories of choice under conflict or ambiguity emphasize the complications of guessing future preferences. (March 1978: 268–269)

Such foundational and path-breaking ideas have been central to developing organization theory as well as the field of strategic management.

Conclusion

The idea of rational action starts from the idea that individuals should not make systematic mistakes. Agents are not stupid; they learn from their mistakes and draw intelligent inferences about the future from what is happening around them. Various ideas originating from the (broad) concept of bounded rationality underpin many modern developments in research on organizations. Although Herbert Simon was the first promoter of bounded rationality and the early view was embedded in the work of *Organizations* (March and Simon 1958), the initial focus on methods for *improving* the behaviour of bounded rational agents subsequently changed (in particularly in March's work) to *accommodating* (and perhaps even expanding) the boundaries of rationality, rather than trying to fix them. This was the focus that led March to develop themes such as foolishness, intelligences, adaptive aspirations, and search and to address their relation to organizational behaviour, and to an emphasis on learning – themes which are central to today's field of organizations and strategy.

See Also

- ▶ Bounded Rationality
- ▶ Business Schools
- ▶ Cyert, Richard M. (1921–1998)
- ▶ Satisficing
- ▶ Simon, Herbert A. (1916–2001)

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Marginal Analysis

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Abstract

Marginal analysis is a very powerful tool for modelling how individual producers and consumers make decisions. The underlying idea is that decision makers make choices based on the comparative costs and benefits associated with a small change from the given state of the world. If the marginal benefits of a small change outweigh the ▶ marginal cost of that change, the decision maker makes that small change and then repeats the analysis for the next potential incremental change. Marginal analysis is an important component in modelling how producers make decisions to maximize profits and how consumers make decisions to maximize utility.

Definition Marginal analysis is the analysis of economic decisions that focuses on the benefits

and costs associated with an incremental change from a given starting point.

Marginal analysis is the analysis of economic decisions that focuses on incremental changes from a given starting point. The underlying idea is that decision makers make choices based on whether a small change from the given state of the world is better or worse than the current outcome. A decision maker assesses whether the benefits of an incremental decision are higher, lower or equivalent to the costs of the decision. If the benefits of the decision are greater than the costs, then the decision maker makes that incremental change; if the benefits are lower than the costs, the decision maker chooses not to make that decision; and if the benefits and costs are equal, the decision maker is indifferent between making or not making that decision. The costs and benefits associated with an incremental change are the ▶ marginal cost and marginal benefits, where marginal costs are the costs associated with one more unit of an activity and marginal benefits are the benefits associated with one more unit of an activity. Upon performing this marginal analysis and making the decision to accept or reject the incremental change, the decision maker then repeats the process for another incremental change from the new starting point.

Marginal analysis is employed to model the decision-making process of both producers and consumers. In the simple, classic exposition, producers use marginal analysis to determine how much of a good or service to produce, and consumers use marginal analysis to determine how much of that good or service they will consume. The marginal analysis of many atomistic producers and consumers in competitive markets leads to a market equilibrium that maximizes social welfare.

On the producer side, the intuition underlying the marginal analysis process is that companies will decide to produce another unit if, and only if, the benefits of producing that unit exceed the costs of producing that unit. In other words, producers will produce an additional item if, and only if, the marginal benefit of producing one more item is greater than the marginal cost, where the marginal benefit for producers is typically defined by marginal revenue (which is the revenue associated with producing and selling an additional item). If the marginal costs are greater than the marginal benefits, then the producer would lose money by producing an additional item. This dynamic implies that a new producer performs marginal analysis and decides whether it is profitable to produce the first unit. If the marginal benefit of producing one unit is greater than the marginal cost, the producer makes that first unit; if not, a unit is not produced. If the producer does choose to produce the first unit, the producer then calculates the marginal benefit and marginal cost associated with producing a second unit, conditional on having already produced the first unit, and makes the same marginal cost and marginal benefit analysis as before, to decide whether to make the second unit or to stop after producing one unit. This process continues as the producer performs repeated analysis on whether to produce another unit, until reaching the point where the producer would lose money if another unit was produced, at which point production ceases.

This same marginal analysis logic is also used to model consumer decisions. Consumers choose to consume an additional unit of a good or service if, and only if, the benefit associated with consuming an additional item is greater than the cost associated with that additional item. For consumers, marginal benefit is defined as marginal utility, which captures the utility associated with consuming one more unit of a good. In the marginal analysis framework, consumers make their consumption decisions by assessing whether purchasing one of an item has greater marginal utility than marginal cost. If it does, they purchase that first unit and analyse whether they should purchase a second unit. If it does not, they choose not to consume the first unit. If the consumer chooses to consume, the process iterates stopping when the consumer identifies that consuming the next item will provide less marginal utility than the marginal cost of consuming that item.

As an example, consider a very simple market consisting of apple farmers and apple consumers. An individual apple farmer takes the market price of an apple as given and goes out into her orchard

to pick apples. She knows that the additional revenue she gets from each additional apple she picks is the price she can sell that apple for: the market price. She also knows that picking apples is hard work, and thus picking each additional apple imposes some additional costs on her. These costs are different from the costs of buying the land and planting the trees, which are fixed costs. When she walks into the orchard she looks for low-hanging fruit, and decides whether to pick the apple that is on the tree nearest to her that is right in front of her face. This is an easy apple to pick, so it represents a very low marginal cost. She decides that the marginal cost of picking that apple is less than the market price for that apple, so she decides to pick that apple. She then looks for the next easiest apple to pick. This apple is a bit higher and she has to stretch farther to pick it, so the marginal costs of getting the second apple are greater than the first apple. She again compares the marginal benefit (price) she gets for the apple with the marginal cost of picking that apple, and if the price is greater than the marginal cost she picks that apple and moves on the third most easily picked apple. She continues this process until she recognizes that the next apple she has to pick is far away and high up in a tree, so the costs of picking that apple are greater than the price she can sell that apple for. At this point, she decides to stop picking apples, because she would lose money by picking the next apple. Thus, if she takes the price as given, she makes a series of marginal decisions that lead her to picking every apple that provides profit and stopping before she picks any apples that provide loss.

Similarly, consumers go through the same process. An apple consumer goes to the market and sees the price of apples. He knows that the first apple he buys will provide a great deal of utility because he likes apples and he is hungry. He identifies that the marginal utility he gets from the apple is greater than the price of the apple (which represents the marginal cost to him), and thus chooses to buy the first apple and puts it in his basket. He then decides whether to buy a second apple. He realizes that apples provide diminishing marginal returns to him: after consuming the first apple, he will not be as hungry any more, and will not get as much utility from an additional apple. The marginal utility of a third apple will be even lower, but the price will remain the same. He will choose to keep buying apples as long as the marginal utility is greater than the price and stop at the point where buying an additional apple would cost more than the additional utility he gets from that apple.

From the examples, it should be clear that price is a critical component of marginal analysis. In competitive markets, price represents the marginal revenue and thus marginal benefit for producers, and at the same time it represents marginal cost for consumers. As a consequence, price provides the 'invisible hand' through which the marginal analysis of atomistic decision makers are aggregated in a way that will ultimately clear markets. If market price is too high, and thus producers choose to produce more than consumers are willing to consume (i.e., there is a surplus), then the price will get pushed down. This decreases the marginal benefit to producers, causing them to produce less, and simultaneously decreases the marginal cost to consumers, causing them to consume more, which helps push consumers and producers to the market-clearing quantity.

It is important to note that marginal analysis, while a very powerful tool for modelling how producers and consumers make decisions, can only identify if a producer or consumer should produce or consume an additional unit conditional on the number of units they are currently consuming or producing. In other words, a single instance of marginal analysis cannot inform decision makers how much to produce or how much to consume; it can only inform them whether they should produce or consume one more of an item.

Marginal analysis is important to the field of strategy because it provides a powerful tool for modelling and understanding how firms make decisions about how much of a unit they should produce, and analogously for modelling and understanding how consumers make decisions on how much to consume. This framework is particularly valuable for modelling contexts where firms and individuals are heterogeneous. If firms have different cost structures and thus their marginal costs of production differ, then

marginal analysis can model how those firms will differ in terms of production decisions. Similarly, individual heterogeneity suggests that individuals have different preferences, which mean they differ by how much marginal utility they reap from consuming additional items. Thus, this toolset can help model how the differences of individuals are manifested in the marketplace.

See Also

- ▶ Cost
- ▶ Cost-Benefit Analysis
- ▶ Marginal Cost
- ▶ Marginal Product
- ▶ Marginal-Cost Pricing
- ▶ Sunk Costs

Marginal Cost

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Definition Marginal cost is the cost of one additional unit of a good.

Marginal ▶ cost is the ▶ cost of one additional unit of a good. The concept of marginal cost is often applied to the production decisions of firms, where it represents the cost to the firm associated with producing one more item of the good. The concept is also frequently applied to the consumption decisions of individuals, where it captures the cost of consuming one more item of a good.

For brevity, this discussion focuses on the concept of marginal cost as applied to the decision-making process of producers. Algebraically, producers' costs, C, can be represented as $C = VC + FC$, where VC represents producers' variable costs, which are the expenses for inputs that a firm can easily change in order to change the level of output that the firm produces, and FC represents firms' fixed costs, which are firm expenses that do not vary with output over the short run. Variable costs include the costs of labour and input materials, while fixed costs typically include the costs of building a factory or installing large machinery that firms cannot change the quantity of on a day-to-day basis.

Marginal cost, then, represents the change in costs to the firm associated with producing one more item. Algebraically, this is captured as: $MC = \Delta VC/\Delta q + \Delta FC/\Delta q$, where MC is marginal cost. However, since fixed costs do not change in the short run with the production of an additional unit of a good, the second term is zero, and thus marginal cost reduces to $MC = \Delta VC/\Delta q$. Intuitively, this captures how much more a firm must spend on inputs such as raw materials and labour in order to produce one additional item of production.

The law of diminishing returns, the fundamental economic concept that above a certain quantity each additional unit of input has less impact than the previous unit, implies that marginal costs increase after a given quantity. Because each additional unit of input is less effective above a certain quantity, producers must purchase more inputs to produce each additional unit of output, and hence the costs of producing an additional unit increase. This result has important consequences in ▶ marginal analysis, as it implies that in typical markets there is some non-infinite level of production that provides the maximum level of profit for producers.

An understanding of marginal costs is important to strategic management research because marginal costs are an integral part of marginal analysis, which provides a very powerful set of tools for modelling how firms and individuals make decisions. Marginal analysis is the analysis of economic decisions that focuses on incremental changes from a given starting point. The fundamental concept in marginal analysis is that producers and consumers will produce or consume the optimal quantity of a good or service when the marginal benefit of one additional unit is equal to the marginal cost of one additional unit.

There is a common confusion between marginal costs and average costs. Average costs represent the total costs of producing a quantity q of units divided

by the quantity of units. In other words, average costs capture the mean cost of producing all units required to get to a given quantity. In most industries average costs are U-shaped: they capture economies of scale as firms increase outputs, which are eventually overshadowed by diminishing returns to inputs. Where average costs (either total or variable costs) are decreasing, the marginal cost is less than the average cost, and where the average cost increases, the marginal cost is greater than the average cost. This suggests that marginal costs and average costs intersect at the minimum average cost.

While average costs are tied to the level of profits (or losses) a firm derives from producing and selling a quantity of units, this measure provides no information on whether a producer is producing the optimal amount of units and is thus maximizing profits. Under marginal analysis, when deciding whether to produce an additional unit of a good or service, producers do not care about the costs and profits associated with prior units; they only care about whether the next unit will increase or decrease their profits. Thus, they care about marginal costs, not average costs, when choosing whether to produce another item.

See Also

- ▶ Cost
- ▶ Cost-Benefit Analysis
- ▶ Marginal Analysis
- ▶ Marginal-Cost Pricing
- ▶ Sunk Costs

Marginal Product

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Definition Marginal product is the amount of increased output associated with a one-unit increase in a factor of production while holding all other factors constant.

Marginal product is the amount of increased output associated with a one-unit increase in a factor of production while holding all other factors constant. Understanding the marginal product of inputs in a producer's production function helps describe how firms can allocate the optimal mix of inputs to produce a specific target output.

The marginal product of an input can be estimated as the change in quantity of output divided by the change in level of input. In other words, marginal product captures how much additional product is associated with a one-unit change in the level of a specific input, holding all other inputs constant. Algebraically, the marginal product associated with an input X is captured as $MP = \Delta q/\Delta X$, where MP represents marginal product, q represents the quantity produced and X represents the level of input X in the production process.

The law of diminishing returns, the fundamental economic concept that above a certain quantity each additional unit of input has less impact than the previous unit, implies directly that the marginal product of an input decreases with the quantity of that input above a certain level. As an example, consider a service firm that uses only labour as an input, and assume all labour is homogenous. If an additional hour of labour input increases output by $MP_L(q)$ when starting at output q, then the marginal product of labour is $MP_L(q)$. Further, if the price of each unit of output is p, then the dollar value to the producer of each additional unit of labour is $MRP_L(q) = p^* MP_L(q)$, where $MRP_L(q)$ denotes the marginal revenue product of labour. Because the law of diminishing returns implies that $MP_L(q)$ is decreasing above a certain quantity of L, then $MRP_L(q)$ will also decrease above a certain quantity of L, which indicates that the dollar value associated with each additional unit of labour decreases above a certain quantity. If product and factor markets are perfectly competitive, then the producer takes price, p, and hourly wage, w, as given from the market. The producer will hire units of labour until the marginal benefit of an additional unit of labour, $MRP_L(q)$, is equal to the ▶ marginal cost of an additional unit of labour, w. $MRP_L(q)$ is

decreasing for a sufficiently large quantity of labour and w is constant, so there exists some optimal quantity of labour to hire where $w = MRP_L(q)$. If the wage is less than the marginal revenue product of labour for the quantity produced, then the firm is made better off by hiring an additional unit of labour: the revenue generated by that unit of labour is greater than the costs of that unit of labour. Similarly, if the wage is greater than the marginal revenue product of labour for the quantity produced, then the firm is employing too much labour and is losing money on the last unit of labour hired; therefore the firm is better off to reduce its labour input. These two conditions suggest that the firm optimizes the value generated per dollar spent on labour exactly when $w = MRP_L(q)$.

When there are multiple inputs, the decision-making process to identify the optimal mix of inputs is slightly more complex. However, when there are multiple inputs, the marginal product of an input can be calculated for all inputs in the production process, and then used in the marginal analysis of firms' decisions on the mix of inputs necessary to support a specific output target. For example, assume that a firm has two inputs: again, labour denoted as L with cost per unit equal to wage denoted as w; and now we introduce capital, denoted as K, with cost per unit equal to rent, which is denoted with r. At a given quantity, q, labour has marginal product $MP_L(q)$ and capital has marginal product $MP_K(q)$. In other words, at q an additional unit of labour (holding capital fixed) will result in an increase in output of $MP_L(q)$ and an additional unit of capital (holding labour fixed) will result in an increase in output of $MP_K(q)$.

At the most efficient mix of inputs, the producer will be indifferent between adding an additional unit of labour or an additional unit of capital. If the producer is not indifferent between the two inputs, for example if an additional unit of capital is more cost-effective than an additional unit of labour, then the producer should replace some of the existing labour input with capital input. At the optimal mix, the producer is indifferent between adding an additional unit of labour or adding an additional unit of capital if, and only if, $MP_L(q)/w = MP_K(q)/r$; that is, the producer is indifferent between the two inputs, when an additional dollar spent on labour yields the same additional output as a dollar spent on capital.

Marginal product is of interest to strategic management researchers because it is an important tool for understanding and modelling the production processes that firms face and in understanding how firms make trade-offs between different inputs. If firms use different technologies then the marginal products of inputs will differ across firms, which will lead to firms choosing different mixes of inputs and will expose firms to different opportunities and challenges when dealing with factor markets.

See Also

- ▶ Marginal Cost
- ▶ Perfect Competition

Marginal-Cost Pricing

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Abstract

For firms in competitive markets, marginal-cost pricing captures the phenomenon where the market price is pushed to the marginal cost of production of the lowest-cost producers in the industry. This dynamic is driven by the exit decisions of producers with inefficient production technologies and by new entrants who imitate the most efficient producers. Under marginal-cost pricing, markets are stable, in that all firms make zero economic profit, which results in no firms exiting and no firms entering the market. Additionally, marginal-cost pricing leads to a socially efficient market that generates as much value for society as possible.

Definition Marginal-cost pricing is the outcome of competitive markets in which all firms in the market produce the quantity of goods and/or services at which their marginal cost of production equals the market price.

Marginal-Cost Pricing and Perfectly Competitive Markets

In perfectly competitive markets, that is, in markets where there are many producers and consumers of a homogenous good and there are no barriers to entry or exit, the actions of any single producer or consumer have a negligible effect on prices. In this context, producers and consumers are price-takers and respond to prices determined by the interaction of all the atomistic agents in the market. Under these assumptions, less efficient firms will exit the market while more efficient firms will invite the entry of imitators, and the market price is pushed to the ▶ marginal cost of production of the lowest-cost producers in the industry. In turn, this marginal-cost pricing leads to a socially efficient market that generates as much value for society as possible.

The exit and entry decisions of producers in a perfectly competitive market lead to marginal-cost pricing. Producers, when faced with a given market price, will choose to produce the quantity of goods or services where the price (which represents their marginal benefit) is equal to their marginal ▶ cost of production, which increase over a certain range according to the law of diminishing marginal returns. At this point of equality, the implication of ▶ marginal analysis is that the firm maximizes profits: if the price is greater than the firm's marginal cost, the firm could produce an additional item that would generate additional profits; if the price is less than the firm's marginal cost, the firm is losing money on the last unit produced and could increase its profits by not producing the last unit.

However, there are situations where even if a firm chooses to produce the quantity of units where price equals marginal costs and thus maximizes its economic profits, its maximum profits may be negative. In other words, if market prices are sufficiently low the optimal quantity for a firm results in minimized losses or a negative average profit per unit, where a firm's average profit per unit is equal to the price received for each unit minus the average total cost of producing the quantity of units it chooses to produce. In most industries, average costs are U-shaped, which capture economies of scale, as firms produce more, and are eventually overshadowed by diminishing returns. Where average total costs are decreasing, the marginal cost is less than the average total cost, and where the average total cost is increasing, the marginal cost is greater than the average total cost. This suggests that marginal costs and average total costs intersect at the minimum of average total cost.

This implies that if the market price that a firm faces is below the minimum average total costs per unit, then the average cost per unit the firm will choose to produce is greater than the market price; thus the average profit per unit is negative. If the producer is producing the optimal amount of units and is still losing money it must choose to either exit the industry all together or shut down temporarily. Firms will choose to either shut down temporarily or exit permanently based on their ability to cover their avoidable costs: avoidable costs are costs that the firm can avoid paying if they choose an alternative path. By definition, in the short run firms cannot avoid paying fixed costs. In other words, in the short run producers cannot choose to close a plant and sell the assets. However, in the long run producers are able to sell off assets, so, in the long run, producers can avoid fixed costs.

In the short run, then, the variable cost component represents the avoidable costs for a producer. So, if the short-run price is below the minimum average variable costs of the producer, at the optimal production quantity the producer will not be able to cover the variable costs associated with each unit. As a result, the producer loses profit on each unit produced and sold. However, producers can avoid paying the variable costs. They can avoid paying the variable costs by choosing not to produce any units. In this context, producers are better off shutting down production, producing no units and losing only the fixed costs, instead of

producing a positive number of units and losing the fixed costs as well as the loss associated with each per-unit sale. However, if the price is greater than the producer's minimum average variable cost, yet less than the producer's minimum average total cost, the producer will lose money but still choose to remain in the market. If the price is less than minimum average total costs, then the producer has negative profits overall; however, if the price is greater than minimum average variable costs, then for each unit the firm sells it is able to cover its variable costs and put some revenue towards paying off its fixed costs. As a consequence, the net loss is less than the loss associated with shutting down. If the producer shuts down, it loses the entire fixed costs; if it continues to produce, it is able to pay off some of its fixed costs, thus it is better off continuing to produce a positive number of units. However, this ability to keep producing at a loss is not available to producers over the long run.

In the long run, producers can sell off their fixed assets, which allow them to avoid even the fixed costs. Thus, in the long run, the avoidable costs are the producer's total costs, which include both variable costs and fixed costs. This implies that if the long run price is below the producer's minimum average total cost, then it should exit the industry and sell off its assets. At the optimal level of production for the producer, it will not be able to cover its fixed costs, so in the long run firms will not stay in a market if the price is less than their minimum average fixed costs. If firms can avoid fixed costs by exiting the industry and selling off their assets, then the exit decision becomes very simple for producers. If long-run price is greater than or equal to the producer's minimum average total costs, they make positive profit on each unit and will continue operating. If the long-run price is less than the producer's minimum average total costs, than the firm will lose money on each unit it produces and sells. However, this loss is avoidable, because the producer can exit the market: this entails them producing no units and bearing no costs, so it breaks even – which dominates producing at a loss.

So, if firms are losing money on each unit they sell, yet are producing the optimal quantity, they must identify if the price they are facing is a short-term price that may recover in the future or if it is a permanent price that will not increase in the foreseeable future. If it is a short-term price decline, producers should shut down if the price is less than their minimum average variable costs and should continue producing, even if they must sell at a loss, if the price is less than their minimum average total cost and greater than their minimum average variable costs. In both cases, producers hope that the short-run price will recover before the producer goes bankrupt. If the price drop is a permanent price drop, then the producer will exit and sell off assets if and only if the long-term price is less than the minimum average total costs of the producer.

Of course, the real-world shutdown and exit decision is much more complex than this simple economic model. While this illustrates the logic that drives the shutdown and exit decision, it does not address the real-world complexities that arise when it is hard to identify if a pricing shift is permanent (i.e., is a long-run change) or is cyclical (i.e., is a short-run change), when it is costly to exit and sell off assets, and when it is possible to repurpose assets to different uses.

Whether a low price triggers firms to shut down temporarily or to exit permanently, the aggregate quantity that the producers supply to the market decreases. As the amount supplied to the market decreases the market price increases, which facilitates the ability of other firms to stay in the industry. If firms have cost structures that prevent them from making profit at the market price, they will leave the market. In the short run they will leave the market if price is less than minimum average variable costs, and, in the long run, they will leave the market if the price is less than minimum average total costs.

On the positive side, if a firm faces a market price that is greater than their minimum average total costs, the producer will choose the optimal quantity to produce and earn positive economic profit per unit, because the per unit revenue (the price) is greater than the per unit costs. This positive economic profit will attract imitators, who will replicate the cost structure of the thriving producer in order to gain a share of these positive

economic profits. These new entrants will add supply to the market, which will result in a decrease in the market price, thus eliminating the opportunity for producers to make positive economic profits.

Putting these two scenarios together, firms with a minimum average total cost that is greater than the market price get forced out of the industry, which reduces supply and pushes price higher, while firms with a minimum average total cost that is lower than the market price invite entry of imitators, which increases supply and pushes market price lower. In the long run, this market dynamic results in all firms with less than the most efficient technology exiting the market; thus all surviving and entering market participants will implement the most efficient technology. In this scenario, all firms in a market end up with the same cost structure and the market price is pushed to the minimum average total cost for all firms in the industry, which happens to be exactly where marginal cost intersects average total cost. So, in the long run, all firms utilize similar technology and all firms maximize their profits by choosing to produce a quantity where their marginal costs equal the market price. At this price and quantity, the per unit profit on each unit is zero, because price equals their total average costs at this point. As a consequence, all firms in the competitive market make zero economic profits, and investors are indifferent between investing in that industry and pursuing any other opportunity.

This is the fundamental idea underlying marginal cost pricing: in a competitive market, if a firm's marginal cost at their profit-maximizing output is less than their average total costs, they will exit the market; if a firm's marginal cost at their profit-maximizing output is greater than their average total costs, they will invite the entry of imitators. As a result, market equilibrium (i.e., a state of the market where there is no entry and no exit of producers) occurs only when all firms in the market have a marginal cost at their profit-maximizing output that is exactly equal to their average total costs. This occurs exactly at the minimum average total cost. So, to reiterate, markets can only be in equilibrium if the market price equals all firms' marginal costs (the condition for firms to maximize profits according to marginal analysis), and all firms have a price equal to their minimum average total costs (the zero-economic profit condition that leads to a market with no exit and no entry).

Marginal-Cost Pricing and Economic Efficiency

Marginal-cost pricing in competitive markets leads to both productive efficiency and allocative efficiency. A market has productive efficiency when producers in the market provide the aggregate quantity at the lowest total cost possible. A market has allocative efficiency when producers supply the amount of goods and services that are optimal for society and those goods and services are consumed by the individuals who extract the greatest value from those goods and services. When a market has both productive efficiency and allocative efficiency it is socially economically efficient, which means the market generates the greatest amount of value to society as possible.

Marginal-cost pricing leads to a market in which all firms use the most efficient technology available, produce the profit-maximizing quantity and earn zero economic profits. Because all firms use the most efficient technology available, the market demonstrates productive efficiency. If any firm was not using the most efficient technology, its average costs would be higher than its rivals and it would thus lose money at the market price and therefore be forced to exit the market. As a result, whatever quantity of goods and services is produced in the market is produced using the fewest resources possible.

Marginal-cost pricing also leads to allocative efficiency in competitive markets. For a market to demonstrate allocative efficiency it must satisfy two conditions: it must provide the socially optimal quantity of goods and services to the market and it must allocate those goods and services to the consumers who value them most highly. The socially optimal quantity of goods is the quantity at which every good that is produced is consumed, and there are no trades that would

make a producer and consumer better off that do not occur. In perfectly competitive markets, market price is determined by the intersection of the industry supply curve and the industry demand curve, where the industry demand curve represents the aggregate willingness-to-pay of consumers. Under marginal-cost pricing, all producers produce exactly the quantity of goods at which their marginal cost intersects the market price, so, in aggregate, the quantity that producers supply at a given will equal the aggregate demand of consumers. As a result, there is neither excess supply nor excess demand in the market.

Additionally, in competitive markets, all consumers with a willingness to pay for a good that is greater than the market price will be able to purchase and consume the good, and all consumers with a willingness to pay that is less than the market price will not purchase the good. Under marginal-cost pricing all consumers who are willing to pay more than the marginal cost of producing the good will be able to purchase the good: there will be no unsatisfied consumer demands. Further, no one who values the good less than the marginal cost of production would rationally consume that good, so all the goods that are produced are purchased and consumed by the customers willing to pay more than the marginal cost of production. Thus, marginal-cost pricing in competitive markets is associated with both requirements to establish allocative efficiency as well as productive efficiency.

Together, these two types of efficiencies suggest that marginal-cost pricing is a necessary condition for socially optimal outcomes and that marginal-cost pricing plays an important role in the process through which competitive markets allocate resources in the manner that generates the most value for society. At its core, marginal-cost pricing is an outgrowth of the creative destruction process through which markets become efficient. As firms with less efficient technologies fail and firms that capture rents through efficient technologies invite imitative entry, markets evolve into socially efficient structures where all firms use the most efficient technology, all prices are pushed to the marginal costs of production, the optimal quantity of goods are produced and they are allocated to the consumers who value them the most.

While firms with market power seek to avoid pricing at their marginal cost, there are some circumstances where even firms with power will price at marginal cost. Firms with pricing power may set their prices at marginal cost in order to discourage rivals from attempting to enter their market. This is common in the airline industry when an airline has a monopoly over a given route. When a competitor threatens to enter the same route, the incumbent will reduce prices to their marginal cost in order to discourage the rival. Similarly, a producer may reduce prices to marginal cost in order to gain market share, when increasing market share in the short term will lead to increased profitability in the long run.

Marginal-cost pricing is important to strategic management research because it identifies the mechanisms and outcomes associated with perfectly competitive markets. In perfectly competitive markets, marginal-cost pricing pushes all firms to adopt the same technologies and pushes all firms towards zero economic profits. As strategic management is fundamentally about heterogeneous firms and the pursuit of advantages over rivals, marginal cost-pricing provides a useful and insightful baseline for understanding and modelling the outcomes of firms. In some sense, strategic management is about avoiding marginal-cost pricing. Firms that have pricing power and are able to protect their advantages relative to rivals and prevent imitation are able to avoid marginal-cost pricing, and can establish and protect prices that yield positive economic profits.

See Also

- ▶ Cost
- ▶ Cost-Benefit Analysis
- ▶ Exit Barriers
- ▶ Law of One Price
- ▶ Marginal Analysis
- ▶ Marginal Cost
- ▶ Perfect Competition
- ▶ Price Taking

Market Definition

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Abstract

The task of defining relevant markets typically arises in two public policy contexts: (a) evaluation of proposed horizontal mergers and (b) allegations of monopolization or an abuse of a dominant position. The question in both contexts is whether the merged firm, or the firm accused of monopolization (or abuse), is likely to have or obtain market power and/or monopoly power, and/or enhance or increase its ability to maintain (or exercise) such power.

Definition Market definition typically involves identifying a product and its geographic markets, and then determining the degree of market concentration. Market definition focuses almost exclusively on structural issues.

The task of defining relevant markets typically arises in two public policy contexts: (a) evaluation of proposed horizontal mergers and (b) allegations of monopolization or an abuse of a dominant position. The question in both contexts is whether the merged firm, or the firm accused of monopolization (or abuse), is likely to have or obtain market power and/or monopoly power, and/or enhance or increase its ability to maintain (or exercise) such power.

Market definition is thus a means to an end rather than an end in and of itself. Once the relevant markets are defined, one then looks to factors such as the number of competitors, market concentration, prices and profitability and potential entry (among others) in order to determine whether there is likely to be a risk (or increased risk) of anti-competitive behaviour.

In terms of the traditional 'structure-conduct-performance' paradigm of industrial organization, market definition focuses almost exclusively on structural issues, tacitly accepting that market structure can be useful in predicting likely economic performance.

Market definition typically involves two dimensions: identifying the relevant product market ('RPM'), and identifying the relevant geographic market ('RGM').

In recent decades, antitrust authorities in the United States, Europe and elsewhere have provided guidance as to how they approach market definition. The US Federal antitrust authorities – the Antitrust Division of the Department of Justice ('DOJ') and the Federal Trade Commission ('FTC') – have set forth their approach to market definition in the successive versions of their joint Merger Guidelines, originally promulgated in 1968 and most recently revised in 2010 (US DOJ and FTC 2010). In Europe, the European Commision published its initial 'Notice on market definition' in 1997 (EC Director General of Competition 1997), in connection with the development of the EC Merger Guidelines.

In merger contexts, the natural approach is to start with the proposed merging firms, to identify the products supplied by, and the geographic areas served by, those firms, and to see if the proposed merger has the potential for anti-competitive effects, whether in the form of 'unilateral effects' associated with the elimination of the competition between the merging firms, or in the form of 'coordinated effects', in the sense that the merger may increase the risk of coordinated or interdependent behaviour among rivals. In non-merger contexts, by contrast, there is often no such 'natural' starting point, and the task of market definition may thus be more complicated.

Relevant product market definition typically focuses on the extent to which goods (or services) from different sellers are close enough substitutes for one another, for some or all buyers, that they should be deemed to be in the same RPM.

Traditionally, economists have looked at the cross-price elasticity of demand between different goods (or services) to assess the degree of substitutability. Such an approach may be difficult to implement in practice, as data on cross-price elasticities may be difficult to acquire, especially in the many industries that involve differentiated products.

Another more significant concern is that cross-price elasticity is a matter of degree, with cross-price elasticities ranging from large negative numbers to large positive numbers, and the dividing line between 'economic substitutes' and 'economic complements' occurring at a cross-price elasticity of zero. Determining whether two products are 'close substitutes' is thus a matter of *degree*, though the traditional practice in antitrust and competition law is to draw bright-line distinctions between products that are 'in' the same RPM and products that are 'not in' the same RPM. This mismatch between the economic reality, in which substitutability is a matter of degree, and the approach historically taken by the law, which seeks to draw bright-line distinctions, has occasionally led to serious distortions, especially as a result of the adversarial nature of much antitrust and competition law litigation.

Relevant market definition typically focuses on goods that are close economic *substitutes* for one another. However, in many industries, competitive conditions in the market(s) for close economic *complements* to those goods can have significant effects on the ability to exercise market power.

The cross-price elasticity between two products typically varies across different buyers or classes of buyers. Antitrust authorities have often defined relevant markets with respect to certain classes of customers that are believed to be at particular risk from the proposed merger and/or from the conduct complained of, rather than with respect to 'the market' as a whole. There is considerable debate as to whether use of 'sub-markets' is helpful.

A further complication is that the cross-price elasticity between two goods depends on the current levels of prices of those goods. But current price levels may already reflect the exercise of a significant degree of market power, so measuring cross-price elasticity at current price levels may result in what is known as the 'cellophane fallacy'. In the 1950s, DuPont was accused of monopolizing the market for flexible wrapping materials, and in particular its (formerly trademarked) 'Cellophane' product. In its defence, DuPont pointed out that, at the then-current price levels, cellophane faced significant competition from other flexible wrapping materials such as waxed paper. The US Supreme Court agreed. However, economists pointed out that this argument confused a monopolist's inability to further raise its price above the *monopoly* level, given the presence of other products in the market, with its (allegedly already-exercised) ability to raise its price above the *competitive* level.

In defining RPMs, the antitrust authorities typically apply a 'hypothetical monopolist' test: whether a hypothetical firm that controlled the entire supply of products within a proposed RPM could profitably implement a 'small but significant and non-transitory increase in price', typically referred to as a 'SSNIP' test. Different metrics have been proposed for both the 'small but significant' and 'non-transitory' aspects of the SSNIP test, but one widely used approach is to assume a 5–10% retail price increase maintained for a period of 1–2 years. If competition from firms 'outside' the proposed RPM would make such a price increase unprofitable for the hypothetical monopolist (as customers shifted to such suppliers), then the conclusion is that the proposed RPM is too narrow and must be broadened.

Turning now to identifying the relevant *geographic* market, as a conceptual matter the concern is again to identify sellers to which buyers can reasonably turn and who thus might constrain an attempted exercise of market power. For products whose transport costs are low relative to the product value, or for intangible assets, RGMs are often fairly broad. Conversely, for products for which transportation costs are high relative to the value of the products in question, the RGM can be relatively narrow. Trademark, patent and copyright issues can play a role here, as can government regulations and 'grey market' imports.

One commonly used test for identifying RGMs is the two-pronged Elzinga-Hogarty test, which looks both at (a) the extent to which customers inside a proposed RGM obtain the relevant products from suppliers outside that geographic region (the 'little in from outside' or 'LIFO' prong) and (b) the shift to which suppliers inside the proposed RGM sell their output to customers outside of the proposed RGM (the 'little out from inside' or 'LOFI' prong).

Once the relevant product and geographic markets have been identified, the next step is typically to determine the degree of market concentration, as measured by some index of the market shares of firms currently in the relevant markets. Historically, concentration was measured by looking at the fraction of the market held by the four or eight largest firms – the 'CR(4)' and 'CR(8)' ratios respectively. However, in more recent years, the focus has been on using the Herfindahl-Hirschman Index ('HHI'), which is calculated by adding the squares of the percentage market shares of all of the firms in the industry.

One concern with using any form of 'market concentration index' is that the numbers depend on getting the market definition right. If the proposed 'relevant market' is defined too narrowly (is underinclusive), the incumbent firms will account for a high fraction of the proposed market, and the concentration index will be high, potentially indicating problems where a more realistic market definition would indicate that no problems exist. Conversely, if the proposed 'relevant market' is defined too broadly (is overinclusive), the resulting concentration index will be too low, potentially indicating that there are no competition or antitrust problems when in fact such problems may exist. To a significant extent, this helps explain why the parties to antitrust litigation typically spend much effort contesting the 'relevant market' definition, often to the point where the parties' respective positions on market definition can appear 'gerrymandered'.

Another concern is that focusing on cross-price elasticity of demand and the SSNIP test inherently pays most attention to *price* competition, whereas in many markets – especially fast-moving hightechnology industries – the focus of competition is more on product features than on price competition per se. In industries such as mobile phones or semiconductors, where the quality-adjusted price (i.e., after controlling for changes in product quality or product features over time) can fall by 30–50% or more per year, using a SSNIP test for market definition can yield seriously misleading results.

Economists typically look at both supply-side and demand-side considerations, as well as potential competition and potential entry (a particular aspect of supply-side competition), in identifying relevant markets. However, in the US, the FTC/DOJ Merger Guidelines focus only on supply-side considerations when *defining* the relevant markets, leaving the issues of demand-side competition and potential entry to be considered when evaluating the likely competitive *effects* of a merger. The courts sometimes focus on demand-side considerations only, but in some notable cases have also considered supply-side competition or potential competition, especially since merger analysis is only part of their remit.

Market definition issues can be especially controversial in three contexts: 'technology markets' (and their related 'innovation markets'), 'two-sided markets' and 'aftermarkets'. Technology markets differ from traditional markets for physical goods or services in that what is being exchanged or used are intangible rights, typically various forms of intellectual property (patents, copyrights, trademarks and trade secrets). Although the US Merger Guidelines suggest that 'technology markets' can be evaluated using the same tools that are applied to markets for tangible goods and services, some scholars have suggested that certain fundamental differences between tangible and intangible goods – notably the economic proposition that information, unlike tangible goods, is 'non-rival' in use – make the simple porting over of the traditional analytic tools and techniques developed in the context of tangible goods and services to 'technology markets' questionable.

'Two-sided markets' are markets in which suppliers of alternative 'platforms' seek to attract both buyers and sellers to their platforms. One canonical example involves the market for credit card services, in which credit card companies seek to attract both retailers willing to accept a given credit card and consumers willing to use that credit card to make purchases. Other examples include software operating systems, game consoles, and other industries in which 'network effects' are significant.

Aftermarkets' are markets for goods and/or services that are used in conjunction with durable goods sold in the associated 'foremarkets'. Examples include spare parts, consumables, peripheral

equipment and accessories, and maintenance and service for durable goods such as photocopiers.

See Also

► Markets for Technology

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Market Entry Strategies

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Abstract

A firm's business strategies regarding the choice of a market, market entry timing and entry mode can significantly influence the firm's performance. A number of factors such as control, experience and cultural distance can influence the formulation of a firm's market entry strategy – for example, whether to choose between licensing and franchising or between joint ventures or wholly owned subsidiaries. Scholars have analysed the choice of a firm's market entry strategy from various theoretical perspectives, such as transaction cost economics, the resource-based view, the capabilities perspective and the eclectic framework.

Definition Market entry strategies refer to a company's goals, plans and decisions in regard to which market to enter, when to enter and how to enter (taking into account opportunities, threats and customer needs). 'Market' in this case may refer to a market segment, domestic or international.

Market entry strategies involve market entry timing, the choice of market and/or market segment, and an entry mode. *Market* refers to a segment, domestic or foreign, whether geographic or product scope.

Market Timing

The profiting from innovation framework (Teece 1986) offers some insights into the criteria that can be used for both domestic and foreign market entry decisions for innovators that develop new products and processes. According to the framework, factors such as the ease of access to cost-competitive complementary assets and timing should impact entry strategies. For example, Ampex, headquartered in California, was the first into the video cassette recorder market but failed to sustain the multiple rounds of product improvement and market investments necessary to stay in the game until the dominant design emerged (Teece 2006: 1134). Teece (1977, 1980, 1986) also recognizes the time–cost trade-off that affects mode of entry. For example, joint ventures that can help reduce entry costs at home and abroad are desirable if the time–cost trade-off is steep, rapid entry is required and a suitable joint venture partner is available.

Some empirical studies examining US domestic market entry strategies found evidence that early movers sometimes enjoy better market performance than late entrants (e.g., Lieberman and Montgomery 1998). Other scholars claim that early entrants tend to attain higher market shares but have lower survival chances than late entrants (Mitchell 1991). Moreover, optimal timing depends on how competitors are positioned with respect to access to complementary assets.

Market Choice

Market characteristics also affect the choice of which market to enter. Firms prefer entry into markets similar to the ones they currently occupy, since familiarity helps reduce uncertainty (e.g., Helfat and Lieberman 2002). This favours expansion into new domestic markets before tackling markets abroad. Market potential such as size and growth has also been found to be a determinant of overseas investment (e.g., Khoury 1979). Firms entering markets abroad characterized by high investment risks tend to seek local knowledge through joint ventures with local firms (Beamish and Banks 1987).

Choice of Foreign Entry Mode

Once foreign markets are selected, firms need to choose a mode of entry (i.e., select an institutional arrangement for organizing and conducting ► international business transactions) (Anderson and Gatignon 1986). The choice of entry mode is critical because entry decisions can significantly affect the firm's overseas business performance (Hill et al. 1990).

There are a number of (foreign) market entry modes. For example, firms choosing to access foreign markets via exporting have at least two alternative modes: exporting through independent intermediaries, and exporting via integrated (company-owned) channels. Firms can also choose to produce their products overseas, either through contractual modes (e.g., licensing and franchising) or via ► Foreign Direct Investment (FDI) (joint ventures and wholly owned subsidiaries).

Others classify market entry modes according to level of control (full control via wholly owned operations vs shared-control mode achieved through contractual arrangements or joint ventures), the level of resource commitment and the level of risk involvement (Anderson and Gatignon 1986).

Control

The level of control is often determined by ownership. Control is, in turn, an important determinant of both risk and return and thus has been the focus of the entry mode literature (Stopford and Wells 1972). The greater the firm's level of ownership of a subsidiary, the greater control the firm enjoys over its international transactions (Anderson and Gatignon 1986). Joint-control modes include exports through outside intermediaries and joint ventures. Dominant equity interests (wholly owned subsidiaries or major shareholders) are examples of the highest degree of control for the entrant, whereas licenses and other contractual agreements are low-control modes.

Exporting is a lower commitment strategy for accessing foreign markets. It involves lower risk and lower-resource commitments. On the other hand, foreign direct investment (FDI) provides a higher degree of control over the firm's operations in the host country and is likely to generate greater profit (Johanson and Vahlne 1977).

Hennart (1991) predicts the choice of joint venturing over FDI when: (1) the firm needs to gain control of complementary inputs, (2) it is the firm's first entry into the country, or (3) the cultural distance between the firm and the target country is very high.

Experience

As firms increase experience, firms acquire knowledge of foreign markets and become more confident. Prior investment in a region impacts on future decisions to invest in these countries (Arregle et al. 2013). As firms build experience with specific entry modes (e.g., acquisitions, joint ventures), they develop relevant capabilities (e.g., the ability to manage post-acquisition integration (Jemison and Sitkin 1986), the ability to learn from ventures (Dyer and Singh 1998)), and they are more likely to choose the entry modes that they are familiar with (Helfat and Lieberman 2002).

Empirical evidence with respect to how learning and experience impact market entry strategies is ambiguous. Stopford and Wells (1972) found that the more experience the firm had in the relevant country the less likely joint ventures were to be chosen over wholly owned activities. On the other hand, Kogut and Singh (1988) found that experience (measured as the firm's pre-entry

presence in the host country and degree of multinationality) played no significant role in explaining why foreign companies in the US prefer joint ventures to wholly owned acquisitions.

Cultural Distance

Uppsala School researchers noted that foreign engagement and exporting start with psychologically close countries and extend to psychologically remote markets as the firm gains experience (Johanson and Vahlne 1977). Vernon (1966) observes that US multinationals enter into markets that are geographically and culturally familiar and then move to markets that are less familiar to them.

Theoretical Frameworks Used to Explain (Foreign) Market Entry Strategies

The transaction cost economics view, the resource-based view and the eclectic framework are the main theoretical frameworks employed in the literature on market entry strategies.

Transaction Cost Economics View

A number of economists explain market entry strategies through a transaction cost economics (TCE) lens. This approach focuses on minimizing control and contractual problems that firms might encounter in conducting international operations through unaffiliated entities. Entry modes selected based on TCE criteria provide firms with the most efficient (i.e., least costly) strategies and structures (Williamson 1985).

The TCE framework emphasizes the costs of finding, negotiating, monitoring and enforcing contracts. As contract-related costs increase, firms tend to chose more hierarchical modes, such as wholly owned subsidiaries (e.g., Anderson and Gatignon 1986; Hennart 1991). Williamson (1985) argues that integrated modes are more efficient under high uncertainty and high requirements for investment in transaction-specific assets because these are the circumstances most likely to require hands-on management.

However, focusing on transaction cost minimization does not always provide the best decision criteria because it ignores the revenue potential of alternative entry mode choices (Brouthers et al. 1999; Teece 2014). TCE-based models also assume risk neutrality, ignoring the reality that some risk-averse managers may make different decisions to risk-seeking managers (Chiles and McMackin 1996). For example, companies from less trusting cultures are more likely to choose FDI because they are relatively more concerned about opportunistic behaviour (Shane 1992).

Resource-Based View

Mode of entry depends not only on contractual issues but also on who owns and controls the required resources and capabilities. Different types of preentry resources and the capabilities of entrants can affect which market to enter, the mode of market entry and the timing of market entry (Helfat and Leiberman 2002; Teece 2014). For example, a domestic firm considering expansion abroad may be better off choosing acquisitions or joint ventures instead of building capabilities internally when it seeks to expand geographically but lacks the knowledge of local markets (Hennart and Reddy 1997). Firms with pre-entry resources and capabilities may decide to enter a new market so as to obtain economies of scope (Teece 1980, 1986a, b; Panzar and Willig 1981). Teece (1986) highlights cash needs and the requirement for (co-specialized) complementary assets as factors helping to explain the mode of market entry for innovating firms, both at home and abroad.

Eclectic Framework

According to Dunning's eclectic framework (1980, 1988), the choice of market entry mode is influenced by three types of factors: ownership advantages of a firm, location advantages within a market and internalization advantages of integrating transactions within the firm. For example, FDI is preferred to exporting when there are location-specific advantages such as sales potential and the stability of trade policies of the host country. On the other hand, high-control entry modes such as wholly owned subsidiaries are preferred by companies in R&D intensive

industries where the role of technological know-how anchors firm-specific advantages (Dunning 1983).

Conclusion

Strategy research has given considerable attention to the topic of market entry strategy. The primary focus of academic research has been on the consequences of choices of entry mode, timing and factors that influence the entry mode decision. A particular market entry strategy cannot be assessed in isolation but instead must be considered in relation to context. Choosing a particular entry mode involves trade-offs. The role of learning is becoming better appreciated. There's an overlap with the diversification literature which also highlights different types of market entry strategies.

See Also

- ▶ Foreign Direct Investment (FDI)
- ▶ Global Strategy
- ▶ International Business
- ▶ International (Cross-Border) Operations
- ▶ Product Market Strategy

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Market Failures and MNEs

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Abstract

Anticipating complex contractual issues, which can lead to market 'failures', managers often choose to bring economic activity inside the firm. (We are, of course, using 'failure' in a comparative institutional context, reflecting an understanding that better ways of organizing are possible.) Such internalization, in turn, implies foreign direct investment (FDI) in partially or wholly owned subsidiary companies. There are at least three types of market failures that relate to the existence and structure of multinational enterprises (MNEs). The first occurs when transaction costs are high relative to the administrative costs of organizing an activity internally. A second type of market failure concerns the relative inefficiency of markets for the transfer of certain types of resources, such as knowledge and capabilities. In a third case, markets do not exist at all until individuals exercise entrepreneurship and deploy resources to create or co-create them.

Definition Market 'failures' is a viable (although partial) explanation for foreign direct investment (FDI), and the existence of multinational enterprise (MNE). Foreign investment requires multinational activity, so a theory of FDI is also a theory of the multinational enterprise. Contractual complexities stemming from the need to transfer intangible assets, or the requirement to pioneer new markets, lead to high transaction costs, which in turn can create market failure. Fear of market failure can be resolved through the internalization of overseas activity within the MNE.

Some authors distinguish two kinds of market imperfections: structural and transactional (Dunning 1981; Dunning and Rugman 1985). The former refers to market imperfections relating to industry structure (e.g., any departure from perfect competition, such as oligopoly). For instance, Kindleberger (1969: 14) proposed a taxonomy of market failures, consisting of imperfections in goods markets, imperfections in factor markets and imperfections flowing from scale economies and government-imposed disruptions such as tariffs and controls on international capital. The latter type of imperfection or 'failure' emphasized by Coase and Williamson is market 'failure'.

Market 'failures' can also, due to contractual difficulties, exist when a market is non-existent or underdeveloped (i.e., the governance of economic activities in the market is inefficient) and refers in the multinational enterprise (MNE) context to contractual difficulties and attendant high transaction costs in the operation of markets for intermediate goods (Williamson 1971) and for technology and know-how (Teece 1981a, 1986). Market imperfections can be thought of as departures from perfect competition, or as impediments to the efficient allocation of resources by the price system alone (Rugman 1981: 41). Market 'failures' in the ▶ transaction cost economics framework occur due to the coupling of two environmental conditions – uncertainty and the small number of market participants, along with opportunism and bounded rationality, which leads to exposure to re-contracting hazards (Williamson 1975, 1985).

The Existence of the MNE

Market 'imperfections' of the Coase–Williamson kind are of particular relevance in explaining the rise of the MNE. Perhaps Hymer was the first to apply elements of the Coase–Williamson paradigm, noting that the MNE is a 'practical institutional device which substitutes for the market' (Hymer 1976: 48). However, most of the time he had a more classical view of market imperfections (in line with Kindleberger) and emphasized product and factor market departures from perfect competition. He argued that control of a foreign subsidiary is 'desired in order to remove competition between that foreign enterprise and enterprises in other countries . . . or to appropriate fully the returns on certain skills and abilities' (Hymer 1976: 25). In Hymer's view, advantages provide market power, which Hymer believed explained the existence of the MNE. In other words, the MNE could use its subsidiaries to produce goods similar to those in the home country by making use of knowledge and information internal to the MNE, thus giving it an advantage over local firms in foreign operations.

Clearly, to help explain the existence and expansion of the MNE, Hymer's relied more on structural factors, essentially Bain (1956)-type product and factor market imperfections (which somehow get leveraged advantageously by the MNE) rather than Coase–Williamson-type transaction costs. He saw any departure from perfect competition as market power. The distinction between market power and efficiency considerations is useful for analysing policy implications of the MNE. Williamson saw different market failure issues requiring internal organization to solve the economic challenge.

The tension between market power and efficiency explanations of the MNE was first explored in Teece (1981a). If market failures are structural, and are associated with (antitrust) market power, then the MNE is a rent-seeking monopolist and its actions are not necessarily 'efficient' (Dunning and Rugman 1985). However, if the market 'failures' the MNE overcomes are inherent in the nature of business, then the MNE can be seen as solving a fundamental problem in the economic system and ought to be lauded (Teece 1981a). Through this lens, multinational investment and growth can then be seen as efficiency and productivity enhancing.

The Internalization Approach

Scholars highlighting the latter type of market 'imperfection' have applied the transaction cost approach to the theory of the MNE. This has come to be known as 'internalization theory'. The substitution of internal organization for (hypothetical) market exchange is referred to as internalization. It was Coase who first recognized that 'the operation of a market costs something' and that the internal organization of a firm can be an efficient method of production (Coase 1937: 338). Buckley and Casson (1976) then gave wide currency to this set of ideas in the field of international business.

In their seminal 1976 book *The Future of Multinational Enterprise*, Buckley and Casson applied Coasian economics to the MNE, helping to shift the dominant conceptual model of the MNE from market power to market failure. According to this model, modern businesses carry out a range of activities, including marketing and R&D that are interrelated through flows of intermediate products such as knowledge and expertise (Buckley and Casson 1976: 33). Without MNEs, these transactions might not take place at all, or would be more complex and difficult to manage.

Many MNEs are vertically and (or) horizontally integrated. With vertically integrated MNEs, the MNE operates its own supply chain across borders.

The emergence of associated vertical foreign investment can be traced to the sourcing of intermediate goods and raw materials, such as oil and copper (Vernon 1971). If such markets were well developed and functioning, there would be few circumstances where internalizing markets produce efficiencies (Teece 1981b). However, entrepreneurial activities are often needed to get markets started. This is what the entrepreneurial management of the MNE can supply.

Given that intermediate product markets for intangible assets such as know-how are difficult to organize, MNEs often choose to transfer know-how internally, using common control and ownership, better control over the technology and ensuring its efficient transfer.

Caves (1971) become more specific and, in particular, linked the failure of knowledge market with the emergence of the MNE, suggesting that the MNE engages in product differentiation and horizontal integration as a response to market failure and extends its monopoly of firm-specific advantage into global markets. Cave's view was somewhat consistent with the early Hymer view that product market imperfections (market power) are the raison d'être of the MNE. Perhaps Caves failed to fully recognize the efficiencies associated with technology transfer across borders inside the MNE.

It can also be noted that market 'failure' is often country-specific, and thus it influences the locational decisions of MNEs (Dunning and Rugman 1985). Structural market distortions, such as government intervention, facilitate or discourage inward direct investment of MNEs. In such conditions, MNEs benefit from arbitrage opportunities and better coordination by internalizing these markets (Kogut 1985).

Since the creation of an internal 'market' by the MNE has bureaucratic costs and requires investing abroad, the advantages from internalization must be sufficient to offset the additional overhead cost of running the business and operating in unfamiliar foreign markets. This is what Hymer (1976), in the international context, referred to as the liability of foreignness. Rugman (1980) and many others accepted this basic premise.

Profit-seeking firms will internalize markets until the cost of further internalization outweighs the benefits (Coase 1937; Buckley 1983: 42). The 'failure' (or high cost) of operating in the market for intermediate goods is viewed as both a necessary and sufficient condition to explain the rise of MNEs (Buckley and Casson 1985).

In short, the transaction cost economics (TCE) perspective described above has been applied to the international context by a wide variety of scholars, including Buckley and Casson (1976), Dunning (1981), Hennart (1982), Rugman (1981), Teece (1981a) and Williamson (1981). In the TCE framework, foreign direct investment (FDI) is efficiency enhancing because contracting with independent agents to effectuate the same goals would be expected to lead to costly contractual disputes with attendant resource misallocation. Thus, if an overseas activity involves investing in transaction-specific assets that cannot readily be redeployed to other uses, then an overseas partner making the dedicated investment would be exposed to the likelihood of future unfavourable renegotiation. The market 'fails' in this case because the prospective overseas partner might refuse to enter into a contract, or might demand such generous terms that internalization is the lower cost option.

Resource Transfers and Market Failure

A different form of market failure has been less extensively developed in the literature. This involves resource transfer costs and learning issues, which are better captured by the capabilities view of the MNE.

At the heart of the Williamsonian transaction cost approach is the notion of non-redeployable assets. Investments in such assets render arm's-length contractors vulnerable to opportunism. In contrast, the resource transfer view looks at resource transfer costs, which are arguably another kind of 'transaction' cost, and also looks beyond costs to capability development.

Resource transfers across national boundaries and between unaffiliated parties are inherently more complex and costly to arrange and execute than transfers between the home and host country (Teece 1976). This is particularly true when what is being transferred globally are intangible technological resources, which are among the most valuable, in a strategic sense, that a firm is likely to possess. Relevant intangibles include technology, know-how, market knowledge, managerial skills and brand image. When the recipient of the transfer is a separate company bound only by a contract specifying non-disclosure

responsibilities, the degree of transfer and protection afforded by an unaffiliated partner is likely to be lower than for an internal transfer from parent to subsidiary (or from one foreign subsidiary to another foreign subsidiary).

Market Co-creation and the Capabilities Approach

As noted, the transaction cost (internalization) approach recognizes that markets sometimes fail to be an efficient form of organization relative to internal organization ('integration' or 'internalization'). TCE ignores the need for market creation and co-creation, activities which have always been fundamental to the MNE. This is obviously a major limitation of the TCE framework as applied to the MNE.

The assumption, often adopted in economic theory, and sometimes even in TCE, is that markets always exist. In reality, markets often need to be created by a firm, or co-created by a network of firms. Market creation requires the action of entrepreneurial managers, using the firms resources to shape demand and assemble the complements needed for new markets to be viable (Pitelis and Teece 2010; Teece 2014). In particular, markets may not yet exist for innovative products and services, or for products and services that exist in one country but have not yet been marketed overseas. In a fundamental sense, this is a market failure.

It is often the case that, because of low levels of economic development, markets haven't emerged yet in some countries and need to be (co-)created by entrepreneurially managed MNEs. MNEs' market creation functions are ignored in the transaction cost economics-based explanations of FDI. Hence, the dynamic capabilities-based entrepreneurial theory of the MNE (Teece 2014) which recognizes the importance of market creation and asset orchestration, complements the contract-based (TCE) perspectives. It recognizes the need for MNE entrepreneurial activity such as creating and deploying resources. These activities facilitate market co-creation.

See Also

- ▶ Multinational Corporations
- ▶ Theory of the Firm
- ▶ Transaction Cost Economics

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Market Orientation

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Abstract

Market orientation is marketing's explanation of performance differentials and can be viewed as marketing's contribution to business strategy. Market orientation research was initiated by Kohli and Jaworski (J Market 54:1–18, 1990) and Narver and Slater (J Market 54:20–35, 1990) and has more recently entered the strategic management literature. In general, market orientation is argued to improve a firm's market-sensing capability, and thus improve market responsiveness, particularly in hostile and unpredictable environments. More nuanced research on the topic reveals that the performance effects of the construct's main components – customer orientation and competitor orientation – are context-dependent, being affected, for example, by strategy choice and environmental conditions.

Definition Market orientation is defined as the responsive as well as proactive organization-wide generation of market information pertaining to customers, competitors and forces affecting them, the internal dissemination of the information, and action taken upon this information.

Market orientation is the field of marketing's explanation of performance differentials and is positioned as marketing's contribution to ▶ business strategy (Hunt and Lambe 2000; Stoelhorst and van Raaij 2004). Market orientation research was initiated by Kohli and Jaworski (1990) and Narver and Slater (1990) and has recently entered the strategy and management literature (Slater and Narver 1998; Hult and Ketchen 2001; Hult et al. 2005; Ketchen et al. 2007; Zhou et al. 2008; Morgan et al. 2009; Sørensen 2011).

Market orientation highlights the ▶ organizational culture dedicated to delivering superior customer value (Narver and Slater 1990; Day 1999). A market-oriented culture is manifested in the behaviours and activities of the organization and its members (Homburg and Pflesser 2000). Market-oriented activities essentially consist of the generation and dissemination of information pertaining to customers and competitors and the forces affecting them, as well as action based on information (Kohli and Jaworski 1990; Narver and Slater 1990). A market orientation is argued to improve a firm's market-sensing capability (Day 2011) and innovativeness (Hurley and Hult 1998; Han et al. 1998; Atuahene-Gima 2005), and thus improve market responsiveness, particularly in hostile and unpredictable environments (Jaworski and Kohli 1993).

As the field has matured, meta-analyses of the relationship between market orientation and performance are now emerging with regularity (Kirca et al. 2005; Ellis 2006; Grinstein 2008). The main conclusions are that firms with higher levels of market orientation tend to have higher financial performance, such as return on assets and return on investment. Furthermore, a market orientation improves operational performance, including aspects such as innovation and new product success, customers' perception of product/service quality, overall customer satisfaction

and customer loyalty, and employees' *esprit de corps* and commitment. Research investigating organizational antecedents to market orientation finds that less centralized and formalized organizational structures supported by an active and market-oriented top management willing to commit necessary resources to market-oriented activities are the main organizational drivers of market orientation (Jaworski and Kohli 1993).

The market orientation literature has evolved to include several definitions of the market orientation construct. A representative definition based on a synthesis of the contemporary market orientation construct is the responsive as well as proactive organization-wide generation of market information pertaining to customers, competitors and forces affecting them, the internal dissemination of the information, and action taken upon this information.

Customer orientation and competitor orientation are considered important, distinct strategic orientations of the market orientation construct as their effects on performance are context dependent, for example, in relation to firms' strategy and environmental conditions (Slater and Narver 1994; Gatignon and Xuereb 1997; Morgan and Strong 1998; Homburg et al. 2007). Later conceptualizations broaden market orientation to encompass forces, such as suppliers, distributors, stakeholders, and the macro environment (Siguaw et al. 1998; Matsuno and Mentzer 2000).

Market orientation research also distinguishes between responsive and proactive approaches to market orientation, theoretically (Jaworski and Kohli 1996; Slater and Narver 1998) as well as empirically (Narver et al. 2004; Cillo et al. 2010). Broadly stated, the responsive approach to market orientation is focused on the expressed needs of customers, while the proactive approach to marketing attempts to discover and target the unexpressed, latent needs of customers. In relation to this, research has examined the role of market orientation in balancing exploration and exploitation strategies (Kyriakopoulos and Moorman 2004; Atuahene-Gima 2005; Atuahene-Gima et al. 2005).

Market orientation research has frequently investigated constructs from other management and marketing disciplines. Drawing on the strategy literature, studies have investigated the moderating role of Miles and Snow's (1978) and Porter's (1980) strategic typologies (Matsuno and Mentzer 2000; Olson et al. 2005). Research on other strategic orientations in relation to market orientation includes, for example, learning orientation (Slater and Narver 1995), entrepreneurial orientation (Atuahene-Gima and Ko 2001), technological orientation (Gatignon and Xuereb 1997; Zhou et al. 2005), sales and production orientation (Pelham 2000), and export market orientation (Cadogan et al. 1999). Lastly, the literature also includes theoretically based research that investigates market orientation as a resource, a capability or a skill (Hunt and Morgan 1995; Slater and Narver 1998; Ketchen et al. 2007; Day 2011).

See Also

- ▶ Business Strategy
- ▶ Exploration and Exploitation
- ▶ Managerial Resources and Capabilities
- ▶ New Product Development
- ▶ Organizational Culture
- ▶ Organizational Learning

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Market Power

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Abstract

The importance of market power in explaining industry and firm performance in the strategic management field has had a number of ups and downs. Many of the changes have tracked changes in ▶ industrial organization (IO) economics, but some differences between the fields have emerged following empirical tests of the relative importance of market power explanations to other explanations and the conceptual development of the resource-based view and related developments in strategic management. Empirically the norm has developed to control for market power effects even as research topics move in other directions.

Definition Market power derives from the ability of firms in an industry or strategic group to restrict output and correspondingly set prices in their markets and generate industry and hence firm profitability above what would prevail in a purely competitive market.

Precursors of Market Power in Business Policy

The study of market power in industries was developed by the Bain–Mason paradigm in economics, which talked of the structural characteristics of industries and markets and conduct of firms, which determined their collective performance. In this approach, performance was social performance in terms of low consumer welfare loss which would occur as industries approached competitive market type outcomes (Mason 1939; Caves 1964; Porter 1983). This paradigm developed into ▶ industrial organization (IO) economics and the ▶ structure-conduct-performance (SCP) framework (Caves 1964). The SCP could be used to help set antitrust policy to change structure to improve social performance (Caves 1964). Oligopoly theory further specified a link where one firm's actions affect its rivals (Scherer 1970). This began to make a connection with business policy through the SWOT framework of Learned and colleagues 1969) and Andrews (1971). But since the frame of reference was so different – collective performance of firms in industrial organization versus individual performance of firms in business policy and strategic management – the connection was never as direct as it became under Porter (1980).

Market Power Underpinnings in Porter's Five Forces

Porter (1980) developed a framework for determining competitive strategy by analysing industries and competitors with five forces: the bargaining power of suppliers, the bargaining power of buyers, the threat of new entrants, the threat of substitute products or services and rivalry among existing firms. The framework emerged from a great deal of research in marketing on competitive behaviour (Buzzell et al. 1972), and in industrial organization on industry profitability (Bain 1954; Caves 1964).

Porter's *Note on the Structural Analysis of Industries* helped to familiarize business policy and strategic management with the Bain–Mason paradigm, which itself made suggestions for firms (Porter 1974). While the tool was still at the level of industry analysis, the objective was that firms could use these insights to determine attractive industries and possibly also use firm conduct to increase corporate profitability despite its possible implications for also reducing consumer welfare.

Porter (1980) argued essentially that market power in industries – and how it was distributed amongst buyers and suppliers and rivals and weakened by substitutes – was critical for understanding the competitive behaviour choices that firms faced. Many of the insights here were essentially translations of ideas developed and empirically examined in the SCP framework of IO (Hunt 1972; Newman 1973; Orr 1974; Lustgarten

1975). Understanding the environment and its determinants was considered to be a stepping stone for developing a firm strategy that could find a part of the industry either where the forces were weaker or where a firm could take advantage of the forces to develop its strategy and enhance its profitability (Porter 1979). Thus the task of the firm strategy was to shield itself from the competitive forces as much as possible and to operate in an industry (or part of an industry) where the forces did not act to constrain profitability (Teece 1984).

Market Power in Strategic Groups

The idea that market power could influence competitive strategy in industries was extended to the idea of a strategic group within an industry. Mobility barriers in this perspective played a role similar to entry barriers in industries and separated firms in more profitable groups from those in less profitable groups (Hunt 1972; Newman 1973, 1978; Caves and Porter 1977). Contributors to this idea began to consider commonality of strategy within an industry as an indicator for strategic groups (McGee and Thomas 1986; Cool and Schendel 1987; Hatten and Hatten 1987; Fiegenbaum 1990; Lewis and Thomas 1990; Cool and Dierickx 1993).

Market Power Versus Efficiency

Another stream emerged that contrasted market power with efficiency reasons for firm performance (Demsetz 1973). Demsetz believed that the expansion of efficient firms would lead to concentration. In turn, much of what was being explained by market power could be explained by scale economies or better products. Mancke (1974) also questioned the centrality of market power in explaining associations between ▶ market share and profitability. The emphasis on efficiency provided an alternative explanation of profitability and became known as the Chicago Response to the Bain view on IO (Stigler 1951, 1957; Demsetz 1973; Conner 1991). This contrast between market power and efficiency was carried further by Lippman and Rumelt (1982) to show that uncertain imitability could explain the origin and persistence of interfirm differences in efficiency and heterogeneity in performance.

Resource-Based View Versus Market Power

The resource-based view emerged to lend a stronger alternative explanation to the importance of market power, by positing that firm effects in performance could be derived from strategic factors. The ideas of luck in Lippman and Rumelt (1982) and Mancke's efficiency thus converged into characteristics of resources that could provide rents that sustained performance (Barney 1986, 1991). Peteraf (1993), Dierickx and Cool (1989), and Wernerfelt (1984) further developed the contrast between the resource-based view (RBV) and the market power explanations of firm performance. Peteraf emphasized the precedent of Ricardo (1817) for understanding types of rents, which would also be a distinction from SCP (Caves 1964; Porter 1980). Dierickx and Cool (1989) went further to emphasize the rent or supply side by focusing on characteristics of assets and their enhancement and appreciation, through the distinction of stocks and flows, to emphasize the changing nature of resources. Wernerfelt (1984) simply organized the firm in terms of resources instead of its product markets. Conner (1991) found similarity between RBV and the Chicago school (Stigler, in that both assume that firms seek efficiency in production and distribution in response to competitive threats while the market power orientation looks instead at deployment of the firm's resources in response to competitive threats or to co-opt it through collusion or to destroy it with predatory pricing (Conner 1991).

Market Power and Industry Effects in Variance Decomposition Studies

With this debate under way, Schmalensee (1985) specified a model to directly compare the market

power and efficiency explanations of business performance by asking whether industry, firm or market share effects were the most important in explaining business unit performance. Schmalensee's finding in favour of industry seemed to settle the argument in favour of market power (industry) over efficiency (market share) or firm levels of analysis.

Rumelt (1991) reinvestigated the relative importance of industry in explaining business unit performance. He developed a model that extended Schmalensee's approach by adding business unit effects over time, in lieu of Schmalensee's market share effect for business units. The industry effect was similar and he also introduced a corporate effect over time in lieu of Schmalensee's firm effect. He also used variance composition analysis. His findings overturned those of Schmalensee and found much more important business unit effects and much less important industry effects. Corporate effects were small.

Brush and Bromiley (1997) used simulation to find some limitations for interpreting the effects of the variance component analysis. The apparent non-existent corporate effect found by Rumelt (1991) could be shown to be present. Indirectly one could also suggest that the relatively small industry effects found by Rumelt (1991) may be considered to be larger. McGahan and Porter (1997) used new data from Compustat segment databases to reconsider the empirical context evaluated by Rumelt (1991), which used the Federal Trade Commission (FTC) database.

McGahan and Porter's results used the variance component analysis favoured by Rumelt (1991) and with the Compustat segment data was able to estimate an industry effect that was larger than in Rumelt's analysis (1991), but also showed important and larger business unit effects. In addition, a strength of the McGahan and Porter (1997) analysis was to identify inter-sector differences in the relative sizes of industry and business unit effects. Thus a balance of the market power and efficiency (business unit effect interpretations) was established, but the balance could vary across sub-sectors. Subsequent papers with this data and general modelling approach continued to find support for the industry-level effect (Powell 1996; Roquebert et al. 1998; Brush et al. 1999; Hawawini et al. 2002; Ruefli and Wiggins 2003).

Market Power and Organizational Capabilities Interaction in Strategic Management

A new industrial organization movement developed in the late 1970s with a move towards game theory and conceptual modelling (Spence 1977; Salop 1979; Tirole 1988) and it swept the cross-industrial analysis of the SCP school from IO. A new empirical IO followed (Lieberman 1987). The arrival of the RBV and the empirical findings of its importance relative to market power in explaining firm performance forced a much more careful assessment of market power explanations of performance in strategic management literature (Amit and Schoemaker 1993; Foss 1996; Henderson and Mitchell 1997; Teece et al. 1997).

The call for the integration of organization capabilities and competitive environments led to research explicitly doing both or at least controlling for industry environment when the research theme focused on organizational capabilities (Henderson and Mitchell 1997). At its most basic, this research recognizes the rents of Porter (1980) as essentially monopoly rents (Teece 1984) while those of the RBV are associated with Ricardian rents (Peteraf 1993) and that firm profitability could be a combination of both. The emphasis on interaction in these studies also suggests that competition and market power can shape capabilities (Arora and Gambardella 1997; Ingram and Baum 1997) and capabilities in turn can influence competition and market power (Anand and Singh 1997; Sakakibara 1997; Tripsas 1997). Spanos and Lioukas (2001) offer ideas about rent generation in Porter's competitive strategy framework and the RBV and suggest that each have different causal logics.

The organizational ecology approach to competitive dynamics also developed an approach to market power and capabilities interaction. In general, the argument here is that resource overlap leads to increased competition and in turn

reduction in market power. In contrast, localized competition is a restriction of market power (Baum and Mezias 1992). Ingram and Baum (1997) conceptualize affiliation of independent hotels with a chain as a form of market power that increases profitability for the group.

Another stream of research on multi-point competition tracks market interdependencies that are managed within the firm that is involved in multiple markets (Gimeno and Woo 1999). The idea is that the multi-market contact with rivals (in the airline industry) affects intensity of rivalry but scope economies shared across markets within the same firm can affect economic efficiency. Separating the two effects (for firms in the same industry) thus distinguishes between market power and efficiency explanations of firm performance. Vroom and Gimeno (2007) investigate how differences in ownership form – between franchised and company-owned units – affects managerial incentives and competitive pricing in different oligopolistic contexts. They suggest that chains may restrict decision-making in company-owned units as a commitment device to maintain high prices in concentrated markets. Mas-Ruiz and Ruiz-Moreno (2011) revisit strategic groups to model how rivalry within the group determined by size of firm and multi-market contact will in turn affect performance.

Conclusion

The construct of market power in strategic management has transitioned from simply representing one aspect of the environment facing the business manager under Andrews (1971), to a central focus of the field and management under Porter (1980) to a complementary perspective or view to profitability with the rise of the resource-based view (Barney 1986, 1991; Dierickx and Cool 1989). Empirically the importance of market power has risen from centrality in Schmalensee (1985), to sideshow in Rumelt (1991) to renewed importance in McGahan and Porter (1997). Nonetheless, the importance associated with sustained business level performance appears to be stronger than the effects associated purely with market power in industries. Since the 2000s much of the focus in strategic management has been to control for industry effects and market power while exploring other sources of advantage in resources or capabilities. Despite this trend, there is a small but ongoing group of studies still primarily studying the role of market power in strategic management (Gimeno and Woo 1999; Vroom and Gimeno 2007; Mas-Ruiz and Ruiz-Moreno 2011).

See Also

- ▶ Industrial Organization
- ▶ Market Share
- ▶ Market Structure
- ▶ Perfect Competition
- ▶ Rivalry and Collusion
- ▶ Structure–Conduct–Performance

Acknowledgement Valuable research assistance for this entry was provided by Wonsang Ryu.

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Market Price

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Definition Market price is the price of a homogenous (undifferentiated) good, service or productive resource as determined by the interaction of large numbers of buyers and sellers in a competitive marketplace. Prices also are established in less than perfectly competitive markets, but the implications for economic efficiency and social welfare differ.

Market price is the price of a homogenous (undifferentiated or standardized) good, service or productive resource as determined by the interaction of large numbers of buyers and sellers in a competitive marketplace. Market price is found at the intersection of market demand-and-supply schedules, at which point the parties on both sides of the market have adjusted their plans so that the quantity consumers want to buy matches exactly the quantity producers want to sell. For this reason, market prices are also referred to as 'market-clearing prices' or 'equilibrium prices' because buyers willing and able to pay the market price can purchase all they wish, and sellers can sell all the units they have produced.

Market prices in competitive markets encourage the socially efficient organization of consumption and production in several ways. First, market price is the unique price at which neither a shortage nor a surplus exists. In addition, consumers who value the good or service at less than its market price will refrain from making purchases, ensuring that the good will find its way into the hands of those who value it most highly. On the supply side of the market, producers of the good or service will not offer more units than buyers are willing to take at the market price because the marginal cost of producing the units exceeds the maximum price buyers are willing to pay. This outcome ensures that scarce resources are not wastefully transformed into products worth less than the cost of the inputs necessary to supply them. Finally, rising (falling) market prices signal greater (lesser) scarcity, causing buyers to reduce (increase) consumption and sellers to increase (reduce) production.

Because competitive market prices contribute to socially efficient production and consumption, firms operating in such markets cannot raise their prices above the marginal (and average) cost. When prices are market-determined in a competitive market, individual sellers possess no ▶ market power (the ability to profitably raise

price above marginal cost). If any one firm tries to raise its price above the market-determined price it will lose all its sales to one or more of its numerous rivals that produce an identical good. Hence, the '► law of one price' is expected to hold – the same price will be charged for the same item in all parts of the market. On the other hand, in markets that are not perfectly competitive – for example, monopolistic, oligopolistic or monopolistically competitive ones – sellers face downward-sloping demand curves and possess some degree of market power, enabling them to produce smaller quantities and charge higher prices than they otherwise would. In such markets, sellers are 'price searchers'; they are 'price takers' in competitive markets. Competitive markets, then, are the friends of allocative (and productive) efficiency and the enemies of market power and above-normal profits.

See Also

- ► Law of One Price
- ► Market Power
- ► Perfect Competition
- ► Price Control
- ► Price Taking
- ► Profit

Market Research

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Abstract

Market research can refer to two things. The first is the information that is collected (and interpreted) after a market research study has been conducted. The second is the complete process that firms (and, more specifically, marketing departments) engage in prior to taking decisions regarding the strategy that guides their activity within a sector of the economy. First, we review the different types of market research that can be conducted. We then review the process and explain what occurs at each step.

Definition Market research is both the outcome and process of firms gathering and analysing data from customers (or consumers) that informs decisions the firm makes about which customers to serve, how to reach them, how to serve them, and the internal processes that support such activities.

Different Types of Market Research

When a marketer needs a question to be answered, there are three important paths that can be followed. The least expensive and often the best source of information is secondary data (i.e., data that has already been collected by another organization). As long as this data can be purchased at a reasonable cost, it has the advantage of being faster to access than the alternative of collecting primary data. Key sources of secondary data include the government and various industry trade associations.

Quantitative Studies

The second path is to conduct quantitative studies. Quantitative studies involve collecting enough data such that statistically significant numerical estimates regarding the behaviour, choices and preferences of target customers can be made. There are many approaches used to collect quantitative data, including mail surveys, telephone surveys, Internet-based surveys, mall intercept surveys, mall intercept interviews, in-store experiments and recruited interviews (Aaker et al. 1995).

The data can be analysed using a variety of techniques. In order to form segments of similarly minded potential consumers, questions related to people's needs are analysed using cluster analysis (Myers and Tauber 1977). Cross-tabulation analysis is useful in understanding differences in preferences and behaviour across different demographic groups or segments within a population

(Hellvik 1984). To comprehend how people perceive products along various characteristics, semantic scaling is useful (Malholtra 1981). To understand how people perceive markets and the positions of alternatives within a market, multidimensional scaling is used to create perceptual maps (Torgerson 1958). These maps are formed by constructing visual representations of similarity ratings of products provided by respondents. Perhaps the most popular quantitative market research technique is conjoint analysis (Green and Srinivasan 1978). This is used to understand how people react to various product configurations and how they trade off various product attributes, including price. Conjoint analysis has the advantage of assessing how people make choices through revealed preference: it is the market research technique that most closely mirrors an actual purchase situation for a consumer. Other quantitative techniques include usage and attitude surveys, discriminant analysis and factor analysis (Hauser and Koppelman 1979).

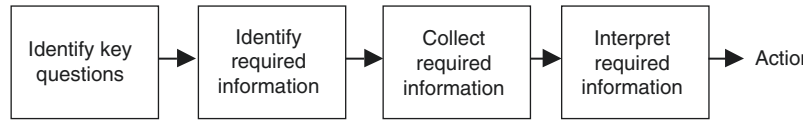
Qualitative Studies

Whereas quantitative studies provide numerical estimates of key numbers and percentages along with the reliability of these estimates, qualitative studies provide only directional information. In other words, qualitative studies allow the researcher to investigate issues in depth with research participants, but it is difficult, if not risky, to extrapolate findings from qualitative research to numbers and percentages for a population of consumers that is significantly larger. The main types of qualitative research are focus groups, paired interviews and in-depth interviews. The degree of structure in these methodologies can be modulated according to the types of issues being investigated. For example, to generate new ideas for products or advertising campaigns, researchers often utilize an unstructured approach to maximize the creativity of the research output. In contrast, when the reactions to several alternative campaigns for a packaged good are being compared, a focus group moderator might use a high degree of structure to obtain feedback.

The Market Research Process

This process involves the identification of key questions, the choice of market research techniques that can be used to help answer the questions and, finally, the interpretation of the answers managers obtain to the studies they have implemented. The market research process is summarized in Fig. 1.

1. *The identification of* '*key questions*'. The identification of key questions obliges marketers to think about their business on three levels. The first level is to identify consumer perceptions and feelings regarding the product or service that may affect consumer behaviour over the long term. The second level is to fully analyse all competitive products and to understand why some competitive products are selling well and others are not. The third level is to allow the manager the time to look for analogies in related or even unrelated product categories. Data relating to questions from the third level are often obtained from secondary sources.
2. *Identification of information needed to answer key questions*. One of the most difficult tasks for the marketer is to translate business questions into a market research study. Each methodology has its strengths and is well suited to answer certain questions, but ill-suited to answer others. A common error the marketer makes is to use a research method that does not match the type of question being asked. Figure 2 provides a list of typical research questions and the research method that is best suited to obtain answers to the question.



Market Research, Fig. 1 The market research process

Standard questions that marketers need answered	The required market research approach
Which doctors systematically prescribe our products versus the competitors'?	Cross-sectional usage survey
What do patients think about erectile dysfunction treatments?	Multi-dimensional scaling
We are planning to discontinue two models of insulin pens. How do we know this won't cause mass switching to distributor brands?	Focus group (disaster check)
It'll cost £65 per month per patient to offer a once-a-day version of the product. Is it worth it?	Conjoint analysis
My product has twice the level of healthy cholesterol versus the competitor but consumers don't seem to care?	Semantic scales (are the perceptions different?) and conjoint analysis (do they care?)
Our product efficacy is significantly better than the generic product but doctors keep prescribing the generic?	Conjoint analysis (is efficacy important?)

Market Research, Fig. 2 Typical market research questions from the pharmaceutical industry (Based on Kalra and Soberman (2010))

3. *Collection of information*. Once the marketer has determined the type of research to be conducted, s/he will generally hire an outside agency that specializes in the chosen research methodology. A key challenge for the marketer is to budget for the time needed to conduct the research and the analysis.
4. *Synthesis of information for answering questions*. Once the data has been collected, it is analysed to determine the answers to the marketer's questions. In general, the agency that has collected the data conducts the analysis, but the translation of the research findings into objectives and strategies for the business is the purview of the marketing manager.

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Market Segmentation

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Abstract

There are many ways of recognizing the heterogeneity in customers, and the most useful way depends on the marketing programme in question. Different marketing decisions may

call for different ways of segmenting the market. Some ways of segmenting markets are 'targetable' while others rely on customer self-selection. ▶ competition enhances the value of market segmentation, by providing an opportunity for firms to target different market segments and avoid direct competition.

Definition Market segmentation is the dividing of markets by customer type in order to increase the efficiency and effectiveness of marketing programmes by targeting them better.

Market segmentation is based on the recognition that markets are heterogeneous – customers are different. A firm must take this heterogeneity into account when choosing its marketing actions. The most basic application of market segmentation occurs right at the inception of the firm, with target market selection – deciding which market to be in and which market segments to serve within that market. After a target market has been chosen, heterogeneity within the target market must be recognized. Different customers have different product preferences, different media habits, different shopping habits. Serving them all in the same way would probably not be optimal. Ultimately, market segmentation is the opposite of mass marketing, and thus a logical extension of the 'marketing concept' (Keith 1960). These ideas have a broad application, both in business-to-consumer markets and in business-to-business markets.

Segmentation Bases

There are many ways, or bases, of segmenting markets. Among them are geographic segmentation, demographic segmentation, psychographic segmentation (Gunter and Furnham 1992) and benefit segmentation (Haley 1968). Geographic segmentation is about dividing the market into different geographic regions (e.g., home versus abroad, a country into 50 states etc.) and demographic segmentation is about dividing the market into different demographic groups (based on age, gender, income, household size etc.). These two segmentation bases are about observable heterogeneity. By contrast, psychographic segmentation and benefit segmentation are about unobserved heterogeneity (until recently, that is: with the advent of the Internet and social media these segmentation bases are becoming more observable – see Dwoskin 2014). The former refers to differences in people's activities, interests, values and opinions. For example, Hsu et al. (2002) divide leisure travellers into five groups according to their attitudes and lifestyles: exploratory, active, children-centred, socially conscious and outgoing. Finally, benefit segmentation is about differences in 'tastes', that is, differences in the benefits people seek in products. For example, in the car market, some people put a higher premium on fuel economy, while others value performance more.

Much of the early debate in marketing centred on which segmentation base is most useful. As Haley (1968): 30 noted: 'In the extreme, a marketer can divide up his market in as many ways as he can describe his prospects. If he wishes, he can define a left-handed segment, or a blue-eyed segment, or a German-speaking segment. Consequently, current discussion revolves largely around which of the virtually limitless alternatives is likely to be most productive.' Looking for the 'most productive' segmentation base is, however, an unproductive enterprise. There is no universally optimal way to segment markets. Rather, optimality depends on the intended application, the marketing decision that is supposed to benefit from the segmentation. Therefore, market segmentation schemes and marketing decisions come in pairs, and firms will typically employ a variety of market segmentation schemes to go with the many marketing decisions they have to make. Some of these schemes may even involve combinations of bases, for example, geographic and demographic segmentation.

A necessary condition for the usefulness of a segmentation scheme is that it elicits a variegated response from the firm. One size should not fit all. A segmentation scheme that generates the same marketing decision for each segment is not a productive segmentation scheme.

Consider target market selection. For this decision geographic segmentation is often useful. Given the nature of the product, a firm may decide that it is optimal to serve some geographic segments but not others. On the other hand, if the decision to be made is media selection – how best to reach those geographic segments with a marketing message – segmenting the market demographically is often very useful. Different media outlets have different audience demographic profiles, and a firm looking to reach all of its target segments efficiently may need to advertise in a variety of media outlets, such as in the Lifetime TV network to reach women, and in NFL football to reach men. Demographic segmentation, however, is not as useful for improving the effectiveness of product strategy: different demographic segments often have the same tastes (Yankelovich 1964; Frank 1967). Benefit segmentation, on the other hand, speaks directly to product strategy. The firm finds out how the market varies in its preference for various product attributes and designs a product line to appeal to these different segments.

Implementing Tailored Marketing Programmes

One limiting factor in implementing market segmentation is simply the cost of tailoring specific marketing programmes for each market segment. For example, in product design each distinct design imposes a set-up cost in production, and each additional design reduces ▶ economies of scale. Managing a variety of marketing programmes is also costly. In other words, there is a trade-off between the benefits of catering to each market segment's uniqueness and the costs of producing and managing variety. In practice, the solution is to coarsen the segmentation, so that more customers are treated alike than they actually are.

Delivery considerations also influence the efficiency of market segmentation. Some market segmentation schemes, for some marketing decisions, are easier to target than others. Geographic segmentation allows quite easy targeting for decisions such as which markets to serve, as discussed above. However, delivering geographically tailored products/prices to specific geographies is harder because of 'cross-border' shopping and grey markets. Demographic segmentation also allows easy targeting as far as communications are concerned, but the efficiency of such targeting depends on the existence of media with differentiated audience profiles. Psychographic and benefit segmentation, on the other hand, have poor targeting properties. For one thing these variables are inherently difficult to observe, and observable correlates such as demographics may not exist for reasons discussed earlier. What should be done in these cases? Implementation must rely on self-selection by customers. Advertising messages must embody different lifestyles to appeal to those lifestyles. For example, Pepsi has positioned itself as a 'youthful' drink by designing ads that feature youth engaged in youthful activities – the assumption being that youth will be attracted to ads featuring people like themselves, behaving as they do. Similarly, while individual products cannot be 'delivered' to individual benefit segments – because benefit segments are not observable – the firm can create a product line with products incorporating different benefits and rely on consumer self-interest to drive the targeting.

The efficiency of self-selection will necessarily be less than direct targeting, but how much so will vary from one application to the next. For horizontally differentiated products – products on which different segments seek different configurations of attributes – the efficiency is likely to be quite high as long as the benefit segments are well defined and clearly differentiated. A product line featuring those benefit bundles will lead to the right matching. On the other hand, for vertically differentiated products – such as products differing in quality – self-selection is harder to implement (Mussa and Rosen 1978; Moorthy 1984). All consumers desire the highest quality – there is no heterogeneity there. However, despite this homogeneity, consumers are likely to differ in their intensity of preference for quality. The firm can cater to those differences by producing a product line of different qualities. However, such

a product line must incorporate a trade-off between quality and price in order to be effective. In general, as Moorthy (1984) shows, cannibalization is an endemic feature of vertical differentiation, and the effect is to induce the firm to coarsen the segmentation, leading to a loss of effectiveness.

Market Segmentation and Competition

The usefulness of market segmentation would seem to transcend industry structure. After all, recognizing and responding to customer diversity is a universal value and ought to appeal to monopolist and competitive firms alike. But there is one special implication of market segmentation for competing firms. Market segmentation allows each firm to target a different segment, providing the basis for a 'differentiation strategy' – each of the firms has a different offering (D'Aspremont et al. 1979; Shaked and Sutton 1982; Moorthy 1988). The differentiation is beneficial because it insulates the firms from price ▶ competition.

This idea can be extended to multi-segment competition: each firm now competes via a product line. Two generic possibilities arise for choosing multiple segments: (1) a firm can target a block of 'adjacent' segments, or (2) it can target segments that are 'interlaced' among competitors' segments. In the latter case, each firm is serving multiple non-adjacent segments. Adjacent segments presumably have more similar tastes than non-adjacent segments, so one would think that the products serving the former would be closer substitutes than products serving the latter. So an interlacing strategy may appear to be the better choice – and certainly a monopolist restricted in product variety would choose non-adjacent segments *ceteris paribus* – but Brander and Eaton (1984) have shown that, in a competitive context, choosing a block of adjacent segments provides better protection against price competition.

In an industry that has room to grow – in which there are market segments that are not being served by any of the firms – firms can expand while maintaining differentiation. Ultimately, an industry may stop growing, and there would then be no easy pickings. The only avenue for growth may be to go after other firms' market segments. Succumbing to this temptation may, however, prove costly. There could be price wars in the contested segments, and these might spill over to other segments and become general price wars. Restricting one's growth ambitions may be the prudent course for some firms. Others, perhaps those endowed with some competitive advantage, such as a strong brand or a lower cost structure, may feel no such restrictions.

Conclusion

Market segmentation asks firms to recognize the heterogeneity in the market and develop segment-specific marketing programmes. There are many ways of segmenting a market, corresponding to the many ways in which customers differ. Different ways of segmenting markets may be optimal for different marketing decisions. Competition enhances the value of market segmentation, by providing an opportunity for firms to target different market segments and avoid direct competition.

See Also

▶ Competition
▶ Economies of Scale

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Market Share

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Abstract

Market share has been a key concept in strategic management and business policy since the inception of the field. While market share has often been considered as an outcome and measure of competitive performance and success in an industry, it has also been considered as a driver of success and profitable performance. The latter causality has included both efficiency and market power explanations of how market share can drive profitability. Different arguments for the causality and differentiation of these explanations are reviewed in this entry. Some of the emphasis on market share has diminished with the rise of global competition and the perceived reduction of domestic market power that may come with that competition. More recently in strategic management, market share has been considered in new topics of dominance, multi-point competition and platform competition.

Definition Market share is the share of product or revenue held by a firm in a relevant market.

Market Share and the Survivor Principle

Stigler (1958) used market share and change in market share to illustrate a survivor principle in which growth in market share was itself an indicator of underlying fitness to survive. Higher market share firms were more efficient or more successful because their accumulated successes over time had allowed them to gain share. In this view the market share is an outcome of an organization which is successful for any number of underlying reasons. Demsetz (1973) also saw market share as an outcome of successful firms.

Association of Market Share with Profitability

The Marketing Science Institute on the Profit Impact of Market Strategies (PIMS) project found evidence of an association between market share and profitability. For example, PIMS (1977) found that on average, a difference of 10 percentage points in relative market share is accompanied by a difference of about 5 points in pre-tax return on investment (ROI) (Buzzell et al. 1975).

This was largely believed to be due to economies of scale in production, distribution and marketing. For example, a larger company might be able to afford better equipment or more automation. It might also be able to use its market size to get volume discounts in media advertising, purchasing, warehousing and freight. It might get better customer accounts that want a broader product line or more services. Distributors might provide more cooperation at a lower cost to get the business (Bloom and Kotler 1975).

There is also a recognition that this market share and profitability linkage could be less due to economies of scale and more to the fact that large-scale businesses are able to use their size to achieve market power in terms of bargaining more effectively, setting prices and essentially realizing significantly higher prices (Bain 1968; Buzzell et al. 1975). Shepherd (1972) and Gale

(1972) in particular emphasized the market power logic behind the market share-profitability association.

A number of concerns about and criticisms of the PIMS approach emerged, some of which focused on the use of the relationship between market share and ROI when all contingency variables and independent variables were not included in reporting the relationships (Fruhan Jr 1972; Anderson and Paine 1978).

Causality in Market Share Profitability Association?

Mancke (1974) took issue with market power and efficiency interpretations of observed correlations between market share and profitability. He (1974) argued that a correlation between profitability and firm size, market share and recent growth could come about from chance alone if firms started out with similar size and profitability but faced uncertain and stochastic investment opportunities. Because the lucky firms would gain both profitability and market share for example, the association between the two could reflect common random disturbances and bear no causal relation to market power or scale economies.

In a reply to Mancke et al. (1977) argued that while Manke's emphasis on a random process explaining an association with, say, market share and profitability was sufficient, it may not be necessary, and that other explanations were also sufficient – such as the market power explanation of Gale (1972). Caves et al. (1977) believed that Mancke's (1974) proposition of a random process explanation of a market share profitability association was also a critique of market power explanations in general, but they argued that there was ample other evidence to support the industry concentration profitability association and market power explanations in general. Empirically, Bass et al. (1978) further questioned the homogeneity across industries in the market share profitability linkage and pointed out that empirically different coefficients on market share should be allowed for different industries.

Optimal Market Share

Bloom and Kotler (1975) talk about achieving an optimal level of market share for high market share firms. The argument is that a project to gain market share involves cost and risk and that even though higher share is likely to generate higher returns, one should consider the cost and risks associated with the investment. The risks are that higher market share firms are more likely to attract the attention of antitrust regulators as well as competitive visibility.

Karnani (1982, 1983, 1985) developed models where market share was a measure of competitive strength and is a marketing variable like advertising that could be adjusted or invested in as needed. The equilibrium or desired market share could be compared with actual market share to determine whether additional investment in market share would be worthwhile.

Market Share as a Measure of Competitive Performance

Many commonly used measures of performance are not available at the level of the business. Capital market valuations and accounting profit will include returns from other businesses in the firm that are active in different industries. Market share and change in market share are measures of business performance available at the level of disaggregation necessary for intra-industry analysis at the business level of the firm. There is a substantial history in the use of both variables as measures of competitive performance (Buzzell et al. 1975; Hamermesh and White 1981; Dess and Robinson Jr 1984; Brush 1996). Market share of a firm's businesses also is significantly related to the Tobin's q of the firm, a capital market measure of firm value divided by replacement cost (Smirlock et al. 1984; Wernerfelt and Montgomery 1988).

One concern in using market share as a measure of competitive performance is that Hamermesh et al. (1978) and Woo and Cooper (1981) showed that there are high-profitability low-market-share firms. The opportunity to

exploit a small but profitable niche may be more readily available to a small firm with low market share; a focus strategy such as this can generate economic profit.

Prescott et al. (1986) reviewed many of the arguments for the market share profitability relationship and sought to determine if the relationship was strong, and therefore a worthwhile goal for companies, or spurious, and thus not worth seeking. Like others (Hatten and Schendel 1977; Bass et al. 1978), they found the relationship was context-specific. Interestingly, they also found evidence for both direct and spurious linkages, which also varied across contexts.

Dominance, Multi-point Competition and Platform Competition

The use of market share as a measure of competitive performance that is persistent (Caves and Porter 1978) and shows declining or increasing trends in performance is uniquely suited to studies of dominance and multi-point competition. Karnani and Wernerfelt (1985) conceptualized relative size of market shares in multiple point competition as the focal point for mutual hostage agreements that could help reduce rivalry. Borenstein (1991) uses market share for his measure of dominant airlines for similar reasons. Also interested in dominance, and its fall, Ferrier et al. (1999) consider competitive moves and their association with market share in a study of the decline and fall of leaders. Lieberman and Montgomery (1988) review alternative measures of 'first mover advantage' and consider profitability, market share and survival rates. They show some logical arguments for situations in which market share might show a first mover advantage when none in fact existed. They also point out that the three measures are not always correlated, and like the market share attraction models (Karnani 1982, 1983), point out that firms could 'overinvest' in market share at the cost of profitability.

The ideas in dominance have also led to another stream in platform competition (Cusumano and Gawer 2002; Gawer and Henderson 2007; Gawer and Cusumano 2008). Here the argument is that there can be multi-side markets in which success, and market share, in one can lead to success, and market share, in the other. Network effects can also lead to the success of both sides when grouped together as a platform that will be more successful than either side would be on its own.

Conclusions

While market share has a long history as a business unit measure of performance, its importance in modelling and empirical research rose with the PIMS (1977) project. Subsequent debates about some of the causality issues in the market share profitability relationship (Schmalensee 1985), and then further debate over the importance of market power in performance (Rumelt 1991), diminished the centrality of research in strategic management using market share as a measure of competitive performance or as a necessary determinant of performance. While the role of market share as an indicator of the use of important resources and capabilities is still acknowledged, its role as a necessary condition of high performance is less important than in the past. Empirically, reliance on domestic market share as a construct is less relevant as the role of foreign competition and the need to consider global market share in many components and products has increased. In addition, global competition has reduced market power in domestic industries and reduced one of the drivers of how market share can influence performance. While market share is still important in analysis of multi-point competition, other trends in competitive analysis of dominance and platform competition, where two-sided markets and network effects of a platform are the basis of competition, have also repurposed the role of market share of a firm. In these cases, market share of a platform on which many firms participate may be what is important for the performance of the platform and the firms participating in the platform.

See Also

- ▶ Return on Invested Capital (ROIC)
- ▶ Rivalry and Collusion
- ▶ Strategic Business Unit (SBU)
- ▶ Strategic Groups
- ▶ Structure–Conduct–Performance
- ▶ Sustainable Competitive Advantage
- ▶ Variance Decomposition

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Market Structure

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Abstract

Market structure refers to the industry and market conditions that govern the interaction of the buyers and sellers in a given market. This includes the number and size distribution of buyers and sellers, and can also incorporate certain technological and organizational features of the industry, such as barriers to entry. Market structure is sometimes considered to determine the level of competition in a market, as in the approach of Michael Porter (his 'five forces' paradigm). More recent empirical and theoretical work has cast doubt on the causal linkages, and market structure is increasingly treated as an endogenous variable in various dynamic models of competition.

Definition Market structure refers to the number and size distribution of buyers and sellers, entry barriers, product differentiation, scale economies and firm-level organization. These factors are generally considered to affect the level of competition in a market, but strategic actions or innovation may weaken the causal linkage.

Market structure is a description of the characteristics and interaction of the buyers and sellers in a given market. In its most basic form, it specifies the number and size of buyers and sellers in the market. Other elements of a complete characterization of a market's structure are the degree of product differentiation, the importance of barriers to entry, the presence of ▶ economies of scale, the use of vertical integration into upstream and downstream activities, and the presence of product diversification (Scherer and Ross 1990: 4).

These concepts belong to the economics subdiscipline known as ▶ industrial organization. They are also used in ▶ competition (antitrust) policy.

The Structuralist Paradigm

In industrial organization, market structure is causal in the ▶ structure–conduct–performance paradigm. The most notable early developers of this structuralist paradigm were Mason (1949) at Harvard University and Bain (1959) at the University of California, Berkeley. In their approach, market structure is the critical factor that determines the conduct of buyers and sellers in matters such as pricing practices, tacit and overt inter-firm coordination, research and development expenditures, advertising, and investment in production facilities. These, in turn, determine the performance (profitability, economic efficiency etc.) of firms in the market (Teece 1984).

Product differentiation, for example, reduces the degree to which the goods offered by rival firms are perceived as direct substitutes. In theory, two firms selling differentiated products will bring less price pressure on one another than will two firms selling a single homogeneous product. Product differentiation can be based on technology (e.g., two different standards), but it can also be based purely on perception, such as the brand images created by advertising.

Similarly, the more that entry by new firms is constrained by barriers to entry, the more that incumbent firms may be able to avoid competing away all their profits. Barriers to entry can have any one of several causes, including technology (e.g., limited knowledge of how to build complex systems) and government regulation (e.g., local cable TV franchises; limited spectrum available to telecom network operators).

The presence of economies of scale may also limit the number of competitors. High fixed costs required to serve a small market may create a situation where very few firms are attracted to the market.

The organizational structures chosen by firms can also shape competition. When a firm integrates vertically, it may have the opportunity to build certain advantages over rivals in an upstream (e.g., producing specialized materials) or downstream (e.g., retail stores) activity. When a firm diversifies horizontally, it may be able to internally support price-based competition in one division by drawing resources from another in a way that a non-diversified rival is unable to match.

Market Structure and Strategy

The structuralist approach was originally developed for the purpose of guiding antitrust enforcement. But the normative theory of industrial organization looked, to some strategic management scholars, as if it could be transformed into a positive theory of strategic management, a guide to increasing profits by identifying concentrated industries (supposedly more profitable) and modifying (to the maximum extent legally possible) competitive interactions (Teece 1984). That is, if market concentration led to higher profits, then firms could see concentrated markets as being more attractive and, perhaps, shape market structure in a manner that would put them on a path to higher profits.

This approach to strategy was initially developed by Michael Porter (1980). His ▶ five forces framework places the focus of strategy on analysis on five factors:

- Rivalry among existing firms
- Bargaining power of buyers
- Bargaining power of suppliers
- Threat of new entrants
- Threat of substitute products or services.

Each of these is also one of the elements of market structure described previously. Strategy, according to Porter, is a matter of understanding these competitive forces and positioning the firm in such a way that it can best defend itself from them, which often involves identifying or creating entry barriers.

Although the initial conception of entry barriers (e.g., Bain 1956) was structural, subsequent extensions have introduced behavioural elements such as the expected reaction of incumbents to entry (Caves and Porter 1977), the imposition of buyer switching costs and other '▶ isolating mechanisms' (Rumelt 1984), and pre-emptive investment (Gilbert and Lieberman 1987).

The soundness of this structuralist approach to public policy and strategy has come under fire from at least two directions. One of these is the 'Chicago School' of antitrust analysis, which developed theoretical models showing that the use of many mechanisms held up as entry barriers, such as bundling of products or requiring resellers to maintain price levels, are efficiency-enhancing and will generally lead to a reduction of profits (Posner 1979). Another is empirical evidence that the influence of industry effects on firm profitability is limited; firm effects are larger (Rumelt 1991).

These critiques have themselves been challenged (see, e.g., Schmalensee 1987; McGahan and Porter 1997). But the critiques make the general point that strategy development should look at a more granular level than Rumelt, for instance, who puts forward the concept of isolating mechanisms as the firm-level analogue for market structure.

Recent work in strategic management has moved considerably beyond a structuralist approach. The ▶ profiting from innovation framework (Teece 1986), for instance, emphasizes the strategic role of complementary products and the 'appropriability' regime in determining firm-level profits. Recent developments have also emphasized the role of 'industry architecture' (the division of labour among firms in an industry and the modes of interaction) as a strategic choice variable (Pisano and Teece 2007).

Market Structure and Antitrust

Market structure remains a key (but declining in importance) concept in the economic analysis that undergirds competition (antitrust) policy. For

business conduct to be properly framed in antitrust analysis, a 'relevant' market must be defined, both as to its product and geographic boundaries. The market is then evaluated by calibrating the number and size distribution of firms within the 'relevant' market.

The scope of the market is defined in terms of the willingness of customers to substitute one product for another in response to changes in price or quality. Within such a relevant market, substitutability should be high, whereas products defined as outside the market should be poor substitutes for the products inside. In practice, the boundaries are not always clear. For example, goods within the product categories of desktop computers, notebook computers, tablet computers and smartphones can, to some extent, substitute across categories, and analysts choose different boundaries for different purposes. For example, the 'personal computer market' may be defined to include only desktop and notebook computers, while the 'mobile computing market' might include notebook, tablets and possibly even smartphones.

Once the market is defined, its market structure is typically measured by the number and size distribution of firms in each role, which can, in turn, be summarized by a single statistic such as the Herfindahl–Hirschman Index. For example, a 'monopoly' exists when a market has a single seller and a monopsony when there is only a single buyer. An oligopoly has a few large sellers and an oligopsony a few buyers. At the other end of the spectrum, a perfectly competitive market has numerous similarly sized buyers and sellers, none of whom exert any influence over price.

In the standard antitrust approach, competition is determined primarily by market structure: monopoly results in high prices; oligopoly results in indeterminate prices; perfect competition results in prices that are low and equal to marginal cost.

However, this formulation overlooks the presence of dynamic competition, at least in the many industries undergoing rapid technological change (Teece and Coleman 1998; Sidak and Teece 2009; Teece 2012). When dynamic competition occurs, market structure is reshaped by innovation. Market structures in such environments are determined in large measure by new technology – who owns it, and how it is used.

The argument was first articulated by Almarin Phillips in his study of the evolution of the civilian aircraft industry (Phillips 1971). Phillips noted that the development of competitive positions in the US industry was influenced by exogenous factors, particularly the jet engine technology available in the United Kingdom and Germany immediately after the Second World War. Market outcomes in the United States were very much affected by how and when Boeing, McDonnell, Douglas, Lockheed and others decided to tap into the largely external reservoir of technological know-how.

The concept of technological opportunity has been used as a surrogate for issues associated with an industry's external reservoir of know-how and ferment in the underlying technological base. However, technological opportunity is a passive concept that needs further explication. How and why some firms tap into technological opportunities remains enigmatic, and is dealt with, in part, in the open innovation and dynamic capabilities literatures. Perhaps reflecting some of these issues, market structure has, in fact, been de-emphasized by US antitrust regulators in the 2010 revision of the US government's merger guidelines (DOJ–FTC 2010). This seems appropriate, as evidence is mounting to show that market structure is more the consequence of competition than the cause of it.

See Also

- ▶ Competition
- ▶ Contestability
- ▶ Economies of Scale
- ▶ Five Forces Framework
- ▶ Industrial Organization
- ▶ Isolating Mechanisms
- ▶ Monopoly Rents
- ▶ Profiting from Innovation
- ▶ Structure–Conduct–Performance

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Markets as Networks

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Abstract

We discuss existing research that applies a relational, socio-structural lens to studying organizations and markets. Research in this field has described markets first and foremost as networks of enduring relationships and repeated interactions among organizations. We start by addressing some of the key findings of extant research regarding the antecedents of network structures and variations in their emergent structural properties. We then evaluate the implications of these network structures for a range of organizational behaviours and outcomes, exploring the underlying mechanisms for the effects of networks.

Definition 'Markets as networks' defines markets as structured patterns of enduring relationships and repeated interactions among organizations. This constitutes a sharp departure from neoclassical economics, which views markets as sets of arm's-length transactions among atomized corporate actors.

Since the 1980s, research in sociology, organizational theory and strategy has produced a rich set of insights about how networks of interorganizational relationships shape the behaviours and outcomes of corporate actors. This research has provided compelling evidence that the concrete patterns of relationships in which organizations are embedded carry meaningful implications for firms' performance in their exchange ties (Gulati and Sytch 2007) and acquisitions (Zaheer et al. 2010); revenues (Baum et al. 2000; Shipilov and Li 2008); market share (Zaheer and Bell 2005) and market entry (Jensen 2008); IPO success (Stuart et al. 1999; Gulati and Higgins 2003); innovation (Ahuja 2000; Schilling and Phelps 2007); growth (Powell et al. 1996; Stuart 2000; Galaskiewicz

et al. 2006); power (Fernandez and Gould 1994); acquisition of competitive capabilities (McEvily and Marcus 2005); alliance formation patterns (Gulati and Gargiulo 1999; Gulati and Westphal 1999); and for firms' propensities to adopt new administrative and governance practices (Davis and Greve 1997; Westphal et al. 1997).

The application of the relational, socio-structural network lens to studying organizations and markets is driven by three unique insights. First, networks of interorganizational relationships are systematically patterned and concentrated. This is in part due to the asymmetric distribution of private information about market opportunities, reliability and competence of potential partners, as well as networks' capacity to channel this information (Gulati 1995b; Gulati and Gargiulo 1999; Gulati et al. 2012). In addition, inertial tendencies and partnering momentum with familiar partners may extend beyond purely economic considerations (Li and Rowley 2002; Sorenson and Waguespack 2006). Also, the formation of interorganizational relationships is often driven by extra-economic factors, such social groupings of organizational agents (Kim and Higgins 2007), the distribution of structural opportunities in the network (Sytch et al. 2012), and patterns of social stratification in markets (Podolny 1994).

Second, at the level of a given relationship, interorganizational ties are frequently governed by a combination of social and economic logics (Uzzi 1997). In addition to relying on economic incentives and contracts, many relationships are governed by key elements of social control such as trust (Gulati 1995a; Uzzi 1997); mutual commitment, which extends beyond the implications of economic hostage provisions (Gulati and Sytch 2007); reciprocity; and close co-identification among exchange partners (Larson 1992).

Third, the application of the network lens to studying organizations and markets enhances the explanatory power of a range of organizational behaviours and outcomes. Indeed, it offers a unique analytical approach that intermediates the over-socialized and under-socialized accounts of action (Granovetter 1985). In contrast to either viewing organizations as atomistic actors or predetermining organizational behaviours and outcomes based on the characteristics of the social context, the socio-structural perspective allows for the role of social context, which is measured and customized. Specifically, the role social context plays in shaping organizational action and outcomes is tied to the exact patterns of social relationships in which organizations are embedded.

Studies in the socio-structural network tradition have examined numerous empirical contexts, including strategic interorganizational partnerships (Gulati 1995b; Gulati et al. 2012; Sytch et al. 2012); investment syndicate ties (Podolny 1993; Baum et al. 2005; Shipilov 2006); board interlocks (Davis 1991; Mizruchi 1992); and corporate litigation (Sytch 2010). Broadly speaking, the recognition of the ▶ embeddedness of corporate actors in webs of interorganizational relationships has produced two interrelated streams of research. One stream has focused on examining the antecedents of social structures, investigating how dyadic relationships develop and aggregate to shape the global properties of network architectures. The second stream of research has examined how a focal organization's position in networks of interorganizational relationships can shape organizational outcomes. More recently, this research has extended to consider how variations in the properties of global network structures – captured at the level of an entire industry or an organizational field – can affect collective outcomes across different interorganizational contexts. Below we summarize some of the key insights from each stream of work.

Where Do Networks Come from?

Much of the research on the formation of networks has focused on the antecedents of dyadic interorganizational ties as the central building blocks of social structures. Extant work has outlined several key mechanisms underlying the formation of interorganizational ties. Specifically, studies have offered compelling evidence that firms form dyadic relationships to *combine complementary resources* (Hage and Aiken 1967; Pfeffer and Nowak 1976; Wang and Zajac 2007). Recent research on network resources has

offered the motivations for this phenomenon, explaining the importance of organizational reach to financial, technological and human capital that may otherwise be unavailable within a particular organization's boundaries (Lavie 2006; Gulati 2007; Gulati et al. 2011). Several studies have also revealed strong evidence towards patterns of *homophilous attachment* in networks, where organizations link with alters that are similar on key discernable attributes such as status (Podolny 1994; Chung et al. 2000) or partner profiles (Powell et al. 2005). Furthermore, *spatial proximity* among organizations has been associated with the increased probability of *chance encounters* among organizational actors and reduced costs of maintaining the emerging connections, thus leading to the higher likelihood of a dyadic interorganizational tie (Sorenson and Stuart 2001; Powell et al. 2005).

Networks can also reproduce through a set of endogenous dynamics, wherein organizations tend to partner with prior partners and partners of current partners (Gulati 1995b; Gulati and Gargiulo 1999). The mechanisms of *familiarity* and *partner referral* that probably underlie these network formation tendencies can help ensure the formation of trust between firms (Gulati and Sytch 2008) and access to private information on network partners, both of which are absolutely critical in partner search and selection. Because social actors are unwilling to accumulate social debt, evidence of reciprocity in forming dyads also exists, whereby invitations to cooperate tend to be reciprocated over time (Lincoln et al. 1992; Ozdemir 2007). Interestingly, many of the mechanisms described above predict not just the formation but also the dissolution of dyadic relationships. Specifically, research finds that the absence of competitive exchange options (Baker et al. 1998); growing familiarity between partners (Levinthal and Fichman 1988); the compatibility of the partners' resources and the presence of prior ties between them (Greve et al. 2010); and the availability of common third-party ties (Polidoro et al. 2011) decrease the likelihood of the relationship dissolution (see, however, Greve et al.'s 2010 finding of increased dissolution in the context of multilateral alliances and joint withdrawals).

Moving away from the stand-alone analysis of collaborative network structures, studies have shown that the formation of collaborative and conflictual relationships among organizations is likely to be intricately interrelated, thus prompting the study of dual social structures (Sytch 2010). Sytch and Tatarynowicz (2013), for example, illustrate how dual networks of interorganizational collaboration and litigation over patent infringement and antitrust in biotechnology and pharmaceuticals are described by a strong pull away from unbalanced dyadic and triadic structures. The pull away from unbalanced dyadic structures, in turn, has pronounced implications for some of the key emergent properties of the global, industry-wide network.

More recently, research has also taken steps to link dyad-formation behaviours to the emerging properties of the global network context. The theoretical inspiration for this research dates to earlier work by Coleman (1990) and Giddens (1984), where micro-level behaviours are conceptualized as both shaping and being influenced by the emerging properties of the social context. Specifically, recognizing the strong socio-structural pressures to tie with prior partners and partners' partners (which tend to connect firms into densely connected network communities), research has examined the antecedents of bridging ties that connect firms from different network communities (Baum et al. 2003; Rosenkopf and Padula 2008; Sytch et al. 2012). Network communities refer to dense structural groups or clusters, where firms are connected more strongly to one another than to the other firms in the network. Bridging relationships have not only been connected to a unique set of organizational outcomes (Baum et al. 2012; McEvily et al. 2012), but have also been credited with keeping large social systems connected and coherent (Baum et al. 2003; Gulati et al. 2012). Some work, for example, has examined firms' entering into bridging ties as a function of the *incentives of value appropriation and distribution* from bridging and the *opportunity space* for bridging reflected in the number of available bridging contacts, which is afforded by the dynamically evolving global network structure (Sytch et al. 2012).

In understanding this linkage between the formation of dyads and the emergence of global

network typologies, small-world characteristics have received particularly pronounced scholarly attention (Baum et al. 2003; Gulati et al. 2012). Small worlds are a specific configuration of global-level network architecture that combines high levels of clustering with low levels of path length. Such networks thus differ structurally from some of the main stylized network forms such as regular or random networks (Watts and Strogatz 1998) and have been found to describe a wide range of organizational settings (Kogut and Walker 2001; Davis et al. 2003; Uzzi and Spiro 2005). Specifically, some work has documented that the emergence of small worlds was strongly driven by bridging ties formed as a result of (a) insurgent partnering by firms in more peripheral network positions in an attempt to improve their network position and (b) control partnering by more prominent firms that aimed to preserve their dominant position (Baum et al. 2003). In the context of the global computer industry, other studies have found that small worlds can follow an inverted U-shape evolutionary trajectory (Gulati et al. 2012). This latter work documented that the initially sparse and fragmented structure of the global network induced firms to actively pursue bridging relationships, which tied network communities into a small-world system. The excessive formation of bridging ties among network communities, however, eliminated the very diversity these ties were designed to harness. The subsequent decline in the formation of bridging ties led to a fragmentation of the network and a declining small-world property of average path length (Gulati et al. 2012). An important dimension of the work on the evolutionary dynamics of network structures considers how these networks can co-evolve with the technological landscape of the industry and how they are influenced by critical exogenous events (Madhavan et al. 1998; Rosenkopf and Tushman 1998; Gulati et al. 2012).

Implications of Network Structures for Individual and Collective Outcomes

In examining markets as networks and firms' embeddedness in these networks, scholars have considered a series of mechanisms by which social structures can affect organizational outcomes. These mechanisms relate to the concrete patterns of relationships in which organizations are embedded and drive organizational outcomes by determining (a) access to private information, knowledge and other resources; (b) levels of dependence and power among organizations by virtue of differentiated control over and availability of these resources; and (c) patterns of market stratification.

Access to Private Information, Knowledge and Other Resources

One of the central mechanisms by which interorganizational networks are believed to shape organizational outcomes is *access to private information*, *knowledge and other resources*, which are otherwise unavailable outside rich and deeply embedded network ties (Gulati 1995a; Uzzi 1997; Owen-Smith and Powell 2004). These interorganizational ties are often relationally embedded in that they feature high levels of trust, joint action and fine-grained information transfer (Uzzi 1997). Network connections thus open unique opportunities for learning from network alters and transferring tacit knowledge (Haunschild and Beckman 1998; Beckman and Haunschild 2002). Furthermore, network structures become informative in understanding organizations' horizons of observability and reference groups, thus adding significant explanatory power to the *dynamics of imitation* (Haunschild 1993; Greve 2009). As a result, several studies have linked network structures to firms' adopting various innovations and to the diffusion of knowledge and innovations through entire social systems (Davis and Greve 1997; Greve 2009).

The focus on access to knowledge and information has spurred research on how global-level network characteristics can determine individual and collective outcomes (Uzzi and Spiro 2005). For example, a study of 11 different industry-level alliance networks documented that firms display higher levels of innovativeness when embedded in partnership networks that most closely approximate small-world structures (Schilling and Phelps 2007). While the dense clustering in

networks preserves the requisite variety of information, short path distances enable firms to quickly diffuse and disseminate that information, thus jointly promoting the innovativeness of resident firms. Other work has systematically investigated what features of industry-wide network structures promote and hinder diffusion of knowledge (Tatarynowicz et al. 2013).

Dependence and Power

A deeper understanding of network topologies can also reveal the implications of *dependence and power* for economic exchange and organizational outcomes (Baker 1990; Bae and Gargiulo 2004; Casciaro and Piskorski 2005; Ryall and Sorenson 2007). Understanding the network structure of the market can offer deep insights into the availability of alternative exchange partners for the focal organization. Coupled with the criticality of the resources a given partner provides, the availability of alternative exchange partners can shape the focal organization's dependence on that partner. The partner's power over the focal organization can subsequently be expressed as the inverse function of that dependence (Emerson 1962). If the levels of dependence in a dyadic relationship are asymmetrical, the performance benefits to the stronger, dependence-advantaged firm are expected to come at the expense of the weaker, dependence-disadvantaged partner (Pfeffer and Salancik 1978; Aldrich 1979; Kim et al. 2004). Evidence has suggested, however, that excessive value appropriation by the more powerful party can limit value creation in the exchange tie, potentially leaving the more powerful party with a net loss (Gulati and Sytch 2007). More importantly, while the relationship between dependence asymmetry in a relationship and organizational outcomes is indeed driven by the logic of power, the relationship between mutual dependence (the combined level of partners' dependence in a dyad) and organizational outcomes is more likely to be described by the logic of relational embeddedness. Higher levels of mutual dependence translate into higher levels of joint action and quality of information exchange, subsequently boosting value creation in the exchange (Gulati and Sytch 2007).

Research on the implications of *brokerage* – network positions that entail spanning contacts that are otherwise unconnected – effectively interpolates between the mechanisms of access to private information and power (Burt 1992). Building on the argument that a brokerage position provides access to non-redundant private information and the benefits of controlling it (for a lively debate of this issue, see Burt 2008; Reagans and Zuckerman 2008), multiple empirical studies have documented the positive implications of holding this position (McEvily and Zaheer 1999; Zaheer and Bell 2005; Zaheer and Soda 2009). Actors in the brokerage position, however, effectively forgo the benefits of a strong reputational lock-in and social sanctions, which tend to be associated with dense network structures. As a result, some empirical findings have pointed to the possibility that the effect of brokerage may not be universal, but instead contingent on the broader characteristics of the industrial context. Specifically, brokerage is likely to exert a positive effect on organizational performance (Rowley et al. 2000) and be pursued by organizations (Gulati et al. 2012; Tatarynowicz et al. 2013) in those interorganizational settings where the benefits of access to novel knowledge and information outweigh the costs and risks of reaching into unfamiliar network regions.

Market Stratification

Dissecting markets as network structures can also provide important insights into the dynamics and implications of social stratification (Podolny 2008). In uncertain situations, where the quality of exchange partners is difficult to assess, the endorsement by highstatus actors can serve as a critical signal of quality. This, in turn, can be associated with important organizational outcomes, such as revenues, IPO success and market entry (Jensen 2003; Podolny 1993; Stuart et al. 1999).

See Also

► Embeddedness
► Innovation Networks

- ▶ Knowledge Networks
- ▶ Small World Networks: Past, Present and Future

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Markets for Technology

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Abstract

Trade in disembodied technology – the market for technology – has become common, giving firms more strategic options as they can buy, sell and use their technologies internally. At the industry level, this encourages a division of innovative labour between firms with a comparative advantage in the generation of innovation and those better at the development and commercialization of innovations. Technology trade depends upon institutions, demand conditions and the internal organization of firms. Whether markets for technology will thrive is unclear, as is whether strategic patenting will affect their development.

Definition Markets for technology imply the trade of technology disembodied from physical goods (markets for products or capital goods), organizations (markets for firms or M&A), human capital (labour market). They can be horizontal or vertical (between firms at the same or different stages of the value chain), current or futures (e.g., licences versus alliances for the future generation of technologies).

Markets for technology (Mft) involve the trade of disembodied technology. Technology can also move between firms, embodied in goods, organizations or people, that is, through markets for products or capital goods, markets for firms (M&A) and labour markets. Mft can be horizontal, when they involve firms at the same stage of the value chain (e.g., competitors); vertical, when they involve firms at different stages of the value chain; current (e.g., licences); or future (e.g., when firms ally to perform research that generates future inventions). Mft have grown in the US and worldwide (Arora et al. 2001a; Arora and Gambardella 2010).

The rise of Mft depends on several factors. A necessary condition is the opportunity to separate knowledge and technology from goods, organizations or people. The development of software and the engineering sciences, which have made knowledge more general and abstract, has been very helpful in this regard (Arora and Gambardella 1994). For example, biotech firms can embody early research outcomes in molecular structural formulae, and fabless or chipless semiconductor firms can embody their designs in software. This also makes it easier to protect knowledge, because it defines the object to be protected in less ambiguous ways. Indeed, Arora (1996), Gans et al. (2002), and Arora and Fosfuri (2003) have shown that intellectual property rights (IPR) encourage technology markets. When IPR are weak, specialist technology producers fear expropriation of their knowledge if they license it; as a result, they prefer to integrate it into downstream assets to sell the final products. In contrast, when IPR are well defined, producers can sell it to downstream firms with comparative advantages in such activities. Mft also thrive when technologies are general-purpose. This is because technology suppliers can serve many small producers that cannot develop the technology themselves (Bresnahan and Gambardella 1998), or because technology holders can license firms in distant product domains that therefore do not compete with them in the downstream markets (Gambardella and Giarratana 2013).

From the point of view of firm strategy, Mft provide companies with more options, as they can buy, sell or use technology internally. Arora and Fosfuri (2003) argue that in the ▶ licensing decision firms compare the revenue from licensing with the rent-dissipation effect generated by the addition of a new competitor in the product market (the ▶ licensee). A monopolist in the product market will not license because the largest rent that the monopolist can extract from the licensee is the duopoly profit, and the sum of two duopoly profits (the licensor's and the licensee's) is always smaller than monopoly profits. However, if there are more competitors in the product market, the rent dissipation is spread across all existing competitors and not fully internalized by the ▶ licensor. By the same token, the revenue from licensing also declines because there is not much rent that the licensor can extract from the licensee. Fosfuri (2006) shows empirically that the licensing follows an inverted U-shape pattern, with more licensing when there is an intermediate number of competitors. Arora and Fosfuri (2003) also show that licensing is less likely when product markets are differentiated and technologies are not general-purpose. This is because potential licensors dissipate more rents if they license. However, as noted earlier, if technologies are general-purpose, the licensors can sell them to licensees that operate in distant product markets, reducing the rent-dissipation effect. Finally, Arora and Fosfuri (2003) show that small firms, with limited product market shares, are more likely to license because they have fewer product market rents to dissipate.

Arora et al. (2013) analytically model why large firms are less likely to license. Since large firms hold many more technologies than smaller companies, it is natural that, if they have a bias against licensing, Mft are unlikely to grow beyond a given stage. They argue that, when licensing decisions are decentralized to business units (rather than retained at headquarters), firms are less likely to license, because top managers reward divisions less for their licensing profits than for their (more easily observed) production profits. Thus, business unit managers' incentives to scout for new technologies also diminish. Since larger firms are more likely to have decentralized R&D structures, this implies that they will be less likely than smaller firms to engage in technology

transactions. Evidence suggests that the propensity of larger firms to license increases when they centralize IP management and the licensing decision (e.g., IBM).

Arora and Ceccagnoli (2006), Gambardella et al. (2007), and Figueroa and Serrano (2013) confirm the higher propensity to license of small firms. This highlights the potential industry-level implications of technology markets. Small firms often provide a more conducive environment for creativity and specialized research. In contrast, larger firms have comparative advantages downstream. As a result, Mft encourage a greater vertical specialization – a 'division of innovative labour' – between technology specialists and more established companies. Arora et al. (2001b) show that the upstream technology sector acts as a 'transmission mechanism' that carries technologies across downstream sectors or firms. Specifically, they study specialized engineering firms (SEF) in the chemical industry, which, having learned how to design chemical processing plants and their technologies from chemical manufacturers in the First World, offered their services to chemical firms in developing countries, thereby facilitating growth in poor countries. Serrano (2013) confirms empirically that there are gains from trade in Mft, and finds that they are skewed: most of the gains are produced by the top 10 % of licensed ▶ patents.

As well, Gans et al. (2008) emphasize the role of institutions. They show that licensing occurs largely within a narrow window around the time in which patents are granted. With potential asymmetric information in these markets (e.g., Dushnitsky and Klueter 2011; Greenberg 2013), patents provide public information about the degree of protection or other relevant matters that ease trade. Ceccagnoli and Jiang (2013) is one of the first studies that deals with the demand rather than supply side of Mft. They show empirically that Mft grow thanks to factors that enhance the ability of licensees to integrate external technologies.

Finally, Galasso et al. (2013) have identified a new source of specialization in Mft. They argue that Mft may produce both private and social gains if firms differ in their ability to enforce patents. Firms which are better at enforcing patent rights tend to resolve disputes without resorting to courts, and thus save on litigation costs (which can be substantial). Empirically, they find that traded patents are less likely to be litigated, which implies that markets for inventions induce firms to trade according to their comparative levels of comparative enforcement advantage.

See Also

- ▶ Cross-Licensing
- ▶ General-Purpose Technology
- ▶ Innovation Strategies
- ▶ Knowledge Sourcing
- ▶ Licensee
- ▶ Licensing
- ▶ Licensing Strategy
- ▶ Licensor
- ▶ Management of Technology
- ▶ Open Innovation
- ▶ Patents
- ▶ Research and Development (R&D) Alliances
- ▶ Strategic Factor Markets

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Marshall, Andrew W. (Born 1921)

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Abstract

Andrew W. Marshall has contributed to the concepts and practices of strategy for decades and has been one of America's most enduring and thoughtful strategic thinkers since he joined the RAND Corporation in 1949. As Director of the Pentagon's Office of Net Assessment since 1973, he has been both influenced by and has influenced ideas and theories in fields such as competitive strategy, organization theory, long-term strategy and organizational culture. The diagnostic framework he developed for strategic thinking, net assessment, is not only consistent with many ideas in organizational behaviour and business strategy (such as the emphasis on evolution; limited rationality; strategic cultures; and organizational adaptation), but also holds potentially valuable lessons for future strategists in business and strategic management.

The Person: Marshall's Life

Andrew W. Marshall was born on 13 September 1921, in Detroit, Michigan, the eldest of two children born to John Pollack Mitchell Marshall and Katherine Marshall (both came from the UK). Born in 1921, his world view was shaped by childhood experiences of the Great Depression and the Second World War – events of great national significance that led to reorganization and restructuring across businesses, science and governments. Marshall wanted to join the navy as a young man, but it was his fate instead to be involved in the intellectual developments that led to a rise in strategic thinking in the US.

Growing up in Detroit he developed a strong interest in reading on topics such as chess, history, science, mathematics and warfare and strategy. He attended various schools in Detroit, graduating from Cass Technical High School in 1939. Much of his spare time was spent in the public library, enjoying reading and learning about new topics; but he also engaged in sports.

Following a period working in an automotive factory plant (and taking classes in engineering at a nearby university), Marshall enrolled at the University of Chicago to study economics, where his teachers included scholars such as Rudolph Carnap, Jimmy Savage, Milton Friedman and Frank Knight. He also interacted with people such as Herbert Simon during the Cowles Commission

seminars that were held at Chicago. He was interested in (and took classes on) mathematics, statistics, economics and philosophy (and sat in on many classes in addition to those that he took directly). But unlike many at the Chicago School of Economics at the time (see ▶ Chicago School, Marshall developed a strong interest in other disciplines (such as history and anthropology) as well, and a strong belief that if we were to understand the behaviour and decision-making of real people, 'rational choice' is inadequate. Interestingly, Frank Knight, although known as the father of price theory, as a teacher helped point to the importance of the limits of rationality: in his course he introduced examples of human limits to rationality, and hence limitations to economic reasoning (see ▶ Bounded Rationality, ▶ Simon, Herbert A. (1916–2001)).

Although shaped by his years at the University of Chicago, it was at the RAND Corporation that Marshall found an institutional framework that could accommodate (and encourage) his interdisciplinary interests. After his time at RAND, Marshall went to Washington DC to work for Kissinger on issues of intelligence, and shortly after to direct an office of net assessment (first housed in the White House, then at the Pentagon); he became the first (and only) director of the office in 1972 and has stayed in that position since. As a framework for strategic thinking, net assessment both builds on ideas from the field of strategic management and has potential lessons for it, due to Marshall's interest in the strategic management literature, which in turn originates from his interest in organizational behaviour and the theories of organizations.

Marshall has received numerous prizes and awards, including the Department of Defense Medal for Distinguished Public Service (2010); the Presidential Citizen Medal (2008); and the University of Chicago Professional Achievement citation (2006). And he has made lasting contributions to theories (academic publications and contributions) and practices of strategy (and the underlying disciplines, including organizations, economics, and political science). He is also known for his ability to think 'outside of the boxes' of both disciplines and other silos, and to see the relevance of very different approaches ranging from physics to psycho-cultural and bio-social anthropological approaches; for his belief in the need to look far ahead to understand the drivers of the strategic competition (and not just the policies of the day); for his uncompromising commitment to unbiased (diagnostic) research; and for his commitment to research (not to the power of positions and titles and politics) – research which ultimately helps us understand an aspect of the real world, not simply a neat theoretical aspect or concept or term. He also stands out for not being dependent on a position of power or title as director; and it is at least in part his unattachment to things and titles that enables him to do unbiased, diagnostic research, and willingness to think through strategic issues which may not be politically correct: 'we are here to inform, not to please', he says. His modest personality and dedication to research is thus central to how he developed and practises the framework of net assessment. That is an important point to keep in mind if future generations of strategists want to build on the lessons from Marshall. Scholars, practitioners and bureaucrats can try to replicate ideas and approaches, but they can never replicate the man. So, understanding the 'embedded' character of Marshall's personality and values is important.

His work and ideas have inspired generations of strategists and scholars and practitioners around the world. A recent article in *The Economist* quotes a Chinese strategist talking about the influence of the so-called 'revolution in military affairs' and how the Chinese studied Marshall's work: 'Our great hero was Andy Marshall in the Pentagon [the powerful head of the Office of Net Assessment who was known as the Pentagon's futurist-in-chief]. We translated every word he wrote' (The Economist 2012: 30).

RAND and the Intellectual Foundations for Net Assessment

In considering Marshall as a strategic thinker and contributor to strategy, it is important to understand the role of the RAND Corporation in providing the institutional context in which Marshall

developed his instinct to balance and shape a deep understanding of military and strategic issues with an analytical and practical need to understand these topics at a conceptual level. During Marshall's time there, RAND was one of the few key places that undertook pioneering work of both an interdisciplinary and a problem-driven nature (Augier and March 2011). The institution was home to pioneering developments within economics, game theory, behavioural social sciences, including many concepts and core ideas that came to underlie the field of strategic management and other business school approaches (Mirowski 2001; Augier and March 2011) (see ► Rand Corporation, ► Winter, Sidney G. (Born 1935)).

At the personal level, Marshall developed important friendships with RAND colleagues (including Herman Kahn, Herbert Goldhamer, James Schlesinger, Martin Shubik, Nathan Leites and many others), from a vide variety of disciplines. Moreover, he worked on a variety of topics including strategic warning, Monte Carlo models, the importance of organizational behaviour in intelligence, and the problems of estimating military power. His coauthors and collaborators during his decades at RAND included scholars such as Herbert Goldhamer, Armen Alchian, James Schlesinger, Sidney Winter, James March, Graham Allison, Jack Hirshleifer, Stephen Enke, Herman Kahn, Bernard Brodie and many others. Often he worked often on several projects at the same time, in small teams of collaborators that sometimes overlapped.

At the intellectual level, it was through his work at RAND that Marshall started thinking about the importance of a long-term framework for thinking about strategic nuclear competition with the Soviet Union, and he was able to develop the intellectual foundations for net assessment, in particular around three themes: organizational behaviour/theory; strategic management/early business policy; and evolutionary and cultural perspectives of human nature. While the first two of those are already embedded in the theories of strategic management today (although in varying degrees), the last element seems underused in the strategic management area, so that is perhaps another lesson for future strategist from Marshall's thinking and work.

Organizational Behaviour

A first major intellectual theme that Marshall found important for his work on strategy was the then emerging field of *organizational behaviour*. Through his work on trying to understand the Soviet Union, Marshall and colleagues at RAND were surprised at the political scientists' unwillingness to look beyond their narrow disciplinary models and try to understand what the Soviets actually did. With Joseph Loftus, a RAND colleague (who had served as a civilian analyst for the air force), Marshall discussed the limitations of traditional disciplinary approaches to understanding Soviet behaviour. Looking outside mainstream economics and political science, he found the early work of March, Simon and Cyert especially compelling. He also led an effort (with Sidney Winter, Richard Nelson and James Schlesinger) to set up a larger programme area on organizational behaviour at RAND, suggesting a programme or department devoted to understanding the strategic competition, using insights from the emerging research programme on organizational behaviour.

In the late 1950s and early 1960s, academic insights into behaviour and decision-making were just taking off and shaping into the field of what is now known as 'organization theory'; at the time this wasn't considered a field as such, but Marshall managed to find the early pioneering ideas and the scholars behind them, and build upon their ideas in order to be able to provide a better understanding of Soviet military behaviour (Augier and March 2011; Augier 2012). For instance, he organized seminars and meetings with small groups of people – one result of those is the well-known book by Graham Allison on the Cuban missile crisis, using different kinds of conceptions of decision-making to understand the decision process during the crisis (Allison 1971). And Marshall also found the Cyert and March discussion of organizational goals relevant for the understanding not just of opponents' but also of US

strategic goals and the realization that conflict of interest matters in organizations:

> Assuming that the United States is in a long, continuing strategic arms competition, what should its strategy be? Until goals are more clearly agreed upon, it is very difficult to say. But clearly there are many goals, and whatever they are, both sides compete within a number of constraints: relatively fixed resources over any short period of time and numerous complications in internal decision making processes that slow and diffuse reactions to the opponent's moves or to new technological opportunities. (Marshall 1972: vii)

Marshall worked on setting up the long-term project to carefully research existing contributions to organizational behaviour, and to extend and adapt the ones suitable to understanding military organizations. The project was never undertaken within RAND (in part because Marshall left for Washington in the early 1970s), but organizational behaviour became (and remains) an important intellectual foundation for the concept and practice of net assessment in Marshall's office in the US Department of Defense.

Extending the Understanding of Organizations to Organizational Strategy

Another major theme or research tradition that became important to Marshall and to the framework and the practice of net assessment is the field of business strategy. Marshall's interest in this field dates back to his years at RAND too. In the late 1950s and early 1960s, when Marshall was researching the field of organizational behaviour, he was also led to the early work of Joseph Bower and C. Roland Christensen on strategies of the firm. Academically, the field of business strategy is in many ways a natural extension of the field of organization theory, and the two areas are often considered the 'core areas' in business school research and teaching. Before those areas became well developed, however, the issues of organizations and how they pursue strategies were connected in Marshall's mind. As he noted: '[F]or me it was an extension to my interest in organizational behaviour. I was interested in what was coming out of the business school relating to understanding organizations, and the strategies that organizations have' (Marshall, personal conversation). In 1968 he also became the director of Strategic Studes at RAND and tried to re-think how one could develop an overall framework for reshaping RAND's work in strategy, to have a more long-term focus.

Thus both organizational behaviour and strategy ideas were important intellectual foundations for his paper suggesting the long-term competition framework (intellectually, this was the precursor of the net assessment framework). Written in 1969 and early 1970 (but published as a working paper in 1972), the paper was titled 'Long-term competition with the Soviets: a framework for strategic analysis'. Given the existing and continuing strategic arms competition with the Soviet Union, Marshall developed a framework for (a) assessing the nature of the strategic competition; (b) clarifying the goals of the US; and (c) developing a strategy for efficient competition. The belief was that such a framework and the implied ability to analyse programmes to improve the US strategic force posture would have several potential payoffs, including helping rebut arguments against programmes that would focus on strategic stability as the main US goal; providing a basis for developing improved policies for R&D procurement; and raising the issue of how well the US was really doing in the competition with the Soviets.

Thus, the ideas from the field of business strategy and their potential use in net assessment were already on Marshall's radar screen early on, but they also became particularly important in his work with Jim Roche, a former naval officer who also was a Harvard Business School graduate. Together they examined the potential of some of the business strategy ideas, combined with organizational behaviour ideas, for defence strategic planning (such as the need for a long-term perspective in strategy and organizations; the difficulties in organizational change; the need for understanding relative strengths and weaknesses; the importance of limited rationality in organizations and strategy; and the importance of history and bureaucratic constraints on decision-making

and behaviour; and the fact that developing efficient strategies depends on understanding the nature of the competition itself, which involves factors that are economic, political, sociological, organizational, and many others).

For example, Marshall and Roche (1976) combined ideas on organizations with ideas from business strategy, and discussed the need for a long-term framework for thinking about the competition with the Soviets. Criticizing the focus of defence planners with a horizon of 1–5 years, they argue that effective competition with the Soviets requires 'at least a 10–20 year perspective' because of the longer gestation period for major force investments, in part because the process of diffusion from the technology itself can span several years from the innovation. Thus, a long-term perspective is necessary for strategy.

A major idea in the 1976 paper is the importance of relative strengths and weaknesses. Strengths and weaknesses are ambiguous concepts; and focusing only on the 'threat' aspect of opponents, and their apparent strengths, neglects the importance of the possibility of exploitation of weaknesses. At the heart of such weakness is essentially limited rationality, on their part and on the US side, for if the Soviet planners were fully rational, they would leave no weaknesses open to exploit; on the other hand, if the US were fully rational as an organization in the sense of Simon, it would imply already knowing all alternatives and have access to all information, which would be reflected in current action. But in the presence of limited knowledge and rationality, it becomes important to know about the particular histories and constraints of the organizations: 'We fail to take Soviet constraints into account in our planning. . . . The Soviets, as ourselves, are constrained by inherited doctrines, forces, and notions' (Marshall and Roche 1976: 5).

Criticizing current planning as being often dysfunctional, Marshall and Roche noted also the importance of a *diagnostic* approach ('we need to closely examine the very nature of the 'business' we are in'), as well as the idea of strategy as a dynamic and evolutionary concept, a process that unfolds over time, and which can provide, not so much specific recommendations, but a context in which to understand and evaluate alternatives. In particular, the paper points to the fact that the US failed to account for Soviet weaknesses (which could be exploited by changes or new developments in strategy and tactics), and also failed to take into account Soviet constraint.

But understanding the opponent is not just about acknowledging his limited rationality and his weaknesses; if we understand how he makes decisions and how he views the world, we might be able to use that information to make certain decisions or moves that lead to greater disadvantage for the opponent. *Human nature*, *and understanding human nature*, *becomes*, *in itself*, *part of strategy.*

The Evolutionary and Cultural Perspectives on Human Nature

The third intellectual foundation for net assessment, the evolutionary nature of behaviour and its importance to strategy, was present in Marshall's mind already at RAND (even before he had read works by Darwin, which led to his interest in the general theories and ideas of evolution). Thus he extended his interest in organizational behaviour and organizational strategy to also include evolutionary and biological approaches to behaviour. This enabled him to better understand other phenomena such as the biological basis for certain behaviours and the behaviour of groups – things that were consistent with the empirical facts of the world but not very well understood (certainly not by economics or political science-based theories).

Important to Marshall's views on human nature is his friendship with Herman Kahn (and, a little later, Nathan Leites). In the early 1950s the two would discuss the need for a more realistic framework for understanding human behaviour – one that crosses some very fundamental boundaries. Kahn, like Marshall, was an avid reader, and for many years they spent almost every night and weekends together save for the time they were travelling. Their professional areas differered considerably – Kahn was interested in bomb design – but they wrote papers together, and

Marshall worked with Kahn on Monte Carlo simulations of one of the designs of an early thermonuclear device. They would go to the library and read books by Margaret Mead and early anthropology work on culture, and share stories about the more colourful aspects of human nature. They concluded that, not only does human behaviour matter, but so does the context in which it operates (often organizations). (Kahn had been in the Army Signal Corps and was on the Burma Road and some of his observations drew from that.) Human nature is constrained and embedded and enabled by organizations and other institutional structures; but there are also certain evolutionary, and psycho-cultural aspects of human nature that may give us insight into behaviour.

Both at RAND and after, Marshall became increasingly interested in gaining a deeper understanding of the evolutionary roots of human nature, beyond what was found in the concept of limited rationality. Both he and James Schlesinger (who had started as Marshall's research assistant at RAND and who later, when he became Secretary of Defense, worked closely with Marshall) had read some of the works of Robert Ardrey (1966), Konrad Lorenz (1966), Tiger and Fox (1971). There are several labels used for this work including 'the zoological perspective', 'biosocial anthropology' and 'biosociology'. Marshall's belief was that even in the fields of defence and security, decision-makers and organizations are influenced by their path-dependent and evolutionary nature. Organizations and the decision makers in them are also shaped by the culture in which they find themselves, an insight that Marshall would also discuss with Nathan Leites in particular, who worked on developing various psycho-cultural and psychoanalytic understandings of decision-making (Leites 1948).

Lesson for Business Strategy 1: The Need for Interdisciplinary Analysis

Although much of Marshall's work is unpublished (and/or still classified), there are several important lessons from his approach to the field of business strategy. One concerns interdisciplinarity. For a real understanding of strategic issues, it is not enough to be 'interdisciplinary' in the sense of extending from economic-based theories (or political science-based theories), and modify a few assumptions and borrow an idea or two from the neighbouring disciplines of sociology and psychology. Marshall readily understood that strategy (in business or military organizations) is ultimately about human nature, and human nature is a lot more complex than any one or two disciplinary perspectives can comprehend, so one shouldn't let disciplinary or political boundaries determine how one thinks. Rather, it was the nature of people, and of real organizations, and how they behaved and thought, that would determine which disciplines, concepts, and ideas one should use to understand strategy. Hence the use of multiple methods and a plurality of models relevant to net assessment; for the point is (remarkably similar to the point Simon made with regard to the need for plurality of models), with the plurality of theories, ideas, and models used, one can no longer view the world as divided by disciplines, a view which tends to obscure the common thread or themes between disciplines. This is of course a challenge for today's scholars who are faced with pressures to publish in disciplinary-based journals; but for a field like strategic management which (in theory at least) is more open-minded, this may be an opportunity for learning. The field of business strategy started off building on economic views; but it is increasingly realizing the need to understand cultural and other non-economic elements as well.

Lesson for Business Strategy 2: The Importance of Diagnosis in Strategy

Another important emphasis that also emerged more clearly was Marshall's point about the importance of diagnosis in strategy, as well as the idea of strategy as a dynamic and evolutionary concept, a process that unfolds over time and which can provide not so much specific recommendations but a context in which to understand and evaluate alternatives. 'Strategy is all about taking advantage of asymmetries in a situation,'

Marshall recently reflected, but he refrains from making policy prescriptions, since only then can he focus on an objective understanding of strategy and of how to create and influence certain asymmetries. A number of factors are seen as relevant to the development of a strategy in business as well as defence; among them, considering the nature of our and our opponents' environment (including externalities); understanding the differences between how the organizations and cultures in other countries may influence their decision-making; and understanding those differences not through one particular disciplinary lens, but from an empirically relevant point of view, including differences in terms of technology, in world outlook, in rationalities, management style, in organizational and national cultures, and so on.

Since the spread of consulting in the field of strategic management and organization, the field has lost more than a little of its innocence; strategy consultants James March noted, 'talk funny and make money' (March and Sutton 1997) and, like policy, consultancy raises some fundamental problems of objectivity and constituents (ibid.). Marshall's faithful belief in diagnosis and the need for strategists to focus on getting a correct diagnosis of the situation could help the field of business strategy regain more scholarly objectivity.

Lesson for Business Strategy 3: Good Strategy as an Empirically Driven Endeavour

A third major lesson from Marshall's thinking in the field of strategic management is to always let the empirical realities drive one's research, not the discipline or sub-specialty that one works in. This does not mean that strategy and net assessment are anti-analytical; on the contrary, it means that they are empirically based in Simon's (1997) sense. By staying open to the empirical realities of the field, we will also become better at seeing the need for getting out of the mainstream disciplinary boxes. At RAND, Marshall and colleagues objected to the political scientists' and economists' refusal to look at the real organizational behaviour of the Soviets and their insistence on staying within their disciplinary theories. A refusal to see outside our own disciplinary boxes and let evidence be the reminder that we need to revise our theories is as damaging today as it was during the Cold War. The world may have changed, but neither resource-based views nor capabilities theories (or any other one tradition in strategic management), or any political science-based international relations theory for that matter, can help us understand current or future strategy issues (for instance, western theories cannot explain much of the strategic behaviour of Chinese businesses).

Closing Thoughts

Marshall's ideas on business strategy are natural extensions of his interest in organizational behaviour, thus continuing his focus on the importance of human nature. Essentially, the emphasis on strategy and adaptive processes is, in a real Simonian way, an implementation of 'satisficing' ideas: without perfect rationality, organizations, including military organizations, cannot maximize. But organizations try to survive and get the best possible out of any situation; and when they can't, they adapt to their environment in order to survive. In the organizations literature, this is recognized as behaviour that is sought by organisms and organizations in efforts to adjust to their environment in order to survive. Adaptive organizations seek behaviour that is good enough to get by; they are not searching for optimal or maximizing alternatives.

Marshall's early curiosity might have also led him to the interest in questions rather than answers, something which later became an important part of his own mentoring style and a way of thinking. While most of the world (certainly in academia and business) are focused on providing answers to blurry questions, leading to recommendations, to Marshall 'it seemed kind of obvious that diagnosing and framing problems and really understanding them was really important' (personal conversation).

There are plenty of reasons why the field of business strategy can learn a good deal from Marshall's thinking (a correct diagnosis of the strategic landscape, for instance); and there may also be examples of current 'empirical anomalies' – big empirical issues that current theories can't address – which may serve as fruitful points of intellectual collaborations between the strategy approaches in business and defence (it was, after all, the 'empirical anomalies' in neoclassical theories of the firm and their inability to explain central issues in strategy that helped form the field of strategic management: see Teece and Winter 1984). A recent example is provided in the research by Professor Phillip Karber on the construction of the Chinese Underground Great Wall – an underground system of tunnels (see Wan 2011). While the empirical facts that Karber's team is providing do not make much sense within a narrow economic or international relations-/political-science perspective, it is a very good opportunity to look into some details of how organizations and cultures influence behaviours; how technological progress may differ across countries; and how one needs to look at the influence of historical and cultural patterns to understand the greater strategic implications of these behaviours. Developing a set of ideas and approaches around this empirical fact, as Marshall did around the Soviet Union in the 1950s and 1960s, may lead us to a much better understanding of the actual behaviour and strategies of institutions and organizations across the global landscape.

Marshall's lasting and important contributions to strategy and strategic thinking, the framework of net assessment, is one that appeals to defence strategists, scholars, and business strategists alike (as well as a variety of other disciplines), reflecting the broad and interdisciplinary roots and vision of Marshall himself.

See Also

- ▶ Military Strategy
- ▶ Rand Corporation
- ▶ Simon, Herbert A. (1916–2001)
- ▶ Winter, Sidney G. (Born 1935)

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Mason, Edward Sagendorph (1899–1992) and Bain, Joe Staten Jr (1912–1991)

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Abstract

Edward Mason and Joe Bain developed the ▶ structure-conduct-performance model of ▶ industrial organization, a subdiscipline of microeconomics. Eventually this model, with emphasis on structural dimensions, became the basis of industry analysis in the study of business strategy.

Edward Mason and his student, then colleague, Joe Bain played key roles in the development of the sub-discipline of microeconomics known as ▶ industrial organization. The tribute to Bain when he was named a Distinguished Fellow of the American Economic Association (1983) declared him 'the un-disputed father of modern Industrial Organization (Edward S. Mason and Edward H. Chamberlin were its two grandparents but Joe Bain was the father)'. Their contributions to the strategic management field were through their development of the ▶ structure-conduct-performance industrial organization model that was the underpinning of what became industry analysis in the context of business strategy.

Edward Mason started his graduate economics studies at Harvard in 1919, earned his Master of Arts degree there, took advantage of a Rhodes Scholarship to Oxford and then returned to Harvard, completing his doctorate in 1925. He joined the Harvard faculty and, apart from a temporary position in Washington during the Second World War, remained there throughout his career. Early on, his teaching and research focused on the organization and control of corporations, direct regulation of industry and the economics of antitrust. Undoubtedly, his views and interests were influenced by the economic times. As Germany and Italy embraced corporatism, and the New Deal flirted with it, the question of what drove business performance, particularly in terms of profitability and employment, was at centre stage.

While microeconomic theory predicted performance outcomes in markets characterized by pure competition and pure monopoly, there was much less understanding of market performance under intermediate, and much more prevalent, structures such as monopolistic competition and oligopoly. Mason saw that most empirical evidence about the links between structure and performance came from antitrust litigation and concluded this wasn't good enough. He called for the study of different types of industrial markets and business practices and of the effects on prices, outputs, investment and employment (Mason 1938). The ultimate goal was to use this knowledge to inform public policy creation and implementation. So the structure-conduct-performance (S-C-P) paradigm was initiated. The task was to identify which structural dimensions (amongst them seller and buyer concentration, entry and exit conditions, and product differentiation) led to what kind of conduct (primarily interdependent or independent) that, in turn, led to what type of performance, specifically performance in terms of technical, allocative and dynamic efficiency. Scores of industry studies that identified the

S-C-P characteristics of individual industries, and cross-sectional studies that sought empirical evidence of the S-C-P links, followed.

Joe Bain came to Harvard after graduating from the University of California, Los Angeles, in 1935. He obtained his Harvard Ph.D. in 1940 and then took an appointment at the University of California, Berkeley, where he spent his entire career. At Harvard he studied under Mason and was one of the graduate students taken with the emerging area of industrial organization.

Joe Bain was an empiricist, spending much of his research efforts operationalizing the S-C-P model. His main focus, and contribution, involved the condition of market entry. His analysis evolved over the years (Bain 1972) and was clearly set out in his most important work, *Barriers to New Competition* (1956). He identified three sources of entry barriers that would allow incumbent firms to persistently earn economic profits. These were absolute cost advantages, product differentiation advantages and significant scale economies. Firms with cost advantages unattainable by entrants, and firms with product differentiation advantages such as brand loyalty, could price above their costs and earn rents without inducing entry. Firms that had moved out the scale curve could be insulated from entry if establishment of an efficiently sized operation would add so much to market supply as to drive price below producers' costs, including the entrant's.

Importantly, Bain went from structure to conduct in his exploration of pricing to deter entry (limit-pricing). The idea is that when barriers exist, incumbent firms can set prices above their own costs but below the short-run profit-maximizing levels in order to discourage or foreclose entry. He also distinguished between the immediate and general condition of entry, recognizing that the least disadvantaged potential entrant might be very different from others and that this would condition a limit-pricing policy.

Bain brought rigour and originality to the measurement of the structural characteristics with which he was dealing. He paid careful attention to market definition when calculating concentration ratios, especially when using official industry classification systems. A numeraire for measuring the height of an entry barrier was based on the extent that price could be set above costs before triggering entry. Particular attention was paid to the measurement of scale economies. He distinguished between real and pecuniary economies, paid attention to the shape of the scale curve (both its slope and the minimum production volume at which scale economies were exhausted) and relied on engineering estimates of scale. The same care was taken in measuring profitability as a dimension of performance.

The contribution of industrial organization, and by extension the contributions of Mason and Bain, to the study of strategic management has been documented by those in the field. Indeed, Michael Porter (1981, 1983), who trained as an industrial organization economist, was responsible for much of the synthesis and has documented the legacy. More recently, Powell et al. (2010) reviewed their contribution.

Interestingly, in the early 1980s Porter (1981) explained that the industrial organization paradigm had not been integrated into the business policy field in part because of differing frames of reference (public versus private). Or, as Joe Bain put it in a graduate class in the early 1970s, 'economics is the study of how the economy works; business administration is the study of how to work the economy'.

See Also

- ▶ Industrial Organization
- ▶ Structure–Conduct–Performance

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Matrix Organization

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Abstract

The matrix organization is a structural form characterized by dual (connected) hierarchies and multiple bases of departmentalization. Matrix organizations typically deploy functional departmentalization and product market departmentalization simultaneously. They are also used in project management contexts. The purpose of a matrix organization is to combine the benefits of functional specialization with a project or product market focus. The matrix structure is typically used when the organization needs in-depth functional skills and, at the same time, flexible and rapid adaption to changing environmental circumstances.

Definition A matrix organization is an organization structure characterized by dual overlapping hierarchies and two or more bases of departmentalization. Matrix organizations typically deploy functional departmentalization and product market departmentalization simultaneously. Employees generally serve in multiple departments and report to multiple supervisors.

The matrix organization is a structural form characterized by dual overlapping hierarchies and multiple bases of departmentalization. Matrix organizations typically deploy functional departmentalization and product market departmentalization simultaneously. Employees generally serve in multiple departments and report to multiple supervisors. The purpose of a matrix organization is to combine the benefits of functional specialization with project or product market focus.

Matrix organizations have long existed in some form, but gained notoriety in the 1960s and 1970s in complex project management contexts such as aerospace and global construction firms. Their promise of providing focus on the twin goals of developing technological capabilities and responding effectively to changing market opportunities fuelled interest in this ► organizational form.

Matrix organizations represent a range of possible structural arrangements rather than a specific form and can be found in many industries (Kolodny 1979). Hospitals, for example, may group individuals in both functional and product market departments (Burns and Wholey 1993). Emergency department nurses may be part of the nursing department, reporting to the director of nursing (their functional manager) and the emergency department itself, reporting to the director of emergency services (their product manager). A global multiproduct firm may be

organized by product and geographic markets. Such a firm might simultaneously assign employees to national divisions and product divisions. The product divisions could leverage scale economies by producing for the global market, while national organizations could market and distribute products focused on particular national markets. Product design and operations employees could serve in both divisions and be evaluated by both managers. The dual hierarchy is what distinguishes a matrix organization from a multi-divisional firm with functional or product subunits.

Firms operating in project management contexts often rely on matrix organization forms. In such contexts, functional managers develop technical capabilities that are temporarily deployed to particular projects. The individuals deployed report to both their functional manager and the manager of the project to which they are assigned. Project managers typically have project requirements and a budget to meet them, and functional managers develop the technical competences to match the needs of the project managers and assign employees to projects. Construction firms, advertising agencies, consulting firms and engineering design firms may adopt this form.

Advantages and Disadvantage of Matrix Organizations

The matrix organization ideally promotes the development of technical expertise within functions and horizontal coordination across functions. The key advantages of this organizational form are greater market focus and adaptability than functional organizations, and greater scale economies and less duplication than multi-divisional organizations. Successfully implemented, it facilitates rapid management responses to changing market and technical opportunities (Davis and Lawrence 1978).

Matrix organizations gain scale economies and efficient utilization of human capital by allowing flexible sharing of employees across product lines or projects. Since the expertise is shared across multiple products, a matrix organization offers greater scale economies than would be provided by a multidivisional organization. In an effective matrix organization, an internal market for talent guides employees with specialized and valuable skills to their highest valued use, resulting in more efficient use of human resources. The need to develop expertise valuable to product managers incentivizes functional managers to develop capabilities relevant to the market.

Adapting to new market opportunities normally requires cross-functional coordination as new products are developed, old products are modified or additional markets are entered. The functional employees' explicit reporting relationship to product market managers, as well as their functional manager, facilitates this cross-functional coordination.

The distinctive features of matrix organizations create challenges for managers familiar with operating in more traditional organization contexts. Specifically, the dual reporting structures that characterize matrix organizations can lead to role ambiguity, role conflict and role overload, as individuals have to navigate the multiple and possibly conflicting goals and priorities of their multiple supervisors (Ford and Randolph 1992). Matrix organizations also pose performance measurement problems relative to organizations with more independent strategic business units (SBUs). This undermines efforts to maintain accountability as managers may be accountable for results without hierarchical control over the relevant resources.

The horizontal integration the matrix organization offers can come at the cost of proliferating committees and other forms of mutual adjustment and 'turf wars' among middle managers (Bartlett and Ghosal 1990). Consequently, managing the dual reporting structures requires additional management overhead (Davis and Lawrence 1977). If not carefully managed, more middle managers, more meetings and more conflicts may delay decision-making. Several authors have noted that matrix organizations embody behavioural as well as structural changes to meet these challenges effectively (Kolodny 1979; Bartlett and Ghosal 1990). Managers should be comfortable with information and power sharing and rely more

heavily on negotiation, team development and other interpersonal skills.

Matrix Organization and Strategy

Functional organizations (U-form) pool specialized resources by functions to capture scale economies, develop expertise and provide career paths for specialists. Top management provides the product market focus and accountability for financial success within the markets served in the U-form organization. The scale economies associated with this organization form, the limited duplication of resources and the opportunity for streamlined administration have led authors to identify this form as well suited for firms pursuing a cost leadership strategy and a single business or dominant business corporate strategy (see, for example, Barney 2011).

Multi-divisional organizations (M-form) coordinate functional specialists to focus on one product market. In this organizational form, division managers typically lead departments focused on distinct product markets and operate with a large degree of autonomy. The relative autonomy of divisions in ▶ M-form firms clarifies performance measurement. The product market focus facilitates functional coordination within the product market. For the firm implementing a related linked or unrelated diversification strategy, the M-form organization can provide greater market focus and accountability than the U-form organization. Multi-divisional organizations, however, require duplication of functional capabilities within each product market division. When those resources are costly to maintain or not fully utilized within the division, the duplication of the M-form creates a cost disadvantage over a more focused competitor. M-form organizations can also face difficulties developing a competitive level of technical expertise.

Because matrix organizations group individuals in functional and product markets, they can harness the advantages of both M-form and U-form organizations. Functional managers are responsible for developing technical expertise, while product market managers leverage that expertise in their markets. Matrix organizations are most common in firms with multiple products operating in multiple markets.

In particular, the matrix organization can facilitate execution of a related constrained diversification strategy. With a related constrained strategy, the firm seeks to compete in multiple markets, sharing facilities, technologies, resources or capabilities across those markets. The related constrained firm seeks to gain a competitive advantage by leveraging economies of scope. To do so successfully, organization mechanisms must allow efficient transfer of strategically valuable resources across product markets (Prahalad and Hamel 1990; Markides and Williamson 1996). A matrix organization may facilitate this strategy by organizing both by product market and by the capability, resource or core competence to be shared.

The lateral linkages required to manage a matrix organization make this structure generally unsuited to firms pursuing cost leadership strategies. For business strategies requiring rapid adjustment to changing market trends and, therefore, rapid product development, a matrix organization may be considered more suitable. Galbraith (1971) identifies an increased volume of new products developed as the most common pressure to move to a matrix organization.

Matrix Organizations and Environmental Context

The advantages of matrix organizations are normally associated with contexts involving complex technologies and dynamic environments. Complex technologies require specialized knowledge by those producing and designing the products or services, thereby creating a need for well-developed functional expertise. This expertise is often costly to develop and maintain and may be central to the firm's competitive advantage. Under such circumstances, it is particularly important that this expertise be fully developed and efficiently utilized. The flexibility with which human resources can be deployed

in matrix organizations and the ease with which they can be redeployed facilitates efficient utilization.

For firms operating in dynamic markets, flexible and rapid responses to new consumer preferences or other market opportunities requires greater cross-functional coordination than functional organizations provide. A matrix organization, with its lateral linkages, can facilitate this cross-functional coordination without the duplication of functional capabilities that characterize M-form organizations.

See Also

- ▶ M-form Firms
- ▶ New Organizational Forms
- ▶ Organization Theory
- ▶ Organizational Design
- ▶ Strategic Organization Design
- ▶ Structural Differentiation and Integration

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McKinsey, James Oscar (1889–1937)

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The first book on the subject of business budgeting and the first textbook on managerial accounting were authored by James O. McKinsey, a professor at the University of Chicago. Despite these innovations, McKinsey is best remembered for the management consulting firm he founded, which to this day bears his name. Before publication of McKinsey's books, internal users of accounting information were neglected by educators. Only through years of experience could an accountant master the knowledge needed to profitably use management accounting information.

McKinsey was one of the main contributors to the development of business education in the United States during the first third of the twentieth century. In 1924 he became president of the American Association of University Instructors in Accounting, the predecessor of the American Accounting Association. Although his contributions were many, McKinsey's career in accounting education was short. Following his year as president of the accounting organization, he changed his interest to management. In 1925, he founded McKinsey & Company, consultants, and in 1926 became a professor of business policy at the University of Chicago. In 1936 he was elected chairman of the American Management Association, an organization he helped to establish. Much has been said of McKinsey's contributions to management consulting, most of it aptly summarized in W.B. Wolf's *Management and Consulting* (1978).

The Early Years

McKinsey was born in Missouri in 1889. In 1913, a year after receiving an undergraduate degree, he obtained a law degree from the University of Arkansas. McKinsey subsequently earned both Bachelor's and Master's degrees from the School of Commerce at the University of

Chicago. He received his MA in 1919, the same year that he passed the Certified Public Accountant examination. Before McKinsey had completed his degree course at Chicago, George Frazer, a professor of accounting, asked him to join the accounting faculty. Frazer also hired McKinsey to work in his public accounting firm (Frazer and Torbet) and sent him to New York to establish an office of the firm there. While in New York, McKinsey lectured in accounting at Columbia University. In 1921, he returned to the University of Chicago.

He began his prolific writing career in 1919 with a guide to the Revenue Act of 1918. In 1920, he coauthored *Principles of Accounting*, published by the University of Chicago Press. McKinsey took a pioneering approach to accounting education through his emphasis on principles over techniques. He required students to view accounting as managers rather than as bookkeepers. He produced three more books in 1922, including *Budgetary Control*, which is a classic on the subject now described as 'management by objectives'.

Budgetary Control

The period after 1920 was one of rapid growth in the use of budgets, and the publication of *Budgetary Control* provided impetus to this emerging field. McKinsey's book was the first standard work on budgeting and the first attempt to cover the entire budgetary programme. Before publication of McKinsey's book, budgeting was not even considered applicable to business operations.

Despite the fact that the book was a pioneering effort, it covered most aspects of budgeting. In 1945, *Budgetary Control* was included in a list of the 12 most indispensable books in the field of management. The author justified the inclusion by stating that McKinsey's work had lost none of its value with the passage of time. The communication aspects of the budget were probably McKinsey's greatest contribution. He saw the budget as a device to integrate all decision areas of business administration.

Managerial Accounting

McKinsey's philosophy of accounting was that it should serve as a basis of functional control in a business and had to be more than a history of past results. McKinsey felt that accounting education had been oriented towards night courses for bookkeepers and emphasized the creation of records. When traditional universities began to offer accounting courses, the same teaching methods were used as those followed for evening classes. However, day students were different from evening students in that only a small percentage were destined to be public accountants. McKinsey recognized a need for accounting courses that would emphasize the uses of accounting data. The preface to his *Managerial Accounting* (1924) stated that it was now time to organize the business curriculum into one coherent whole.

In 1935 McKinsey completed a management consulting engagement for Marshall Field & Company, the large Chicago department store. The Board of Directors was so impressed that he was hired as chief executive and chairman of the board. The last 3 years of his life, 1935–1937, were spent with Marshall Field & Company.

See Also

- ▶ Business Strategy
- ▶ Chicago School
- ▶ Consulting Firms
- ▶ Management by Objectives and Self-Control

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Measurement of Social Value, the

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Abstract

This article considers the measurement of social ▶ value – that part of economic value due to the provision of services that have a value to the community which is not captured privately in the financial returns to an economic enterprise. The contribution of the provision of these services can involve externalities, which may be either positive or negative. The article discusses the growth of social enterprises, which may be run on a not-for-profit or for-profit basis, and the relation of social value to the concept of externalities. The entry concludes with a brief outline of the methods that have been applied to try to measure social value and social impact.

Definition

The measurement of social value is a process that identifies that part of economic value due to the provision of services and goods that have a wider value to the community – for example, in areas such as education, health care and social housing – and that are not captured privately by economic enterprises.

The field of strategy has much to contribute to the way enterprises invest in social innovations to improve society. The assessment of the social ▶ value of an investment strategy is similar to, but in many ways more complicated than, the assessment of the economic value of any investment. Sometimes, private corporations decide to make social investments part of their *corporate social responsibility* programmes. But, to keep things simple, we will focus on the social enterprise whose mission is to maximize social welfare, given its sustainable resources. How do we estimate a priori the social value of the investments made by such enterprises?

Economic value consists of two parts: private value, which is appropriated by individuals and enterprises, and social value, which accrues to society more broadly. It is easy to quantify the idea of private value: these are the cash flows that accrue to private parties. When consumers want such a product or service but do not have the willingness (or ability) to pay, then a private firm will not invest. However, the social value may be high, as, for example, in the areas of education, health, and housing for the poor.

The social value of any good or service is its contribution to welfare, aside from the value that can be captured privately. In practical terms, social value is difficult to measure since its value is often associated with the concept of ▶ externality. An externality can be positive, as when the cultivation of honey bees also leads to the fertilization of flowers and crops. Negative externalities are found in industries that lead to pollution, environmental damage or global warming. Usually, the optimal prescription for these cases relies on governments to strengthen property rights so that those that are hurt can claim compensation from those responsible. However, government policy will often fail, not only for political reasons but also because of the high risk and uncertainty associated with many good social projects. These are the kind of projects that attract social entrepreneurs.

Social enterprises are, by the claims vested in the label of "social", obligated to evaluate their contribution to social value. Social enterprises come in many forms – ranging from organizations that sell a social lifestyle product to those that provide services to those who do not have means, and hence do not have the willingness, to pay. In the case of products such as those sold by the Body Shop or Ben & Jerry's, customers are drawn to the product because they embrace the social message. And, given the incomes, they are

willing to pay for it. Here, much of the economic value is captured privately and therefore attracts private investment.

At the other end of the spectrum, there are those products and services that are desperately needed by millions of people who cannot pay for them. The social value in such circumstances is enormous but the private value is low because people do not have the means to buy the goods and services. The epidemic of HIV that has caused so much suffering in Africa and elsewhere, for example, has a particularly severe impact on the poor, who have no access to health care and who could not pay for the care in any event. Here there is a tremendous gap between social and private returns. Social enterprises who serve these communities are often non-profit enterprises and survive thanks to the largesse of foundations.

If the measure of private return is cash flows, what is the measure of social value to the investments where social and private values differ so much? The biggest problem is that it is often very difficult to quantify these returns by monetary value. Instead, measures are adapted to the situation and often focus on cost efficiency and outputs. It is very useful to distinguish between first- and second-impact measures. For example, a programme that promises to reduce illiteracy in India can measure its success by the number of students that enrol. This is the first impact and we can measure its per-student *reach* by calculating the total cost of the programme divided by the number of enrolled students. The second impact is to determine how many students actually read. We can, in this case, also arrive at a cost-*efficiency* measure: what is the per-success cost of the programme (the total cost of the programme divided by the number of students who can read)? Obviously, in this instance the first- and second-impact numbers are very different.

The above methodology has come in for a lot of criticism for failing to prove that the success of the programme is due to its efforts; perhaps we would have found the same success rate among a random selection of students. In recent years, particularly as a result of the remarkable studies conducted by MIT's Poverty Action Lab, measurement through random controlled treatments (RCT) compares the effect of a programme by randomly assigning some students to the programme (the treated) and some to "no programme" (the untreated). (For an example see Banerjee et al. 2007.) Clearly, this approach provides a more scientific measurement. However, it has been criticized for its ethical approach (being unfair to those left untreated for the sake of measurement), for rarely achieving the scientific conditions required for satisfying randomization and isolating treatments and, perhaps most importantly, for being very expensive.

Current efforts are focused on trying to derive measures of social value, albeit imperfect, that will be highly correlated with true value. This approach is often used in venture capital and investment banks that rely upon "multiples" to estimate the future economic value of fast-growing start-ups. Through a consortium headed by the Rockefeller Foundation, many investment funds are currently cooperating to standardize accounting and valuation methods of social value to support social capital markets (Bugg-Levine et al. 2013). This is a moving frontier, pitted with many challenges, but vital in terms of steering investment to those social projects that are most deserving of financing and also helping managers to improve the efficiency of their operations.

See Also

- ▶ Externality
- ▶ Social Entrepreneurship
- ▶ Value

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Measuring Competence

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Abstract

Organizational competence, also referred to as organizational capability, has emerged during the past 25 years as a central concept in strategic management. Yet limited progress has been made in methodologies for its measurement. In this entry, we explore the challenges of identifying and measuring organizational competence and review the methods employed by empirical researchers.

Definition Measuring competence refers to measuring the level of an organization's competence (or capability) in undertaking a particular task or function.

Almost 20 years ago, Rebecca Henderson and Ian Cockburn pointed to the upsurge of interest in the role of organizational capabilities, but cautioned: 'despite the renewed theoretical interest in these ideas, empirical work in the area is still at a preliminary stage' (Henderson and Cockburn 1994: 63). The problem remains: for all the conceptual advances in the literature on organizational capability, empirical enquiry remains underdeveloped.

We shall probe the reasons for the apparent lack of empirical validation of this important area of study, addressing the challenges of empirically operationalizing the concepts of organizational competence and organizational capability (we regard the two terms as synonymous and will use them interchangeably). At the same time we shall also examine the extent to which uncertainties over the definition of organizational competences/capabilities have created difficulties for their measurement.

We shall consider not only the *measurement* of competences, but also their *identification*. This is to take account of the possibility that some organizational competences, by their nature, may not be measurable. To the extent that the most strategically important competences are idiosyncratic (e.g., Apple's capacity for designing products that combine technology and aesthetics with ease of use; Harley-Davidson's ability to offer a lifestyle and user experience), measurability becomes inherently impossible. Since quantification allows comparison, quantitative measurement of organizational competence has been deployed by cross-sectional, multi-firm studies. Case-based research has focused on identifying qualitative aspects of organizational competence. We shall review both types of study.

Conceptual Challenges

Our primary focus is on the difficulties of operationalizing the concept of organizational competence; however, let us first recognize that some of the empirical difficulties of identifying and measuring competences have their root in conceptual imprecision. The lack of standardization of terminology is indicative of definitional confusion. Among 'organizational capability', 'organizational competence', 'distinctive competence', '► core competence', 'dynamic capability' and 'second-order competence' the commonalities are almost certainly more important than the differences. More problematic is the fact that different interpretations are given to identical terms. The result is inconsistency among empirical studies in what is regarded as a competence or capability. While most studies define a competence/capability as an organization's capacity to perform a particular function or activity, this view is not universal. For example, Ray et al. (2004: 24) state: "'resources' and 'capabilities' are used interchangeably and refer to tangible and intangible assets firms use to develop and implement their strategies". They proceed by regressing 'capabilities' such as 'service climate' and 'managerial information technology knowledge' on customer service performance. Yet many scholars would view the dependent variable, customer service performance, as a capability.

Putting aside definitional uncertainty and standardizing our definition of competence/capability

as an organization's capacity to perform an activity or function, we encounter a further methodological problem. Many of the empirical studies of organizational competence attempt to estimate the impact of competence on firm performance. The problem is that such an endeavour is inherently tautological: it involves regressing performance on performance (Priem and Butler 2001; Mulders and Romme 2009: 65–66).

The way out of this conundrum is to view capabilities as hierarchically organized. In the same way that a capability is the outcome of resources working together to achieve a common purpose, so broad-based capabilities are based upon the integration of a number of component capabilities. Ultimately, a firm's capability to earn profit is the outcome of all its functional capabilities, including capability to formulate a strategy that links these capabilities with opportunities available in its business environment (Grant 1996). The key to avoiding the tautology problem in regressing firm performance on competence is to measure performance at different levels of aggregation. Thus, if the competence in question relates to a particular function (environmental management or new product development, for example), the firm's performance of such a function can be measured independently of its overall performance in terms of profitability, growth or survival.

Henderson and Cockburn (1994) encounter this problem when they regress a broad-based capability, drug discovery productivity, on more narrowly defined capabilities: firm-specific expertise in a particular disciplinary area, competence in a particular disease area, and the ability to encourage and maintain an extensive flow of information. The problem they encounter is that the empirical indicators of these capabilities lack independence: both drug discovery productivity (the dependent variable) and competence in a particular disease area (an independent variable) are measured by patent counts. As they acknowledge, the interpretation of the coefficient on this variable is complicated by the fact that it resembles the lagged dependent variable (pp. 71–72).

In addressing the tautology problem in relation to ▶ dynamic capabilities, Helfat and colleagues (2007) use intermediate performance measures as capability yardsticks, thereby separating the capability from the overall organizational performance. Defining dynamic capabilities as 'the capacity of an organization to purposefully create, extend or modify its resource base' Helfat and colleagues (2007: 4) identify two indicators of dynamic capability: evolutionary and technical fitness, Evolutionary fitness represents the context dependence of dynamic capabilities – that is, how well dynamic capabilities match the context in which the organization operates and enable it to make a living. Technical fitness denotes how effectively a capability performs its intended function when normalized by its cost. Both technical and evolutionary fitness impact on the more standard economic performance of an organization, but can thus be separated and help untangle the tautology problem.

Quantitative Measurement of Organizational Competence

Empirical studies that have employed quantitative measures of organizational competences have had two main purposes: either to test the impact of organizational competence on broader measures of firm performance, or to test hypotheses concerning the determinants of organizational competence. In the former, organizational competence enters as an independent variable, in the latter as a dependent variable.

Most research has addressed functional competences: R&D capability (Henderson and Cockburn 1994; Dutta et al. 2005), manufacturing capability (Macher and Mowery 2009), project management capability (Ethiraj et al. 2005), process development capability (Pisano 1994), marketing capability (Vorhies et al. 2010), forecasting capability (Makadok and Walker 2000) and customer service (Ray et al. 2004; Ethiraj et al. 2005). Objective measures of organizational competence tend to use proxy variables. For example, R&D capability is measured by means of patent counts (in some cased weighted by citations), process improvement in manufacturing by reduction in defect rates, and new product development

capability by the time between project initiation and product launch.

A number of studies have used subjective measures of competence. Using questionnaires, managers in respondent firms have been asked to rate the competence of their organization on an ordinal scale (typically compared with competitors). Such approaches are fraught with difficulty. First, subjective assessments of competence are distorted by self-reporting bias, including the effects of executive hubris. In studies that seek to estimate the impact of competence upon performance, where both independent and dependent variables are self-reported, the systematic biases caused by the psychological disposition of respondents and the characteristics of their organizational environments are especially worrisome (see, for example, Ray et al. 2004). Second, there is the problem of lack of information. Partly because organizational competence assessment is not subject to standardized performance metrics in most companies, executives often have hazy understandings of their own companies' levels of competence relative to competitors. This problem is greatest for competences that do not reside in a clearly defined functional unit, such as post-acquisition integration, alliance management capability and strategic innovation capability.

Because of the difficulties associated with measuring competences, some studies introduce competences as mediating variables between the determinants of competences and their performance outcomes. This allows the estimation of a 'reduced form' model where performance can be regressed upon the determinants of capability. For example, Kale et al. (2002) predict that alliance performance is a function of alliance capability, which is a function of alliance experience and the possession of a dedicated alliance function. Hence, they are able to regress the abnormal stock market returns associated with alliance announcements on numbers of alliances during the preceding 10 years and a dummy variable indicating the presence of a dedicated alliance function. Similarly, in Zollo and Singh's (2004) study of learning and acquisition processes, acquisition capability resides as an implicit variable between the independent variables – firms' acquisition experience and their knowledge codification processes – and the dependent variable (financial performance of the acquirer). In both studies, the authors are able to avoid the difficulties of directly measuring organizational competences.

Qualitative Indicators of Organizational Competence

In many empirical studies of organizational competence, quantitative measurement of competence is infeasible. In some quantitative cross-sectional studies researchers use a dummy variable to indicate whether or not the particular competence is present – or if it exceeds a particular threshold. For example, in their study of Indian software firms, Ethiraj and colleagues (2005) measured customer capability by a dummy variable as to whether or not the customer was a repeat customer. Similarly, in their indicators of alliance capability, Kale et al. (2002) used a dummy variable of whether or not the company had a dedicated alliance function.

However, the most common reason for using qualitative indicators of competence is that the competence is idiosyncratic – in the absence of comparison, measurement is impossible. Thus, in a number of longitudinal studies of the development of organizational competence, the emphasis has been to identify the emergence of firm-specific characteristics of capabilities. For example, the capabilities developed by book retailers Borders and Barnes & Noble were very different as a result of the different origins and development paths of the two firms (Raff 2000). Montealegre's (2002) study of the launch of the Guayaquil Bolsa identified a set of complementary capabilities that centred around the web-based information and trading platform.

But how do researchers recognize the presence of an organizational competence? Typically these are subjective judgements by researchers based upon a diversity of evidence: historical facts, recent performance data, and the views and opinions of interviewees (who may comprise

both managers within the company and outside observers such as competitors, suppliers or customers). For example, in the case of Polaroid, Tripsas and Gavetti (2000) use a combination of archival and interview data to identify the presence (in 1980) of technological capabilities relating to instant photography, manufacturing capabilities and distribution capabilities. Then, on the basis of Polaroid's ▶ capability development efforts during the subsequent two decades they identify Polaroid's principal capabilities at 1990 and 1998. In addition to identifying qualitative changes in Polaroid's capability profile over time they also offer some quantitative assessment – identifying areas where capabilities strengthened and where they weakened.

Once competences are recognized as idiosyncratic, there is a risk is that they exist in the perceptions of observers and it may be difficult to provide objective documentation of their existence. Baker and Nelson (2005: 362) identify 'bricolage capability': the capacity for improvisation through 'idiosyncratic combinations of heterogeneous resources applicable to new problems and opportunities'. Their fieldwork among 29 small enterprises identified examples of characteristics of bricolage capability. However, it is uncertain that the same capabilities would have been evident to other researchers investigating the same data – or indeed to the entrepreneurs of these enterprises. Similarly with Danneels' (2011) study of dynamic capability at the now defunct typewriter manufacturer Smith Corona: the dynamic capability involved is 'resource altering', which comprised a number of processes: leveraging existing resources, creating new resources, accessing external resources, releasing resources and resource cognition. Again, it seems that the concept of competences (or capabilities) related less to an observable empirical phenomenon and more to an interpretation of an organization's activities.

To overcome such limits in interpretation, an alternative qualitative methodology is to research their presence in multiple cases. For instance, Leonard-Barton (1992) uses data on a multicase sample of leading companies in technology sectors to investigate the nature of their core competences. Similarly, Brown and Eisenhardt (1997) investigate three competences – namely, technical gurus, semi-structures and probing into the future – by analysing business-unit-level competences in a sample of nine companies in the fast-moving computer industry. While the replication logic of this approach helps reduce the above-mentioned problem of interpretation, it is still fraught with potential issues in integrating qualitative and rich data from multiple sources.

Conclusions

Despite the influence of the resource-based and knowledge-based views of the firm and the emerging impact of the dynamic capability frame on strategic management, the measurement of capabilities still represents an underdeveloped area of investigation for the field of strategy. From this brief note it appears clear that, notwithstanding the efforts of many scholars over the years, attention so far has focused on the definitional issues more than on the technical problems related to the measurement of capabilities. With few exceptions that address the problems of measuring competences, the measurement problem is solved ad hoc in each study, with a plethora of methods that range from qualitative research based on archival data or on interviews, to secondary data measuring activities or processes via self-respondent surveys that develop ad hoc scales to identify the object of observation. While a priori most of these methodologies presents the strengths and weaknesses that we have tried to highlight here (and which can consequently be good or bad according to the aim of the study for which they are employed), we notice an absence of a mainstream method to deal with competences. In addition, to further investigate the complexity of measurement, future research should therefore be more committed to identifying a mainstream methodology for the measurement of capabilities. Such endeavour could represent a milestone for all researchers interested in measuring the nature or the effect of organizational competence.

See Also

- ▶ Acquisition Strategy
- ▶ Architectural Competences
- ▶ Capability Development
- ▶ Capability Lifecycle
- ▶ Competency Trap
- ▶ Core Competence
- ▶ Dynamic Capabilities

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M-Form Firms

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Abstract

M-form firms are multidivisional organizations in which each division is a product or geographic unit responsible for its own operations and profit while the corporate head office sets overall strategy and monitors the divisions. The M-form emerged as the dominant organizational design for large corporations in the

twentieth century and continues to be so, with variations that include some decentralization of strategy responsibilities to operating units. A positive performance effect of M-form early adoption has been documented, at least for US and UK firms. The effectiveness of the M-form requires appropriate incentive design, good leadership and a division of labour appropriate to the relatedness of the firm's diversification.

Definition M-form firms are multidivisional business organizations in which each division represents a product or geographic unit responsible for its own profit or loss. They are based on a division of responsibilities between the central office, which sets overall strategy and monitors the divisions, and the divisions, which exercise operational control.

M-form firms are multidivisional organizations in which each division represents a product or geographic unit responsible for its own profit or loss subject to considerable strategy setting and resource allocation by the corporate central office. Operational control is exercised at the level of the division. The overall design is decentralized in comparison with U-form (unitary) organizations, in which a central office takes care of both strategy and operations with the administration divided among a set of functional divisions (e.g., sales, accounting) that serve the company as a whole. While the U-form captures potential economies of scale in each administrative function, the M-form's vertical division of labour reduces the need for top management to be familiar with the operational details of all the enterprise's divisions.

The emergence and significance of the multidivisional form of organization as an administrative innovation was documented by Alfred D. Chandler, Jr. His detailed business history, *Strategy and Structure* (1962), explains how multidivisional organization was instituted in large US firms in the first half of the twentieth century in response to the strains of running large and growing corporations such as DuPont, General Motors, Standard Oil and Sears on a centralized basis. Chandler put forward the controversial proposition that 'structure follows strategy' (Chandler 1962: 14), by which he meant that firms introduced new strategies, such as Sears' expansion from catalogue-only sales to chain stores, and then altered the organization of their internal administration as needed to support the strategies.

The decentralized, multidivisional firm, which Oliver Williamson (1975) dubbed the 'M-form' firm, is able to accommodate growth and ▶ diversification more easily than a centralized (U-form) organization because it takes operational issues away from top management and places them with the divisions. Top management is free to concentrate on overall strategy for the firm. The central office also performs a monitoring function, aided by the transparency that division-level accounts provide. Division managers, meanwhile, are able to be rewarded more in line with their responsibilities than in a U-form setting, because the divisional profit or loss figures provide an easy assessment metric. Each division-level functional team is also tied to the profitability of its division, whereas in the U-form functional departments serve the enterprise as a whole, and lack any obvious profit metric as a check on departmental expansion goals.

In addition to monitoring the divisions and formulating overall strategy, a third, related, role for top management is the allocation of capital and other resources among the divisions. Williamson (1975) argued that the M-form structure provides a market-like means of allocating corporate cash because it allows top managers to redirect cash flow to the highest-return opportunities among the operating divisions. Divisional managers must compete for resources in what Williamson (1975) called a 'miniature capital market'. He argued that this was more efficient than an equivalent market-based solution (separate firms rather than separate divisions) because top management has deeper knowledge of the firm's opportunities than do investors and bankers.

The efficiency claim for the M-form's internal capital allocation has, however, been called into question (e.g., Shin and Stulz 1998; Bardolet et al. 2010). Contrary to Williamson's (1975) efficient M-form hypothesis, the evidence in these studies suggests that multidivisional firms tend to invest in less profitable businesses than if the divisions were entirely separate.

Performance Impact of the M-Form

Chandler's and Williamson's conjectures about a positive effect of M-form adoption on organizational performance have been corroborated empirically for samples of US and UK firms (Armour and Teece 1978; Steer and Cable 1978; Teece 1981). Armour and Teece (1978) confirmed that early adopters of the M-form in the petroleum industry were more profitable than their competitors, with a statistically significant improvement in return on equity of roughly 2% during the 1955–1968 adoption period. Teece (1981) reached a similar finding when looking at the pair-wise differential performance of the two leading firms in a number of major US industries.

However, the conjecture may not hold true in institutional settings that differ too much from those of the US. No positive effect of M-form adoption was found in studies conducted in Germany (Cable and Dirrheimer 1983) and Japan (Cable and Yasuki 1985). Although the M-form was not a patentable innovation, and competitors were therefore free to imitate it, the uptake of the model was slow, perhaps because of the cost and complexity of undertaking a radical organizational redesign, and perhaps because it was not as applicable to some firms as others. Teece (1980) found that it took 14 years before half the firms in the Armour and Teece sample of more than two dozen oil industry firms had adopted an M-form organization.

There are variations of the M-form, as will be discussed further below, and each may have different implications for performance. The pure M-form, as proposed by Williamson (1975), has a complete separation between strategy (centralized in the top management team) and operations (decentralized to the divisions). When the M-form becomes 'corrupted' by the repeated involvement of top management in operational matters, divisional accountability is, in his view, undermined.

Hill (1988), however, considered this non-pure M-form to be merely 'centralized' rather than 'corrupted', and hypothesized that it would be beneficial in cases where the enterprise was likely to benefit from central coordination of inter-divisional collaboration and resource sharing. He showed that performance data suggested a positive relationship between the centralized M-form and the performance of firms with a high share of relatedness between divisions (whereas the pure M-form was negatively associated with the performance of related diversifiers). Similarly, Hoskisson (1987) found that M-form adoption had a positive effect only on unrelated diversifiers.

Organizational Design Issues

The adoption of the M-form, while empirically linked to improved performance, does not eliminate the need for good organizational and ▶ incentive design. A number of potential pitfalls inherent in the form can reduce its efficacy.

One issue is the balance over how much divisional manager compensation depends on divisional, rather than company-wide, results. Argyres (1995) uses the example of technology adoption and demonstrates, with a pair of case studies, that tying a share of compensation to corporate, rather than divisional, performance may give division managers more incentive to see that centre-led initiatives succeed. Hill et al. (1992) used the relatedness of diversification to show that tying some division manager incentives to enterprise-wide results matters most for the performance of related diversifiers, where cooperation is needed; unrelated diversifiers perform best when the incentives are tied fully to divisional performance.

As the Hill, Hitt and Hoskisson result suggests, the relatedness of diversification has significant implications for managing the M-form firm. Goold and Campbell (1987) studied 16 large UK companies and concluded that the nature of the firm's product diversification is the most important variable for defining the role of the central office. Highly related diversifiers, such as firms that focus on a few core businesses, are able to use the classic M-form arrangement of allowing all strategy to be set by the top management team. When divisions are significantly less related, as in a conglomerate, the centre is better off focusing on financial control, with strategy being set primarily

at lower levels of the organization with a better understanding of each specific industry.

Another design issue for M-form firms is how the front-line operational units are managed. Many multidivisional companies have a tiered structure in which each division contains a number of separate operating subsidiaries (Hill 1985). Even if the relationship between the divisions and the central office conforms to the M-form ideal, inefficiencies could be rampant in how one or more of the divisions manages its operating subsidiaries, with the problems being hidden indefinitely from the central office because of aggregation at the divisional level.

Beyond efficiency concerns about front-line units, there is the issue of initiative and innovation among units that are 'far' (in hierarchical terms) from the eyes of top management. Bartlett and Ghoshal (1993) claimed that the hierarchical, top-down nature of the M-form organization tends to suppress front-line initiative. Hoskisson et al. (1993) found that the use of incentives for division managers tied to short-term division performance reduced R&D intensity and risk taking. Even long-term targets failed to support risk-taking. They argue that both financial and strategic criteria should be used to evaluate division managers.

Relations among the divisions or operating units is another dimension that needs to be properly managed. In order to fully benefit from the potential economies of scope in an M-form enterprise, collaboration and resource sharing between divisions may be necessary. Cooperation between divisions can be fostered to some extent by incentives, such as tying a portion of division manager compensation to company-wide results. But cooperation can also be cultivated by ▶ organizational design. Gupta and Govindarajan (2000) found that knowledge flows within a multinational's internal network of subsidiaries were more frequent when supported by formal structures such as task forces and permanent committees. The transmission of functional best practice, even among geographically far-flung units, can be ensured by formal structures such as 'functional councils' (Bartlett and Ghoshal 1993: 35).

Multinationals: Beyond the M-Form?

Since the rise of M-form organizations, competition has become more global and resources more dispersed. As a result, most large firms have operations, R&D and many other activities spread around the world.

The management challenges in these large global corporations have produced variants of the M-form. One is the product-geography matrix in which department managers have dual reporting channels, one product-based and the other geography-based (Bartlett and Ghoshal 1993: 27). A product-geography matrix balances, at least in theory, the needs for global integration and local responsiveness, but complicates, and potentially weakens, the clean information and control lines of the M-form hierarchy.

Other variations on the traditional top-down M-form are (1) the partial decentralization of strategic initiative to operating units and (2) greater horizontal collaboration among divisions. Enterprises that have taken on these features have been referred to by names such as 'transnational' (Bartlett and Ghoshal 1989) and 'N-form' (Hedlund 1994). These variations are particularly salient for multinationals because subsidiaries may need to adapt to, and learn from, local conditions while accessing needed resources from other divisions. Empirical research on multinationals has verified that subsidiaries are increasingly taking an entrepreneurial, strategy-initiating role (e.g., Birkinshaw et al. 1998), and market co-creation with customers, suppliers and others is an element of this (Pitelis and Teece 2010). But it is still an open question whether something new and fundamentally different from the M-form has emerged.

Most of the 'new' models of the multinational (and of enterprises more generally) emphasize that the most important task for top management is not so much the allocation of capital as the management of knowledge and learning. Bartlett and Ghoshal (1993), for example, claim that in many multinationals the divisions strategize about horizontal interdependencies and the operating units have profit and loss responsibility. This facilitates the removal of layers of middle management, with the central office exerting influence

not through formal controls but through leadership, the propagation of shared values and occasional hands-on involvement in the operating units. The resulting structure lies somewhere between the M-form and a holding company (H-form), in which the central office takes a rigidly financial approach to its subsidiary companies.

Gooderham and Ulset (2002) critique Bartlett and Ghoshal's claim that this organization is meaningfully different from the M-form. They see it as still being M-form in its main particulars, just slightly more decentralized and interdependent than the companies of the past. In particular, like Birkinshaw and Morrison (1995), they see little evidence of multinationals easing formal controls in favour of social control.

Most indications are that the M-form organization will continue to dominate the global landscape for the foreseeable future. Network relationships among internal units and with outside enterprises have become more common, but they have not undermined the basic division-of-labour logic that makes the core of the M-form structure an efficient way to organize productive activities on a large scale.

See Also

- ▶ Diversification
- ▶ Incentive Design
- ▶ Knowledge Management Theories
- ▶ Multinational Corporations
- ▶ Organizational Design

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Military Strategy

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Abstract

The concept of military strategy can be traced back to the Greek city-states. Modern characterizations of strategy both in business and in a military context generally do not provide much insight as to how one might actually go about crafting and executing a good strategy. What can be usefully said is that good strategies invariably have three elements: an insightful diagnosis of the problem or challenge; a guiding policy to address the challenge; and a set of coherent actions designed to carry out the guiding policy. Nonetheless, even good strategies can fail because they are guesses about how the future will unfold, and the future is not predictable.

Definition Military strategies are heuristics or guesses about how to shape the outcome of a military conflict or competition in one's favour. They are fundamentally about identifying or creating asymmetric advantages that can be exploited to achieve one's ultimate objectives despite resource and other constraints, including the opposing efforts of adversaries and the inherent unpredictability of strategic outcomes.

The English word 'strategy' can be traced back to the military experience of the ancient Greek city-states. The word itself derives from the ancient Greek 'στρατηγός' (*strategos*), meaning the 'leader or commander of an army'. The word 'στρατηγός', in turn, is a compound of 'στρατός' (*stratos*), meaning 'army', and 'αγός' (*agos*), meaning 'leader' or 'general'. Before the French Revolution the majority of European authors on military affairs wrote neither about strategy nor tactics but focused on the organization, discipline and cohesion of infantry in the tradition of the Roman author Publius Flavius Vegetius Renatus, whose *Epitoma de rei militaris* [*Epitome of Military Science*] is mostly dated to around 387; or 'else they wrote about "military instructions" (Puységur 1690), or about the "art of war" (Machiavelli 1521)' (Heuser 2010: 4–5, 567). In the West, the term 'strategy' only came into use around 1800 and was not used in the sense generally accepted today until the 20th century (Heuser 2010: 3, 29).

Modern Western conceptions of military strategy are usually traced back to the Prussian theorist Carl von Clausewitz. In his classic *On War*, first published in 1832 by his widow, Clausewitz characterized strategy as the use of military forces in the engagement or battle to achieve the objectives of the war: strategy 'decides the time when, the place where, and the forces with which the engagement is to be fought' (von Clausewitz et al. 1976: 177, 194). In his 1999 *Modern Strategy*, Colin Gray consciously expanded Clausewitz's definition to include the threat of using force for the ends of policy along with its actual use, thereby explicitly broadening the realm of military strategy to include such post-Hiroshima strategies as nuclear deterrence (Gray 1999: 17). In the current lexicon of the US military:

> Strategy is about ends, ways, and means. It is a description of the ways (the how) a government employs its available means (elements of power) to achieve the ends (national goals) that support its interests. (Griffard and Eikmeier 2006: CSL. 2)

While these traditional definitions of military strategy are perfectly fine as abstract conceptualizations, they share two fundamental limitations. First, they offer little, if any, guidance as to how one might actually go about crafting and

implementing coherent strategies in actual competitive situations. The reason for raising this point can be gleaned from the following observation that John Collins derived from teaching grand strategy at the National War College during the American involvement in Vietnam: while 'strategy may be a game that anyone can play . . . it is *not* a game that just anyone can play well'; only 'the most gifted participants have much chance to win a prize' as competent strategists (Collins 1973: 235, emphasis in original).

Second, from Clausewitz to the contemporary end–ways–means formulation, these traditional understandings of strategy are based entirely on Western military experience. As the business strategist Richard Rumelt has argued, it is certainly possible to devalue the concept of strategy by applying it too broadly or too liberally. Yet, in his teaching and writing about strategy, Rumelt has been willing to apply the concept to chess, war and long-term competition between polities in peacetime as readily as he has to the strategies of firms and corporations. Granted, war and business have some important differences. Even Microsoft does not attack its competitors with bombs and missiles. But, especially since the initial appearance in 1980 of Michael Porter's influential *Competitive Strategy*: *Techniques for Analyzing Industries and Competitors*, American business schools have devoted more and more attention to analysing and teaching the strategies of firms and corporations, including the development of lucrative consulting services to advise businesses on their strategies (see Ghemawat 2002). So long as the differences between war and business are kept in mind, there is much business strategists can learn from military strategists and vice versa. And, given how wide a range of situations in which we can meaningfully apply the word 'strategy', no single definition is likely to circumscribe the underlying concept.

Contemporary characterizations of strategy based on business experience have tended to be clearer on how to implement strategy than the classic formulations derived from war and competition between nations (or non-state actors, whose potential for inflicting death and destruction has been exponentially multiplied by technology since the 1940s Shubik 1997: 406–408). At a September 2007 workshop on strategy for the Pentagon's Office of Net Assessment, Rumelt characterized strategy as 'a heuristic solution to a problem', adding that in competitive situations, strategy is 'usually an insight that creates or exploits a decisive asymmetry' (Rumelt 2007: slide 3). His insistence that strategies are heuristics or guesses was based on his firm conviction that the future is fundamentally beyond our feeble powers of prediction – that strategic choices in the real world involve far more possibilities than anyone can evaluate. It was this view of strategy that led Andrew Krepinevich and me to suggest in 2009 that strategy, whether in business or war, is:

> fundamentally about identifying or creating asymmetric advantages that can be exploited to help achieve one's ultimate objectives despite resource and other constraints, most importantly the opposing efforts of adversaries or competitors and the inherent unpredictability of strategic outcomes. (Krepinevich and Watts 2009: 19)

The long-standing preference of ground forces to seize or defend the high ground illustrates an asymmetric advantage stemming from terrain, but the potential domain asymmetries that can be found or created in competitive situations are virtually unbounded. Finally, to add one of the more unusual definitions of strategy based on business experience, in a 2008 interview Sidney Winter characterized strategy in terms of 'managing the slow-moving variables in a strategic situation in order to change or reshape the situation in one's favor by influencing the options or possibilities that emerge over time' (Winter 2008).

The principal merit of these last three formulations is that they provide insight into how one ought to set about doing strategy in the real world. Winter counsels that the first step in designing a viable strategy is to determine what are the slow-moving variables in the situation. He offers reputations and personnel systems as examples of slow-moving variables that good strategy can change in one's favour, though usually not very quickly. For Winter, therefore, executing a strategy tends to be a long-term endeavour, especially when

it involves execution by large organizations such a corporation or a military service.

Rumelt offers even deeper insight into how strategy is done by insisting that good strategies have three essential elements: (1) a *diagnosis* that defines or explains the nature of the challenge, (2) a *guiding policy* for dealing with the challenge, and (3) a set of *coherent actions* that are designed to carry out the guiding policy (Rumelt 2011: 77). The US Cold War strategy of containment provides ready confirmation of Rumelt's analysis. While George Kennan is rightly credited with conceiving this 'strategy', it was clearly preceded by an insightful diagnosis of the nature of Soviet power, starting with Kennan's long telegraph to Secretary of State James F. Byrnes in February 1946 and, subsequently, articulated publicly in his July 1947 *Foreign Affairs* article, 'The sources of Soviet conduct'. The essential insight in Kennan's diagnosis was that the Soviet system contained 'the seeds of its own destruction', and that the sprouting of these seeds was 'well advanced' (Kennan 1947: 580). Hence, Soviet pressure against the free institutions of the Western world could be 'contained by the adroit and vigilant application of counter-force at a series of constantly shifting geographical and political points, corresponding to the shifts and maneuvers of Soviet policy' (Kennan 1947: 576). Containment, then, was not a complete strategy but the guiding policy for American conduct relative to the Soviet Union that emerged from Kennan's diagnosis of the challenge that the Soviet state posed for the United States and the West after 1945. As for the set of coherent actions that implemented this guiding policy over a period of some four decades, they ranged from the establishment of Strategic Air Command in 1946 and the European Recovery Program (the 'Marshall Plan') in 1947 to Dwight Eisenhower's massive nuclear retaliation, Richard Nixon's détente and the resulting arms control agreements, and Jimmy Carter's explicit targeting of Soviet leaders in the event of nuclear war.

Having considered a range of definitions for military strategy, business strategy and strategy in general, perhaps the most important thing to recognize is that the development and, above all, execution of effective strategy almost always turns out to be extraordinarily difficult. While strategy may appear simple in theory, it is profoundly difficult in practice. The reasons are many. But possibly the most fundamental is the unpredictability of the future. As the economist Douglass North has noted, there are at least two reasons why the future is unpredictable. First, we 'cannot know today what we will learn tomorrow which will shape our tomorrow's actions'; and, second, the world is non-ergodic, meaning that the statistical time averages of future outcomes *can be* – and, more often than most people appreciate, *are* – persistently different from the averages calculated from past observations (North 2005: 19, 69). The future, to paraphrase the options trader Nassim Taleb, is 'opaque. You see what comes out, not the script that produces events, the generator of history' (Taleb 2007: 8). Or, stated in the more technical terms of computer science and mathematical logic, 'There is no algorithmic process to determine the future – whether it's the future of a computer program, a thought process of the human mind, or the universe as a whole' (Petzold 2008). In the end, strategies are guesses about how the unpredictable future will unfold after the strategist has chosen and implemented a course of action to address a major problem. Strategic choice itself is one element of the unseen 'script' that produces the eventual, but unpredictable, outcome.

See Also

- ▶ Business Policy and Strategy
- ▶ Comparative Advantage
- ▶ Prospect Theory and Strategic Decision-Making
- ▶ Satisficing
- ▶ Strategic Decision-Making
- ▶ Strategic Objectives

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Mixed Strategies

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Definition Mixed strategies describes the case when a firm simultaneously pursues some combination of Porter's generic strategies: cost leadership and differentiation (Porter 1980).

The underlying logic of ▶ michael porter generic strategy rests on the trade-offs between moving from a ▶ cost leadership position to a differentiation position. Cost leadership strategies require appropriately scaled activities focused on efficiency. Differentiation strategies require a firm to increase cost in certain areas to respond to customer preferences. Porter's description puts cost leadership and differentiation at opposite ends of a continuum. He argued that firms pursuing mixed strategies end up 'stuck in the middle', with weaker performance than firms pursuing generic strategies.

Porter (1985) suggested that mixed strategies may lead to higher performance when all firms are 'stuck in the middle', when cost is strongly affected by market share or when a firm pioneers a major innovation. Subsequent research has questioned this continuum and has built the case for mixed strategies. Jones and Butler (1988) use transaction costs to show how differentiation may lead to lower costs than a pure low-cost strategy. Given the mixed support for both generic and mixed strategies, research has primarily suggested a contingency approach for both types of strategies.

Several researchers have described external factors that affect the performance of firms pursuing mixed strategies (Hill 1988; Murray 1988; Campbell-Hunt 2000; Kim and Nam 2004). In general these external factors can be grouped as consumer factors and market factors. Consumer factors include the ability of a firm to differentiate its product, and branding and marketing. Market factors include economies of scale and scope, learning curve effects and industry maturity.

The ability of a firm to differentiate its products depends on many factors, such as the complexity of the product or the needs of the customer. Cars may differentiate based on a variety of different components, whereas a customer's needs may require that relatively simple products, such as commodities, be packaged and delivered differently. Branding and marketing factors refer to the ability of a firm to differentiate its product and increase customer loyalty through marketing efforts, such as in the case of Coca-Cola and Pepsi compared with generic soft drinks. These consumer factors enable firms to pursue mixed strategies.

Market factors include scale economies, which are often available to many firms in an industry since the minimum efficient scale is often a small

percentage of industry output (Murray 1988). Thus, medium-size firms can reach low-cost economies of scale while still producing a differentiated product. Furthermore, economies of scope may enable a firm to produce several differentiated products while maintaining low cost. If differentiation does afford an increase in market share, a firm may further lower cost by increasing cumulative output and moving further down the learning curve, particularly in industries with complex processes (Murray 1988). Industry maturity enables mixed strategies, particularly in young industries or industries experiencing high growth (Hill 1988). Minimum efficient scale processes may not have been identified, and there may be room for process innovations that simultaneously enable product differentiation and lower costs.

These sets of factors describe the conditions where mixed strategies may be most effective. Recent empirical work has argued that, more often than not, firms pursue pure strategies (Thornhill and White 2007) and that these pure strategies are typically as effective or more effective than mixed strategies. Nonetheless, there is precedence for the effectiveness of mixed strategies (see Campbell-Hunt 2000, for a meta-analysis). The contingencies described above may be the best way of understanding the efficacy of mixed strategies relative to Porter's initial descriptions of cost leadership and differentiation.

See Also

- ▶ Cost Leadership
- ▶ Generic Strategy
- ▶ Porter, Michael E. (Born 1947)

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Mobility Barrier Permeability

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Definition Adapted by Porter (1980) from the concept of entry barriers, mobility barriers are investments that vendors make to serve the needs of particular customer segments within a market most effectively. Their resource configurations distinguish a particular group of competitors from other strategic groups, and the ease of copying their past investments range in permeability from a minimal ticket of admission to a degree of customer loyalty that cannot be easily surmounted without destroying a transaction's profitability.

The very same resources that protect a firm's strategic posture from easy imitation by rivals (and create ▶ brand equity or other transactional distinctiveness in the eyes of their consumers) may hamstring a firm from repositioning successfully when marketplace or competitive conditions adversely change. With the investment of enough time and money, most firms' strategic postures can be emulated; unfortunately for the firm protected by them, mobility barriers are often impermeable when a firm's strategic posture must be modified

because of the irreversibility of past strategic investments. When that occurs, they become ▶ exit barriers.

Entering May Be Easier Than Exiting

Where demand for products or services is not homogeneous, firms can create value for customers who have salient differences in their needs by specializing their respective offerings to accommodate those needs. Effective market ▶ segmentation relies upon identification of significant, often underserved, differences in customer requirements that will require investment in resources that may not be easily applied to serving other customer segments. The distinctive resources that are used to provide such customized products (and services) serve as barriers that protect a vendor's success in serving its chosen customers. Because its investments differ from the resource requirements needed to serve other segments of the same market, the firm places itself at risk if it cannot serve its customers effectively (because those assets may not be easily deployed for other uses). Typically, mobility barriers enable firms to establish brand or transactional loyalty with their customers that cannot be easily dislodged by competitors and form the basis for 'customer stickiness'. Protected by such mobility barriers, initial profit margins for serving their chosen market segment can be robust for firms that focus on that unique market segment. If there is competition from firms within another strategic group – those attempting to serve the same market segment using a different resource configuration – rivalry accelerates and profit margins are eroded away faster.

As customers' needs evolve, the mobility barriers that firms created by specializing to serve a particular market segment may function as exit barriers. Past investments become irreversible ▶ sunk costs if the resources needed to serve their customers' newly evolving needs are significantly different from the firm's original asset configurations and cannot be converted to new uses. If firms cannot alter these mobility barriers successfully, they will face difficulties in making necessary transitions to the new strategic posture. Alternatively, firms may reposition themselves instead to serve different market segments if demand from their original customers becomes stagnant (or is declining). In that case, the protection of mobility barriers may still constitute an advantage to the incumbent firm, depending upon the traits of vendors from other ▶ strategic groups who are currently serving the newly targeted market segments.

See Also

- ▶ Brand Equity
- ▶ Competency Trap
- ▶ Competitive Advantage
- ▶ Exit Barriers
- ▶ Irreversibility
- ▶ Market Structure
- ▶ Mobility Barrier Permeability
- ▶ Market Segmentation
- ▶ Strategic Groups
- ▶ Sunk Costs
- ▶ Switching Costs

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Models (Formalization in Strategy)

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Abstract

Within the last decade, strategy has seen a marked increase in the number of papers that derive theoretical claims from formal methods. Previously, the use of formal models in strategy was virtually non-existent. This entry examines the benefits and drawbacks of formal

models in juxtaposition with natural language methods of theory construction (the latter of which form the backbone of strategy's traditional theoretical canon). It then describes the desirable features of model-based contributions in strategy. The primary focus is upon mathematical methods (as opposed to computation simulation). Finally, the entry highlights some relevant examples from the recent literature.

Definition A formal model is a collection of definitions and premises – stated using a formal language, such as mathematics, logic or a programming language – that are intended to represent the core features of a real-world phenomenon. Such models are used to deduce precise, logically consistent hypotheses about a focal phenomenon.

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Models

In the past decade, there has been a marked increase in the use of formal models in strategy. Adner and colleagues (Adner et al. 2009) found that, in the decade from 1998 to 2007, the *Academy of Management Review* published a single entry that used a formal model. Today, model-based papers appear regularly in leading management journals such as the *Strategic Management Journal* and *Management Science*. This trend is significant, and is likely to have important implications for the trajectory of strategy theory as well as empirical analysis. Because computer simulation models are discussed elsewhere in this volume, attention here is restricted to mathematical models (including formal logic).

A formal model couples a set of formally defined objects with assumptions about how those objects behave and interact. The objects and assumptions are then used as inputs into an analysis, the output of which are claims, in the form of mathematical propositions, designed to explain some feature of the real world. For example, ► game theory is a popular approach to management modelling. The formal objects in a game include: a set of agents, the sequence of their decisions, the actions available to them at any decision point, what they know at the time of every decision and their payoffs. These objects are then combined with behavioural assumptions about what the agents know or believe they know at the time of their decisions, what objectives they are trying to achieve as well as assumptions about what consistencies must hold in any particular situation between what the agents know, what they can do and what they are trying to achieve. The latter consistency conditions are presented in the form of an 'equilibrium' or 'solution' concept, such as a Nash, sequential or subjective equilibrium (to name a few).

Although many authors use the words 'theory' and 'model' interchangeably, the term 'theory' is typically reserved for claims about a given phenomenon that have proven particularly resilient to empirical testing. A 'model' is a device used to generate explanations, or hypotheses, about some feature of the world. Thus, a model that provides consistently reliable explanations may, over time, rise to the status of a theory.

Why Now?

While it is difficult to identify the sources of the recent trend towards formal modelling in management, they appear to reside in factors affecting both the supply and demand of such work. In terms of supply, the 1990s witnessed an explosion of sophisticated formal methods that held some promise of tackling issues of interest to strategy scholars. These included advances in behavioural economics, evolutionary economics, agent-based

simulations, game theoretic learning, cooperative game theory and social network theory, to name a few. On the demand side, the field's long-standing reservations towards model-based research appear to have softened as these methods contributed useful new concepts (e.g., the notion of 'added value') and refinements to traditional theories (e.g., that inimitability is neither a necessary nor sufficient condition for sustained performance advantage).

Benefits

The benefit of formal models is that they excel at deriving theoretical claims that are unambiguous, rigorously derived and logically consistent. A claim is *unambiguous* when its interpretation does not vary from person to person. This quality facilitates the ability of theorists to build upon one another's work as well as the ability of empiricists to construct valid tests of a given claim. A claim is *rigorously derived* when the process by which it is shown to follow from its premises is sufficiently clear to permit independent replication. Replicable findings – whether empirical or theoretical – are a distinguishing feature of scientific analysis. *Logical consistency* between a claim and its initial premises is an important characteristic of any modelling exercise, especially in a complex problem domain like strategy. The use of formal models assures that theoretical claims exhibit all of these desirable features.

Hallmarks of High-Quality Models

The benefits models described in the preceding section do come at a cost. Because a model is an abstraction of some real-world phenomenon, it is possible to derive unambiguous, rigorously derived and logically consistent claims that are, even so, false. Five of the more significant shortcomings that may undermine the claims derived from a model are: *incompleteness*, lack of *generality*, *opaqueness* and resistance to *empirical measurement*.

All models are incomplete in the literal sense that by their very nature they leave out a host of realworld details. The question is whether a model is sufficiently complete to capture the *essential* causal mechanisms driving the focal phenomenon. If such mechanisms are left out of the model, then the claims derived from that model may well be false.

A model is general when its claims apply to a broad class of phenomena. Models that are not general are *special*. For example, a model designed to identify the profit drivers of Apple Inc. is special relative to one designed to explain the causes of profit variation for any of Apple's direct competitors, which, itself, is special relative to a model designed to explain profit variation for an arbitrary firm in any industry. The claims of special models are suspect when applied to more general settings. The models that rise to the status of 'theory' are typically the more general ones.

Mathematical models stated using clumsy notation or relying upon obtuse definitions are difficult to read and interpret. Other things being equal, a entry presenting claims derived from formal models should be accessible to as broad an audience as possible. Therefore, we prefer elegant models in the sense of having refined definitions and premises, streamlined notation, straightforward analysis and clear claims. For the purposes of clarity and validation by others, propositions should be stated formally (in terms of the mathematical objects of the model), not verbally. Immediately following a formal statement, authors should offer the interpretation of the formalism that they would like readers to adopt (i.e., what the maths says about the real world).

Lastly, in order to build knowledge in the traditional scientific way, models should contain empirically measurable objects, and hence offer claims that are empirically refutable. A model cannot rise to the status of a theory without reliable and compelling performance under careful empirical examination. Empirical examination may be impossible if a model's objects do not correspond to real-world objects in obvious ways.

Rarely is it possible for a model to exhibit all of these qualities simultaneously. Even if it were possible, it is not necessarily desirable. For example, adding extra details for the sake of completeness may make a model inaccessible to readers and difficult to analyse. Therefore, a high-quality model strikes a careful balance between completeness, generality, clarity and empirical explanatory power. This is especially true in the early stages of the development of a formal theory – the first models in a stream are likely to be incomplete, special and difficult to measure empirically. As work progresses, however, improvements on these dimensions are indicators of scientific progress.

Complementarity with Verbal Theory

Because it is highly accessible, very flexible and free of the constraints associated with formal methods, natural language is often the best method by which to introduce challenges to conventional scholarly wisdom. That is, using plain language is often the most efficient and compelling way to construct a rough outline of the logic behind a radical new hypothesis. The ideas that initiate major streams of theoretical research rarely come into being fully worked out, precise or empirically identified. Verbal models are complements to formal models in the sense that the former act as catalytic starting points for productive new strands of literature that, almost certainly, require sorting out and refinement via the latter. For the same reasons, natural language is also well suited to synthesizing disparate streams of work to highlight potential opportunities for interdisciplinary exploration.

An Early Example and Strategy's First Formal Stream

One of the earliest papers containing a model designed to generate claims of specific interest to strategy scholars is Lippman and Rumelt (1982). The issue of interest in this entry is a foundational one: does free entry imply that competition will erase performance differences within an industry? The main finding is that at some point entry stops, with incumbent firms exhibiting heterogeneous performance and an average profit level above zero. The model is general in the sense that very little is assumed about the specific forms of the various functions (total costs, demand, probability distributions). Less general are the assumptions that: firms enter with fixed technologies; imitation is impossible; managers know almost everything about their environment (demand, the distribution of cost functions etc.); and managers are perfect optimizers. The model is quite elegant. Indeed, the formalism is so straightforward that most of the analysis is done in the text (i.e., rather than in complicated proofs relegated to an appendix). The model fares less well on the dimensions of completeness and refutability. A more complete model would include additional sources of persistent performance heterogeneity besides pre-entry uncertainty about one's future total cost function. On the refutability dimension, it is not clear how one would measure the paper's 'carrier of cost uncertainty' parameter b, which is central to the result.

The decade following Lippman and Rumelt (1982) saw few papers written by strategy researchers containing general models. However, that quiet period has been broken by the initiation of the first *stream* of formal models published in management journals. Brandenburger and Stuart (1996) broke ground with an application of cooperative game theory to strategy. Their entry introduced the novel idea of 'added-value' strategies. As the first entry in this stream, it was special and incomplete; however, it was elegant and highly relevant. MacDonald and Ryall (2004) built on this with a substantially more general model that is used to characterize the conditions under which competition guarantees strictly positive economic profit. Brandenburger and Stuart (2007) extended the generality even further with the introduction of their 'bi-form game' concept, a more complete analytical framework that models both strategic and non-strategic considerations by synthesizing elements from ▶ cooperative and non-cooperative game theory. A number of related applications include Adner and Zemsky (2006), Chatain

(2011), Chatain and Zemsky (2011), de Fontenay and Gans (2008), and Ryall and Sorenson (2007).

The cooperative game theory line of work – all published in strategy journals – illustrates how formal modelling facilitates the development of a deep body of theoretical knowledge. Mathematical precision clarifies the boundaries of extant work. New work picks up where others left off. Results are generalized and refined. Special applications are designed for particular areas of interest. And so on. Gradually, a robust theory emerges.

See Also

- ▶ Bargaining Models
- ▶ Cooperative and Non-cooperative Game Theory
- ▶ Game Theory
- ▶ Nash Equilibrium

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Monopoly Rents

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Abstract

Monopoly rents are earned by firms that are able to restrict supply and/or increase prices without fear of attracting competitors. The difference between price and long-run marginal cost is a measure of the economic rent, and the sum of the difference across all units sold is the total monopoly rent. This can be higher if price discrimination is possible. There are a number of ways in which monopoly rents can be secured, such as government grant of monopoly, through patents, through (illegal) anticompetitive conduct or collusion. In practice, monopoly rents are often hard to identify and measure.

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Definition Monopoly rents are (supernormal) profits earned that result from the monopolist restricting supply to raise price without fear of entry by rivals. They are distinct from Ricardian (scarcity) rents and from Schumpeterian (innovation) rents. Empirically, rent for monopoly conduct (raising prices, restructuring output) are hard to distinguish from other sources of rents.

Monopoly rents are earned by firms that, for any one of various reasons, are in a position to restrict supply and/or to increase prices in a way that raises profit without fear of attracting entry by competitors. This is in contrast to other rent concepts, such as Ricardian and Schumpeterian rents, which are earned by the scarcity of a particular resource and by innovative activity, respectively.

In economic models, the price charged by a profit-maximizing monopolist is higher than long-run marginal cost, which is the price that would prevail in the case of ▶ perfect competition (assuming common production technology for all

competitors). For a perfect monopolist facing a downward-sloping demand curve and choosing a single price, the profit-maximizing level of output is set at the point where the marginal revenue of one more unit equals the marginal cost of supplying it. The difference between price and marginal cost for each unit is a measure of the ▶ economic rent (the amount by which revenue exceeds the cost of supply), and the sum of the difference across all units sold is the total monopoly rent.

Monopoly rents can be larger if ▶ price discrimination is possible. Price differentials can be chosen at the level of groups, based on their price sensitivity (willingness to pay), as in the case of student or senior discounts. Volume discounts are another form of price discrimination. Under the extreme of perfect information, each unit can be sold at a different price based on the consumer's willingness to pay. This 'first-degree' price discrimination yields the largest possible monopoly rents.

There are a number of ways that monopoly rents can be secured in practice. One is by crown or government grant of monopoly in a given geographic or product market. This privilege may be designed to reward a favoured constituency, and it is likely to retard improvement and innovation by eliminating the stimulus of competition.

Patents are temporary grants of monopoly over an invention, but not over a market – except possibly in the extreme case where the patent is broad enough to cover an entire market. The justification for the grant of rights is that innovators must be allowed exclusive control over their inventions for some period of time in order to ensure an adequate reward for the effort expended on innovating, but the socially optimal lifetime of the grant is a subject of ongoing research and debate (e.g., Gallini 2002).

Monopoly rents can be secured in some cases by anticompetitive conduct, such as when a producer 'locks' or buys up all supplies of a material and simultaneously controls entry barriers. Some forms of business conduct are illegal to some degree.

Monopoly rents may also result from collusion between firms to subdivide a market so that each of the colluding firms faces less competition; or collusion can be used to set a minimum price below which none of the colluding firms will go. In advanced economies, most arrangements of this type are strictly illegal, although cartels can survive internationally outside the jurisdiction of developed economies. The Organization of Petroleum Exporting Countries, which meets to set collective output targets, has some of the characteristics of a traditional cartel.

Monopoly behaviour is unlikely to yield a sustainable advantage because rivals, at least in advanced economies, can innovate beyond or around any barriers to entry (Teece and Coleman 1998). However, in less advanced economies (e.g., Egypt), government may in fact protect incumbents and bar new entry, thereby allowing monopoly profits to flow for long periods of time.

A theoretical variant on monopoly is called monopolistic competition (Chamberlin 1933). This is usually explained as the result of product differentiation, so that a firm's product faces competition only from close, but imperfect, substitutes. In the short run, the differentiated product (a branded breakfast cereal associated with a unique cartoon character, for example) earns economic rents, but these are really rents to the differentiation rather than rents related to a conscious decision to restrict supply. Moreover, such rents are likely to be competed away in the long run, as entry by other monopolistic competitors drives prices in the industry to the industry's long-run average cost.

For strategy purposes, Michael Porter (1980) took the basic monopoly model from industrial organization economics and turned it on its head to identify strategies by which firms could generate monopoly-like rents (Teece 1984). In his 'five forces' framework, Porter defined strategy in terms of positioning the firm in a manner that somehow shielded it from the competitive forces in the market. This often involved creating some type of entry barrier. Often, however, the costs of building such barriers are higher than any likely increased profits achieved by trying to shield a market from competitors.

In practice, monopoly rents are hard to identify and measure with any accuracy (Fisher and

McGowan 1983). Marginal cost data are seldom available, and the accounting data, such as the depreciated book data of assets, required for calculating economic profits are very different from the values called for by economic theory, such as the true next-best-use value of assets. Another complication is that most firms are at least somewhat diversified and may have market power for one product line and not others.

To the extent that lines of business data have been studied, there appears to be a positive relationship between market share and price–cost margins (Scherer and Ross 1990: 429). But, as pointed out in the 1970s by Demsetz (1973) and others, the data do not reveal whether both the large market share and the higher profits result from underlying production efficiencies that rivals have not yet matched.

See Also

- ▶ Economic Rent
- ▶ Five Forces Framework
- ▶ Managerial Rents
- ▶ Natural Monopoly
- ▶ Perfect Competition
- ▶ Price Discrimination

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Monopsony

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Definition Monopsony refers to a market with a single buyer. Primarily examined in the context of labour markets, monopsony is the demand-side equivalent of supply-side monopoly. Monopsonistic market power allows a firm to exert downward pressure on an input's market price (much as a monopolist's market power exerts upward pricing pressure), and, as such, has relevance in strategic factor market theory.

Monopsony is the economic term used to describe a market where there is a single buyer. As such, a demand-side monopsony is conceptually equivalent to a supply-side monopoly. In general, monopsonies occur when a single buyer faces an upward sloping supply curve in the market for a production input. A market is described as a '▶ bilateral monopoly' if there is simultaneously a demand-side monopsony and a supply-side monopoly. In the strategic management domain in general, and the area of ▶ industrial organization in particular, monopsonies are a source of ▶ market power. As such they are particularly relevant in ▶ strategic factor markets theory (Barney 1986).

Monopsonistic market power allows a firm to acquire an input at a level where marginal cost equals the input's marginal revenue contribution. Since supply of the input is elastic, the monopsonist acquires the factor at a price and quantity below the point at which supply equals demand. Constraining demand in this way allows the monopsonist to maximize profits, but results in a deadweight loss relative to competitive factor markets. A large number of markets may be subject to monopsonistic competitive dynamics, including treasury auctions, professional and collegiate sports, health care and agriculture (Blair and Harrison 2010).

The first use of the term 'monopsony' is Robinson (1932), which explored imperfect competition in the labour market. Much of the subsequent literature on monopsony retains this focus on labour economics, where the assumptions of perfect competition suggest that employees move freely and without cost between a large number of employers. However, labour markets are generally observed to be thin (Boal and Ransom 1997; Bhaskar et al. 2002; Staiger et al. 2010) and subject to important frictions (Manning 2003a, b), often providing employers with monopsonistic market power. Monopsonistic competition has also been considered from a legal and policy perspective inasmuch as it necessarily has antitrust implications (Jacobson and Dorman 1991; Blair and Harrison 1992).

In strategic management, monopsonies have received little empirical or theoretical attention, despite their relevance in both industrial organization and strategic factor market theory (see Moliterno and Wiersema 2007, and Perry 1978, for exceptions). Monopsony theory suggests that market power allows the firm to acquire strategic resource inputs below their factor market equilibrium price, thereby providing an additional mechanism for ▶ Ricardian rent generation (i.e., beyond the mechanisms of superior information, resource complementarities, and luck explored in factor market theory).

Moreover, *ex post* factor market acquisition, monopsony power has implications for rent appropriation, particularly in the case of strategic human capital. The frictions described by labour economists allow the firm to appropriate the rents generated through human capital productivity, and in this way monopsonistic market power is a special case of the bargaining power described by Coff (1999).

See Also

- ▶ Bilateral Monopoly
- ▶ Industrial Organization
- ▶ Market Power
- ▶ Ricardian Rents
- ▶ Strategic Factor Markets

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Monte Carlo

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Abstract

The Monte Carlo method is a technique for solving, by use of their statistical analogues, deterministic or stochastic mathematical problems that cannot be solved using traditional closed-form algebraic means. The method

was married to the earliest computers at the Manhattan Project. We characterise statistical sampling, outline a broad range of problems, and explore a means of determining the value of π. Absent truly random sequences of numbers, alternatives are used. The Markov Chain Monte Carlo method has led to a revolution in the application of Bayesian statistics. Applications in management, the social sciences and computer simulations are addressed.

Definition The Monte Carlo method is, broadly, a technique that solves mathematical problems by solving their statistical analogues, by subjecting random numbers to numerical processes. The method uses statistical sampling to obtain solutions to deterministic or stochastic problems that cannot readily be solved using closed-form techniques.

The Monte Carlo method is a technique for solving, by use of their statistical analogues, deterministic or stochastic mathematical problems that are not amenable to solution using traditional closed-form algebraic means. In one type of problem, the Monte Carlo method consists in formulating a game of chance or a stochastic (probabilistic) process that produces a random variable whose expected value is the deterministic solution to a certain problem. An approximation to the expected value is then obtained by means of sampling from the resulting distribution (Bauer 1958). The primary source of error in the approximation is due to the fact that only a finite sample can be taken, although the greater the number of samples, the lower the error, as in the Buffon Needle example below.

It is also possible to estimate other moments from the sample distribution, especially useful when the problem is not deterministic: a second type of problem occurs in non-parametric econometrics, when the conditions required for an analytical probability distribution are not satisfied (for example, the error term is skewed) or when the mathematics for a statistic is intractable (for instance, the difference between two sample medians). In these cases and others, Monte Carlo simulation can be used to estimate the sampling distribution of a statistic empirically (Mooney 1997).

As well as assessing the distribution of a new statistic, the Monte Carlo method can be used to assess the robustness of an empirical or simulated analysis to variations in initial conditions or other definitions of the pseudo-population, the set of samples. The method can also be used to search for theoretical formulations of newly constructed statistics. As a computationally intensive technique, Monte Carlo is almost always performed using computers.

Origins

Polymath Stanislaw Ulam faced a tough problem. At the Manhattan Project to develop the atomic bomb in the 1940s, he needed to determine answers to the collective patterns of neutron emissions possibly leading to a chain reaction. Although he knew the basic properties of the motion of such neutrons moving in the medium, try as he might he could not derive closed-form expressions for their equations of motion, including the possibilities of colliding with nuclei. The stochastic calculus required was too complex. And yet the success of the project, and perhaps of the war, depended on solving this problem.

It occurred to Ulam that he could solve the problem without deriving an explicit, closed-form solution. Rather, he could start a simulation of a neutron's trajectory, and then choose its successive velocities by selecting from the experimentally determined probability distributions at each impact and then repeat the exercise many times: no two trajectories would be identical, but each would satisfy the experimental probability distributions. The distribution of paths derived using this statistical sampling would give him the answer sought, and the greater the number of paths, the more reliable the distribution. Ulam's first simulations were painstakingly performed with a calculator, but his insights led John von Neumann to arrange for these simulations to be performed on ENIAC, one of the earliest digital computers (Eckhardt 1987). Although the method had been known as 'statistical sampling' and used

previously, it was not until the advent of such computers that it became practicable. It was named after the casino in Monaco apparently frequented by Ulam's uncle (Metropolis 1987).

Buffon's Needle

To give a mundane example of the first type of problem we can use the statistical sampling of the Monte Carlo method to derive ever more precise estimates of the value of π, by measuring the frequency of a pin, dropped at random, in falling across one of a pair of parallel lines, the Buffon Needle problem (Ramaley 1969).

It can be shown that when a needle of length $2N$ is dropped at random between two parallel lines D units apart, where $2N < D$, that the needle will cross a line with a probability of $4N/\pi D$. If the needle's length is half the distance between the lines, then the probability of crossing becomes $1/\pi$. Hence we can estimate the value of π by randomly dropping a needle of length 1 between a pair of parallel lines 2 units apart, and tallying the frequency of the needle crossing a line. The sample mean of this frequency tends to $1/\pi$. The greater the number of samples, the better the estimate, that is, the more reliable the number obtained. This is an example of using the Monte Carlo method to estimate a deterministic value without using computers.

How could we simulate the Buffon Needle problem? We could choose two numbers, r and θ, that are random, uniformly distributed between 0 and 1. Tally the frequency of the joint event of, first, $r < 2N/D$ (i.e., the needle could cross the nearer line), and, second, $\theta < \frac{2}{\pi} \arccos\left(\frac{D}{2N}r\right)$ (i.e., the needle crosses the nearer line). The frequency of this event will tend to $4N/\pi D$ as the number of samples increases. Of course, this simulation requires the use of a trigonometric function and the number we seek, π. The attraction of the actual needle-dropping is that these things are implicit in the problem set-up, which can also be seen as a way in which the two uniform probability distributions are transformed into the joint event whose frequency is a simple function of the number we seek, π.

In general, there are two ways to use uniform distributions to generate the desired non-uniform distributions (Eckhardt 1987). First, parametrically, using the inverse of the desired function: if g is the desired function, then one applies the inverse function $f(x) = g^{-1}(x)$ to a uniform distribution of random numbers, x. Second, if it is difficult or impossible to form the inverse function (perhaps there are only empirical samples of function $g(x)$), then use von Neumann's 'acceptance-rejection' technique, using two uniformly distributed random variables, as seen in the simulation of the Buffon Needle example above.

This transformation of uniformly distributed random variables into variables whose non-uniform distributions reflect the phenomena under examination is essential for the Monte Carlo method. If the only information we have is historical data, then, rather than fitting the data to a known distribution (which, for complex processes is unlikely to be correct), it is far better to rely on non-parametric techniques to use this data to derive simulation results, as did Ulam in 1944. See the non-parametric bootstrap techniques below.

Pseudo-Random and Quasi-Random Sequences

Judd (1998) reminds us that, absent true random-number generators (although such generators based on quantum physics have recently appeared online), almost all Monte Carlo implementations use *pseudo-random sequences*, that is, deterministic sequences that seem to be random in that they display some properties satisfied by random sequences. Two basic properties are zero serial correlation and the correct frequency of runs, both of which the pseudo-random sequences generated by some algorithm should come close to satisfying to be useful for the Monte Carlo method. But for some purposes, *quasi-random sequences* (or *low-discrepancy sequences*) might be preferable: although they lack the serial independence of pseudo-randoms, they present a much more uniform coverage of the domain, avoiding clusters and gaps in the patterns of a finite sequence.

Stochastic Estimation, Bootstrapping and Markov Chain Monte Carlo

As mentioned above, we can use Monte Carlo to derive estimates of the parameters of stochastic processes. In particular, we can derive the sampling distribution in three ways, where 'bootstrap' generally refers to replicating an experiment by resampling from a given distribution function (parametric) or from observed data (non-parametric) (Rizzo and Albert 2010): parametric bootstrap: repeated sampling from a given probability distribution; ordinary bootstrap: resampling with replacement from an observed sample (non-parametric); and permutation bootstrap: applying resampling without replacement (non-parametric).

The use of Monte Carlo bootstrapping has allowed the widespread use of the Markov Chain Monte Carlo methods of numerically calculating multidimensional integrals, by deriving correlated random samples, where the Markov chain is constructed so as to have the integrand as its equilibrium. MCMC methods include (uncorrelated) random walk Monte Carlo methods. MCMC has enabled the practical use of Bayesian statistics, and is also used in computational physics, biology and linguistics (Diaconis 2009).

Uses in Management and the Social Sciences

Following Metropolis and Ulam's 1949 article, Monte Carlo was soon used by statisticians and econometricians. The first uses by management scientists were for railway carriage management (Crane et al. 1955), investment in heavy industry (Jones and Lee 1955), and air traffic control (Blumstein 1957). Agricultural economists (Willis et al. 1969) were amongst the first social scientists to use the method, although Hammersley and Morton (1954) offered a problem from archaeology. The first suggestion for the use of the Monte Carlo method in strategic management was (future Nobel Laureate) Sharpe (1969).

With the rise of computational simulation models in strategy, and in particular the use of agent-based models (Tesfatsion and Judd 2006), Monte Carlo methods have facilitated the modelling of market interactions of heterogeneous firms and other economic actors. Such models might rely on random numbers, first, to generate exogenous events, and, second, to initialize the attributes of the agents, subject to a statistical distribution.

See Also

- ▶ Computational Simulation
- ▶ Initial Conditions

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Moore's Law

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Abstract

Moore's Law is a productivity projection that was initially made in 1965, based on early trends in the integrated circuit (chip) industry. The projection became a goal that leading chip companies have striven to meet even as the technological barriers became higher with each generation of technology. The consequence of Moore's Law has been smaller, faster and cheaper electronics that have impacted virtually all aspects of daily life worldwide. The pace of technological change driven by Moore's Law has spurred successive waves of creative destruction, as incumbent businesses fall prey to entrants who find new and better applications for the latest technologies.

Definition Moore's Law is the name given to a projection first made by Gordon Moore, later a co-founder of Intel, in the mid-1960s. The currently accepted version of the 'law' (there is nothing inevitable about it) is that the cost-minimizing number of transistors that can be manufactured on a chip will double roughly every 18 months.

Moore's Law is the name given to a projection made by Gordon Moore, later a co-founder of Intel, based on early productivity trends in the integrated circuit (chip) industry (Moore 1965). Moore forecast that the cost-minimizing number of transistors that could be manufactured on a chip would double every year. This was later revised to every 2 years, and is now generally considered to be every 18 months.

For the chip industry (formally known as the semiconductor industry), the pace set by Moore's Law is not a technological inevitability. It became, however, a shared vision, an industry roadmap that guided investment by firms pursuing technological leadership. The resulting exponential technological progress has been achieved at a steadily rising fixed cost that created large ▶ economies of scale. As a consequence, the number of firms operating at the leading edge of chip manufacturing technology is limited, as is entry by new competitors. However, the availability of leading-edge contract manufacturing since the late 1990s has enabled entry by advanced design-only ('fabless') firms, such as Qualcomm, who outsource their manufacturing.

Moore's prediction was based on several assumptions about the ability to control manufacturing defects and the ability to manufacture larger chip sizes. In the decades that followed, the driving technological force has been a steady reduction in the size of transistors, the main components on a chip. The ingenuity of chip designers and their ability to pack more components into less space has also played an important role (Flamm 2004).

Observed results have been close to Moore's prediction, with the outcome being increasingly dense chips. When Moore's first prediction was published in 1965, companies were able to put up to 60 components on a chip. Forty years later, Intel introduced a chip for high-end use ('Itanium 2') with 1.72 *billion* transistors.

The ability to put more transistors in less space has brought faster processors, higher-capacity memory chips, and multi-function chips that improve the cost and portability of all electronic products. The enhanced capabilities and declining prices of chips stimulated enough growth of chip demand to justify the ever-growing cost of maintaining the industry's technological progress.

The type of progress predicted by Moore's Law is not unique. Moore's Law is similar to Wright's Law, posited in 1936 by aeronautical

engineer T. P. Wright with regard to aeroplane production. Wright predicted that costs of production would decline with the volume produced, and his formula predicts the evolution of the semiconductor industry equally as well as Moore's Law (Nagy et al. 2013).

A key complement of chips, the hard disk drive, also achieved exponential growth in its ability to store digital bits in a given area. The combination of cheaper calculating engines with cheaper storage made modern computing not only possible but also affordable by large numbers of people worldwide.

The progress predicted by Moore's Law will eventually come to an end, although forecasts of its demise over the past 40 years have been proved wrong time and again. To date, continued miniaturization of transistors has been enabled by the adoption of increasingly exotic and complex technologies, such as sub-wavelength deep ultraviolet immersion photolithography.

These manufacturing processes have now reached the molecular level. If viewed in cross-section, the thickness of horizontal layers of material deposited on the silicon surface is as little as 1.2 nm (billionths of a metre), barely more than the width of a molecule. The industry's current, silicon-based paradigm will eventually run into its physical limits, perhaps by 2020. The chip industry is looking for breakthrough technologies such as molecular self-assembly to prolong the Moore's Law trajectory.

In the world beyond the chip industry, Moore's Law has come to mean ever-cheaper and smaller electronics with higher performance. Transistors that once cost as much as a dollar each are now available for a billionth of a dollar. Falling prices stimulated new applications that spurred more demand for chips, and higher volumes helped the chip industry to lower the cost per transistor even further in a virtuous cycle.

Moore's Law progress made chips one of the primary ▶ enabling technologies of the information technology revolution that has transformed the world. This transformation can be seen in the transitions within the industry's user base.

When Moore made his initial projection, the chip industry was less than a decade old and primarily supplying government customers for uses such as the space programme and advanced weapons systems. As cheaper, more powerful chips helped bring down the prices of large-scale computers, mainframe and mid-range computers became important business tools, eventually being supplanted by what came to be known as the personal computer. As computing power became cheaper and more portable, it gave rise to the consumer mobile communications industry, first with basic mobile phones and now handheld smartphones capable of serving as multimedia terminals accessing a global data network. Consumers bypassed businesses as the primary market for chips in the mid-2000s (Brown and Linden 2009: 78).

The ▶ creative destruction that these changes entailed would have been impossible without the Moore's Law technology trajectory of the chip industry. Other industries have also been important contributors. In fact, software is an indispensable complement for the realization of the potential created by Moore's Law. However, software productivity does not advance at as fast a rate as hardware because it remains labour-intensive. As a consequence, the full potential of today's chips has yet to be realized.

This untapped potential means there is still ample scope for existing business models to be upended by rivals who invent new uses for the available computing power. More than ever, firms must be on guard against emerging threats and quick to explore new opportunities afforded by changes in technology.

See Also

- ▶ Business Plan
- ▶ Creative Destruction
- ▶ Economies of Scale
- ▶ Enabling Technologies
- ▶ Information Technology and Strategy
- ▶ Software Industry
- ▶ Technological Change
- ▶ Technological Paradigms and Technological Trajectories

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Moral Hazard

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Abstract

Agency theory-based strategic management research has paid extensive attention to the moral hazard problem in the principal-agent relationship between owners and management of firms. However, the term moral hazard has an earlier root and a more general meaning, referring to the problem or risk that one party of an interaction may be taken advantage of by another party due to interest conflict and information asymmetry between the involved parties. Strategic management research has focused on incentive (primarily via executive compensation contract) and monitoring as partial solutions to the moral hazard problem.

Definition Moral hazard refers to the problem or risk that one party of an interaction may be taken advantage of by another party due to interest conflict and information asymmetry between the involved parties.

Moral hazard, together with ▶ adverse selection, is at the heart of ▶ agency theory, which has been widely used in strategic management research. However, the term moral hazard has an earlier root, dating back to the seventeenth century (Dembe and Boden 2000). English insurance companies, in particular, widely used this term by the late nineteenth century (Dembe and Boden 2000). In the academic world, renewed economic study in the 1960s and the 1970s focused on this subject (e.g., Arrow 1968; Pauly 1968; Zeckhauser 1970; Marshall 1976 (although completed in 1975); Mirrlees 1999). Since moral hazard was first considered in the context of insurance, let's use insurance as an example. In the context of theft insurance, the insured party can take actions to reduce the likelihood that a property will be stolen, such as the installment of a security system. However, if the cost of the stolen property is fully covered by the insurance policy, the insured party will have little incentive to take the actions because it will bear the expense of taking the actions but won't cover the loss if it occurs. The behaviours of the insured party stemming from its self-interest thus adversely affect the interest of the insurer. The moral hazard problem may also, but not necessarily, lead to socially inefficient outcomes because the risk shifts from the party that can most efficiently protect the property (the insured) to the party that cannot (the insurer).

The moral hazard problem has two primary sources – different self-interests (or interest conflict) of the involved parties and information asymmetry between the involved parties. As the above example shows, the insured party and the insurer have different self-interests. As the insured party behaves in its best self-interest, its behaviour adversely affects the interest of the insurer. A moral hazard problem stemming from interest conflicts of the involved parties can be further amplified by unobservable behaviours of the involved parties, or, more generally, ▶ asymmetric information between the involved parties. If actions of the insured party are perfectly observable, optimal risk-sharing can be achieved by developing a contract that penalizes its dysfunctional behaviours. However, in most cases, full observation of actions is either impossible or prohibitively costly. Given the self-interest of the

involved parties, one or more parties may or may not behave as agreed, but the other party cannot verify their actions. Economists have discussed two partial solutions to the moral hazard problem. One solution aims at solving the interest conflict problem and focuses on the development of optional contract that can shift part of the risk back to the insured party and thus align the interests of the involved parties, such as selling insurance policies with either a large deductible or that cover only a percentage of the loss. The other solution aims at solving the information asymmetry problem and emphasizes the importance of 'observation' by the insurer of the actions taken by the insured party to prevent a loss. Observation allows the insurer to link observed level of care to the contract (e.g., the premium) and/or the enforcement of the contract (the amount of coverage paid in the event of a claim), which will motivate the insured party to take actions to reduce the probability of a loss.

While the moral hazard problem may exist in many relationships such as employer–employee and buyer–supplier, the most prominent case that interests strategic management researchers is, arguably, the principal–agent relationship between owners (the principal) and management (the agent) of firms (Eisenhardt 1989). In this relationship, the owners (the principal) delegate work to the management (the agents) but cannot effectively monitor the behaviours of the management. Moral hazard problems arise when the agent (the management) does not give the agreed-upon effort – that is, the agent is shirking, or when the agent takes actions to maximize its self-interest at the cost of the principal (e.g., diversification, and merger and acquisition).

The primary solutions to the moral hazard problem in this principal–agent relationship rely upon 'incentive' and 'monitoring'. They correspond to the solutions of 'interest alignment' and 'observation' in the original moral hazard literature, respectively.

Addressing the 'incentive' issue, Jensen and Meckling (1976) discussed how equity ownership of management can align the interests of management and the interests of owners. In this line of research, strategic management scholars have examined both the antecedents and consequences of executive compensation, especially the role of equity-based forms of compensation in addressing the moral hazard problem on the part of executives (Daily et al. 2003). It is worth noting that, while stock ownership and stock option are both equity-based forms of compensation, they have asymmetric risk properties (Sanders 2001). More specifically, the value of stocks owned by executives changes in direct proportion (positively and negatively) to shareholder returns; however, stock options reward executives if stock price goes up but do not penalize them if stock price goes down (Sanders 2001). Thus, stock option can lead to excessive risk-seeking behaviours on the part of executives, which can create the moral hazard problem.

Addressing the 'monitoring' issue, Fama (1980) described the role of efficient capital market (e.g., takeover threat) and labour market (e.g., settling-up) that can be used to control the self-serving behaviours of management. Fama and Jensen (1983) discussed the role of the board of directors in controlling the self-serving behaviours of management. While these early studies of financial economists have examined both external and internal monitoring mechanisms, strategic management scholars have mainly focused on the role of the board of directors as monitoring mechanisms. Extensive research effort has been paid to the role of board composition, particularly CEO–board chair combination/separation, the number and proportion of outside (or independent) directors, equity ownership of the CEO and (outside) directors, and the tenure of the CEO and (outside) directors. However, Dalton and colleagues (1998) meta-analysis showed no consistent relationships between board composition and firm financial performance. Recently, strategic management scholars have started to look at external monitoring mechanisms. Wiersema and Zhang (2011), for example, examined the monitoring role of stock analysts and found that stock analysts' stock recommendations played an important role in the board of directors' decision on CEO dismissal.

While strategic management research on the moral hazard problem has primarily focused on

the principal–agent relationship between owners and management of firms, recent research effort has gone beyond this relationship. In one example, the presence of a controlling owner is common in firms in emerging markets, which can stem from family ownership, state ownership and business group. Young and colleagues (2008) focused on interest conflict between controlling shareholders and minority shareholders, and reviewed the moral hazard problem in the principal–principal relationship. In another example, examining underpricing of IPO firms, Arthurs and colleagues (2008) tested a multiple-agent perspective, arguing that there are multiple agents on the board of an IPO firm (managerial agents, agents representing venture capitalists and agents representing investment banks) with different preferences. While these efforts go beyond the principle–agent relationship between owners and management of firms, they are in line with the original idea of moral hazard. As discussed above, the moral hazard problem is not limited to the principal–agent relationship between owners and management of firms, but can exist in many relationships as long as involved parties have different self-interests and information asymmetry.

See Also

- ▶ Adverse Selection
- ▶ Agency Problems
- ▶ Agency Theory
- ▶ Asymmetric Information
- ▶ Incentive Design
- ▶ Incentives
- ▶ Incomplete Contracts
- ▶ Transaction Cost Economics

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Muddling-Through Theory

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Abstract

One of the traditions in the bounded rationality line of thinking is incrementalism – otherwise known as 'muddling through'. It was conceived by Charles Lindblom in two key articles (Lindblom Public Adm Rev 19: 79–88, 1959;

Public Adm Rev 39: 517–526, 1979), and it has influenced the management literature in several ways.

Definition Changes in organizations come about through incremental change rather than revolutionary change. Decision makers within organizations make decisions from an evolutionary perspective, muddling through decisions in a way that minimizes analysis.

Introduction

Making strategic decisions in the real world is not usually about making rational, calculated choices (March 2005); instead, strategy and strategic management involves a host of other activities, such as ▶ satisficing, rule following, organizational slack and other non-rational elements. One of the counter-points to the rational model of decision-making – wherein decision makers identify preferences, problems, solutions, and make choices to maximize utility with perfect information – is the bounded rationality tradition, where decision makers make choices in the context of limited rationality. Without the information, power or cognitive capacity to make a total judgement of the above factors, decision makers find their rationality to be bounded. This model goes against some of the tenets of neoclassical economics, but has become influential in several disciplines, including strategic management.

One of the traditions in the bounded rationality line is incrementalism, otherwise known as 'muddling through'. It was conceived by Charles Lindblom in two key articles (Lindblom 1959, 1979), and it has influenced the management literature in several ways. Lindblom's incrementalism is a perspective that is both behavioural and evolutionary in spirit and embraces a dynamic world view. Decision makers do not change the world. Instead, when they identify options they do so in ways that are not likely to radically change the status quo. In his 1959 article, Lindblom describes this approach as 'successive limited comparisons' (Lindblom 1959: 81), while in his later work he describes it as 'simple incremental analysis' or 'disjointed incrementalism' (Lindblom 1979: 517).

Main Key Contributions

In his 1959 article, 'The science of "muddling through"', Lindblom identifies the following as the components of the 'successive limited comparison' approach:

1. Selection of value goals and empirical analysis of the needed action are not distinct from one another but are closely intertwined.
2. Since means and ends are not distinct, means-end analysis is often inappropriate or limited.
3. The test of a 'good' policy is typically that various analysts find themselves directly agreeing on a policy (without their agreeing that it is the most appropriate means to an agreed objective).
4. Analysis is drastically limited:
   i. Important possible outcomes are neglected.
   ii. Important alternative potential policies are neglected.
   iii. Important affected values are neglected.
5. A succession of comparisons greatly reduces or eliminates reliance on theory (Lindblom 1959: 81)

Lindblom refined the analysis in his 1979 paper and identified two primary types of incremental analysis – simple and disjointed. Simple incremental analysis is 'limited to consideration of alternative policies all of which are only incrementally different from the status quo' (Lindblom 1979: 517); disjointed analysis is 'marked by a mutually supporting set of simplifying and focusing stratagems of which simple incremental analysis is only one, the others being those listed in my article of 20 years ago' (Lindblom 1979: 81):

(a) Limitation of analysis to a few somewhat familiar policy alternatives;

(b) An intertwining of analysis of policy goals and other values with the empirical aspects of the problem;
(c) A greater analytical preoccupation with ills to be remedied than positive goals to be sought;
(d) A sequence of trials, errors, and revised trials;
(e) Analysis that explores only some, not all, of the important possible consequences of a considered alternative;
(f) Fragmentation of analytical work to many (partisan) participants in policymaking.

Both articles identify the key insight of incrementalism – that search is bounded by past experience, that changes made are evolutions of prior actions. This is somewhat different from but not inconsistent with the other stream of research in bounded rationality – satisficing (Winter 1971) – where decision makers search not to maximize utility but to clear a minimum threshold of acceptability. In this case, while search occurs, the ideas generated may be radically different provided that they lead to a satisficing end. It also is similar in spirit to March, Cyert and Simon's emphasis on organizational processes and trial and error learning; and (like March 1962). Lindblom embraces a political view of the organization. He also shares with the Carnegie behaviouralist a perspective that is empirically driven and more realistic than neoclassical rational perspectives. His analysis of organizational decision-making also was motivated by his earlier experiences at RAND where he was tasked by Charlie Hitch to do a major organizational study on the trends at RAND.

Muddling-Through in Management and Strategy

Lindblom's perspective has been influential in the management and organization science literature. Levitt and March, in their article reviewing the literature on organizational learning, identify Lindblom's insight as one of the 'three classical observations drawn from behavioral studies of organizations' (Levitt and March 1988: 320). March considers Lindblom in scholars in the 'limited rationality' school – where 'individuals and groups simplify a decision problem because of the difficulties of anticipating or considering all alternatives and all information' (March 1978: 591). Amit and Schoemaker (1993) reference Lindblom's thinking in their influential work on the firm as a bundle of resources and capabilities, as do Daft and Weick (1984) in studying organizations as interpretation systems.

There is, however, a debate about whether incrementalism truly captures the decision process, not to mention whether or not it is preferable to other means of making decisions. Eisenhardt's study on fast strategic decisions in high-velocity environments (1989), however, fails to find evidence for the idea that decisions consume much time. While people may be boundedly rational, Eisenhardt argues, they are 'also capable of engaging in sensible problem-solving strategies to help compensate for their limitations' (Eisenhardt 1989: 573).

In the strategic management literature, incrementalism has taken hold in thinking about strategy making and the management of strategic change. Johnson (1988) describes incrementalism as 'a descriptor of strategic management processes' that 'has become current in the 1980s and taken on normative implications' (Johnson 1988: 75). Fahey (1981) lumps incrementalism with 'a less populous but nonetheless significant body of literature... on the roles of behavioural and political factors in organizational strategy making' (Fahey 1981: 43). Yet Eisenhardt and Zbaracki (1992) find that even when confined to strategic management, incrementalism and bounded rationality work sets up a rational theory straw man that may not resemble theory as it is conducted. Hart and Banbury (1994) suggest that the dichotomy between rational and incremental strategy making is false.

At the very least, the phrase 'muddling through' and its core concepts have penetrated a wide number of literatures (even despite a lack of methodological rigour). As of 11 June 2013, Google Scholar search of the phrase finds 16,800 published items since 2010.

Muddling Through Strategic Decisions

It may also be worth mentioning some similarities between muddling through and another perspective central to strategic management decision-making, the garbage can theory of organizational choice, which argues that decisions take place in the realm of ambiguity (Cohen et al. 1972). March suggests the garbage can model (GCM) falls under the umbrella of 'ideas of contextual rationality', which 'emphasize the extent to which choice behavior is embedded in a complex of other claims on the attention of actors and other structures of social and cognitive relations' (March 1978: 592). The GCM suggests that decisions are a function of unclear preferences, unclear decision technology, and unclear participation – in this organized anarchy, decisions occur streams of problems, solution, decision makers, and choice opportunities interact. One might call organizations collections of choices looking for problems, issues and feelings looking for decision situations, solutions looking for problems, and decision makers looking for choices (Cohen et al. 1972).

Muddling through/incrementalism is complementary to this concept, although there is an important difference: incrementalism assumes an active choice to look for a decision, while GCM suggests the decision opportunities come out of a confluence of streams; problems and solutions happen to enter the decision-making hopper at the same time whether or not decision makers push them forward. Where incrementalism might complement GCM is in (1) solution options and (2) decision technology. Perhaps in the future, an integration and combination of the two perspectives may be able to add important insights into strategic decisions and strategic management, building on the shared foundational and behavioural assumptions of limited rationality and embracing an empirically relevant perspective.

See Also

- ► Garbage Can Metaphor
- ► Satisficing

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Multinational Corporations

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Abstract

Multinational corporations (MNCs) are firms that control economic activities across national boundaries. Theories of the MNC explain it using monopoly power, competitive advantages or internalization theory. Its role in

diffusing knowledge worldwide and its pattern of foreign market entry have been successfully analysed. The current research focus is on MNCs as coordinators of networked constellations of independent firms. A related area of research has been the analysis of the management of international business organizations.

Definition Four alternative types of definition of multinational corporations (MNCs) are:

1. An 'operating' definition, one form of which is the ownership threshold definition – a firm which owns or controls income-generating assets in more than one country;
2. A 'structural' definition where multinationality is judged according to organization of the company;
3. A 'performance' criterion, incorporating some relative or absolute measure of international spread (for example, number of foreign subsidiaries, percentage of sales accounted for by foreign sales);
4. A 'behavioural' criterion based on the corporation's degree of geocentricity.

Theories of the multinational corporation (MNC) Theories of the ▶ multinational corporation (MNC) have developed in parallel with changes in the institution itself. As this short review shows, several basic principles have retained their explanatory power whilst other factors have proved temporary in theory relevant to explaining the evolution of multinational firms. What is of central importance is the relationship of theory to the real world and to the practice of management.

The MNC and Monopoly Power

The subject of ▶ international business was launched by Stephen Hymer's 1960 (published 1976) *The International Operations of National Firms* and has come a long way since then. Hymer's thesis was essentially on how *national* firms undertook international operations – now we look on global operations as fully integrated with each other in a network. However, Hymer's fundamental insights moved international business into the forefront as the study of international operations controlled by a single firm. The key concept, *control*, differentiated foreign direct investment (FDI) from foreign portfolio investment, where an actor simply adds foreign assets to its portfolio of assets. This made the firm central to international business, not financial flows. Indeed, Hymer recognized that FDI transferred a package of resources abroad, not just finance. The elements of this package were intriguing – as well as capital, technology, skills and key personnel may be transferred abroad, which led to the question of how a foreign firm could outcompete a domestic firm in its own (host country) environment. The answer lay precisely in the international asset transfer which enabled the foreign multinational firm to have an *advantage* even though it was subject to the liabilities of foreignness (Zaheer 1995).

Hymer's first answer was that the advantage lay in monopoly power. This led to a stream of critical literature on the MNC (e.g., Barnet and Muller 1974) and views of the dominance of these firms (vis-à-vis small, developing countries in particular). This has developed into theories of MNCs as oligopolists (competition amongst the few) who dominate market segments and industries globally and engage in 'leader-follower' behaviour and cross-penetrate each other's markets on an 'exchange of threat' basis. This leads us to conceptualize MNCs as indulging in global strategic games amenable to analysis by game theoretic models (Knickerbocker 1973).

The MNC and Competitive Advantage

Hymer's basic idea was developed and extended by Kindleberger (1969) – Hymer's supervisor. Kindleberger listed a set of advantages which gave a firm the potential to become a foreign direct investor and therefore a multinational firm. These included the ownership of a brand name, the possession of special marketing skills, access to favoured sources of finance, team-specific

management skills, economies of scale at plant level and economies of vertical integration (1969: 14).

The Hymer-Kindleberger theory suggested that there are two important barriers that lead to direct foreign investment. The first is barriers to trade which prevent the MNC from being able to export profitably. The second is the inability of indigenous firms to acquire the competitive advantage held as proprietary knowledge by the MNC. The theory needed to be rounded out by systematic investigation of the costs of creating what are now known as 'dynamic competitive advantages' (Teece et al. 1997). This focused attention on knowledge creation through R&D, knowledge protection through intellectual property rights, and knowledge management and diffusion (Buckley and Carter 2000, 2004).

The MNC, Internalization and Coordination

Even if the MNC does have the potential to go abroad, why should it choose FDI rather than the alternative of licensing its 'advantage' to a foreign licensee who, given that a local domestic firm has no liability of foreignness, is likely to operate more profitably than a foreign entrant? The answer lies in the market for intermediate goods. *Internal* transfer of the 'advantage' (which is likely to be knowledge-related) is often more effective than external transfer via the market, as in the case of licensing. This led Buckley and Casson (1976) to formulate the ▶ internalization theory of the MNC, deriving their key idea from Coase (1937), who showed that firms exist because they can coordinate activities better than the market. The point at which the market is a superior coordinator to the firm defines the firm's boundaries. Buckley and Casson used internalization, together with the idea that firms seek the least cost location for their activities, to define an MNC simply as a firm that internalizes markets (and therefore controls assets) in more than one country. This focus on the firm as a controller of internalized bundles of asset services focused attention on the role of intangible assets. The creation of intangible (knowledge-based) assets, their use and diffusion throughout the firm, and the appropriation of the returns from these activities (and their reinvestment in further R&D and knowledge creation) provides a satisfying explanation for the existence of multinational firms who coordinate markets across national borders. Further, it is possible to predict which markets are likely to be internalized (e.g., the more knowledge-intensive ones) and therefore the direction of expansion of multinational firms.

The model analyses a representative MNC that exploits an internationally transferable intangible public good, such as knowledge (Buckley and Casson 1976). It is assumed that this knowledge is embodied in a unique product (or product variety) which is monopolized by the firm usually protected by a brand. Whilst the product has competitors, alternative products are imperfect substitutes (Chamberlin 1933). The firm therefore faces a downward-sloping demand schedule in each market. The firm defends its intellectual property by internalizing the exploitation of this intangible asset. This means that the firm owns its own production facilities – it does not license or subcontract production – and it controls its own marketing – it does not franchise to independent distributors. The firm can, in principle, produce and sell in any part of the world. Any given market may be sourced by local production, or by imports, or a combination of the two. Any production plant may serve just the local market, or export markets too; in the limiting case it may become an 'export platform' which produces only for export.

If markets were fully integrated then MNCs would be obliged to charge the same price for the same product in every country, because if they did not then arbitragers would buy up their product in the cheaper markets and export it to the more expensive ones. Some countries have introduced competition policies to encourage arbitrage of this kind (e.g., internet retailing of motor car imports). In practice, though, many MNCs retain effective control over the pricing of their products – especially when products are branded, patented or otherwise unique. It is assumed in this model that, whilst the firm's internal market is

fully integrated, its home and foreign markets remain sufficiently distinct that it can set a different mark-up on the common internal price in each market.

By contrast, the firm has no power to impose a discriminatory process on customers in a given country. It can set different prices in different countries, but must charge the same price to all customers in the same country. This contrasting treatment is designed, not to simplify the model, but rather to reflect reality. In a typical industry there are normally more customers for the product than suppliers of production sites, and customers are more reluctant to enter into long-term contracts than suppliers. To achieve the same degree of control over a customer that it has over its production site a firm would normally need to integrate forward through acquisition of its customer's business, which is often completely impractical, and usually uneconomic.

It is, of course, necessary to examine why MNCs pick particular locations for their activities. One obvious reason is to access the foreign market for products and services and this is the unwritten assumption of many early approaches to the MNC. However, as well as *outputs*, MNCs control *inputs* too, and resource-seeking MNCs invested in order to control oilfields, mineral deposits, agricultural raw materials and land. It further became obvious that MNCs also seek to reduce their overall costs by reducing their wage bills and taxes. Efficiency-seeking FDI looks particularly for low-cost labour and low taxes, relocating activities such as labour-intensive routine production so as to reduce overall costs.

Two interesting theoretical developments flow from this. First, a generalized view of the motives for FDI:

Market-seeking
Resource- (or input-) seeking and
Efficiency-seeking.

A subcategory of input-seeking FDI of *strategic asset-seeking* is often added.

The second issue is the notion of MNCs as a network, circulating mobile assets around the world and combining them with immobile factors (markets, raw material deposits, cheap labour). From this we derive the ideas of asset services as flows between locationally fixed nodes and 'the global factory' (Buckley 2009) as the outcome – an internationally integrated network centred on a 'focal firm'.

The MNC, Value Creation and Diffusion

There is clearly a strong relationship between MNCs, knowledge-intensive production and services, research and development, and the appropriation of returns from intangible assets. This is the basis for Vernon's (1966) product cycle hypothesis (PCH). The PCH focuses on the changing competitive advantages of the MNC over competitor firms over time. In the new product stage, the advantage derives from innovation. This will tend to be localized in advanced countries because of communication costs between the activities of innovating firms and between those firms and customers. In the maturing product phase, economies of scale begin to be possible, as does reaching markets with income levels below that of high-income customers. Exporting takes place in this phase as the market begins to appear outside the original metropolis and then the firm switches its foreign market servicing policy away from exports to investment as costs of FDI fall. Finally, in the mature product phase, the firm locates labour-intensive activities in a low-wage country to reduce costs. We thus observe *sequentially* innovation, international market servicing strategies and cost-driven FDI.

Modern theory retains these explanations but removes the sequential element, and so the modern MNC makes innovation, optimum foreign market servicing and cost-efficiency decisions *simultaneous* strategy choices. This has led on to the 'international management' literature referred to below.

The MNC, Internationalization and Sequential Market Entry

Early investigations of internationalization strategy revealed that MNCs entered individual

foreign markets in a sequence dominated by psychic distance (or cultural distance) from the home country. Thus Swedish firms would invest first in Norway, then Denmark and would gradually penetrate markets that were further from them in cultural terms. This contrasted psychic distance with geographical distance, as countries can be geographically near but culturally distant and vice versa. Further, researchers at Uppsala University in Sweden (Johanson and Vahlne 1977; Hallen and Weidersheim-Paul 1993) suggested that an establishment chain in each country came into play, whereby a firm could enter first by exporting then by licensing (or other non-equity modes) and then develop to sales and eventually full production or service activity. These two forms of sequential entry and gradual penetration enabled inexperienced firms to minimize risk and maximize learning. Although not rigid stages, nor a complete theory, the 'Uppsala approach' has had lasting value as a guide to internationalization, particularly for inexperienced, smaller or naive firms. The emphasis on knowledge, and sequential learning, has permeated other theories. The approach also connects with network approaches to internationalization, whereby a firm internationalizes through its business network connections and may pull other connected firms into internationalizing.

Internalization Theory and Transaction Cost Economics

The basic concepts of internalization theory were applied to the multinational firm by McManus (1972) and Hennart (1982), and developed by Rugman's advocacy (1981). Williamson's work (1985) utilized transaction cost economics to explain the large, integrated firm but did not explicitly model the multinational corporation, as the key concepts such as opportunism and bounded rationality are considered in a domestic context and rely, typically, on US-centred notions of culture and business behaviour. Generalization to the multinational case is, therefore, compromised.

Kogut and Zander (1993) amplified the approach to multinational corporations by emphasizing their role in the international transfer of knowledge. Such transfers are easier to accomplish with a single multinational corporation because of a shared corporate culture rather than between independent firms. The more tacit that knowledge is, the more the multinational corporation is appropriate as a transfer mechanism. When knowledge is explicit and able to be codified, documents and manuals are adequate to achieve transfer, but when knowledge is complex and difficult to codify, multinational corporations can send expatriates in person to effect the transfer, or train local employees.

An Interim Summary: The Eclectic Synthesis

In 1977 John Dunning produced the first version of the 'eclectic paradigm', which remained an effective synthesis of the literature as it progressed through many refinements (Dunning and Lundan 2008). The synthesis is focused on three key factors – ownership, location and internalization (OLI). MNCs were conceptualized as choosing the optimum location (L) for their various activities, as owners (O) of key investments and assets, and choosing internalized operations (I) to give control of their activities. The eclectic synthesis provided an enduring and flexible checklist but became unwieldy as more subcategories were added, and eventually resembled a useful system of categorization rather than a theory. MNCs gradually evolved systems (as we shall see) of divorcing control from ownership and externalizing activities that nevertheless remained in the global factory system. The relationship between the generation of ownership assets and internalization also remained unresolved and many commentators preferred to see OLI as a static classificatory system rather than as a dynamic theory.

International Management (IM)

International management (IM) has diverged from international business (IB). IM has focused on the organizational development and multinational

firms, process models of strategy formulation and execution, models of internationalization as behavioural and learning processes and governance issues. It has drawn its inspiration from business history (Chandler 1962, 1977, 1990) and has shed light on ownership and entry strategy (Stopford and Wells 1972), a dynamic development towards 'heterarchy' rather than hierarchy (Hedlund and Rolander 1990), on innovative structures to resolve the inevitable trade-offs in international operation (e.g., the 'transnational solution' of Bartlett and Ghoshal 1989), incompetitiveness (Porter 1980, 1985), and on strategies seeking new segments by innovative methods – Prahalad's (2009) reaching the 'bottom of the pyramid' (the poorest consumers in developing countries).

New Theorizing: The Global Factory

The synthesis of theory that makes up the conceptual structure of the global factory draws on much of the earlier literature in IB. Location choice and internalization are two key theoretical underpinnings. The globally integrated network that is the global factory is made up of locational choices, together with flexible selections amongst a set of potential means of managing its set of activities. The *locational configuration* of the global factory is based on least-cost location – dynamic moves towards the set of locations which minimize overall costs. The *control configuration* combines both internalized activities (such as FDI) and externalized activities such as outsourced component suppliers. Offshoring is an example of a location decision, outsourcing is an example of an externalization choice.

This analysis of the globally integrated network will change over time. Its dynamic is determined by factors such as control over knowledge and the need to both maintain and diffuse knowledge within the firm and protect it from outsiders, the need to create new competences and to seek new, emerging markets. Flexibility and resilience are desirable characteristics. Flexibility is given by the choice of methods of doing business – such as joint ventures (Kogut and Kulatilaka 1994) – and maintaining alternatives. Resilience is achieved by orchestrating all the elements. As we shall see, these developments require new styles of management.

The competitive advantage of interconnected firms (Lavie 2006) arises from the ability of the focal firm to extract rents from assets that it does not necessarily own. Such assets may be quasi-internalized. This idea can be traced to Penrose's (1959) point that it is not the resources themselves but the services that they provide that generate value for the firm (Lavie 2006: 241). Forsgren et al. (2005) refer to the 'embedded multinational' to reflect the close interconnection between firm and environment.

Modern, networked MNEs internalize knowledge, not necessarily operations. Internalization theory views the firm as a complex of interdependent activities, linked by flows of knowledge and intermediate products. These internal flows are coordinated by intermediate flows through the 'internal markets' of the firm. There are two distinct forms of internalization – operational internalization, involving intermediate products flowing through successive stages of production and distribution channels, and knowledge internalization, particularly flows of knowledge from R&D and marketing information. Both forms of internalization play a role in determining the boundaries of the firm. It is empirically the case that operational internalization has decreased because of moves to outsourcing whilst knowledge internalization has tightened, leading to distributed multinational firm systems (Buckley and Ghauri 2004; Buckley 2009, 2011; Buckley and Strange 2011; Liesch et al. 2012).

Summary

As the multinational corporation changes, so do theoretical approaches. The evolution of theory and strategy has been from conceptualizing the MNC as a monolithic, hierarchical, unitary firm to a 'focal firm' orchestrating, but not necessarily owning, an array of activities located in its optimal locations worldwide.

See Also

- ▶ Buckley and Casson
- ▶ Internalization Theory
- ▶ International Business
- ▶ Multinational Corporations
- ▶ Theory of the Firm

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Multinational Subsidiary Mandates

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Abstract

The overall organizational profile of the contemporary multinational comprises a differentiated network of subsidiaries, through which it can address the range of its strategic needs for both current performance and longer-term survival. Thus individual subsidiaries are mandated to play distinctive roles, determined by the needs and/or potentials of their location, which feed into the wider competitive performance of the group. These can be *resource seeking*, securing access to primary products; *market seeking*, targeting optimally responsive supply to the host-country market; *efficiency seeking*, co-opting cost-effective inputs into current production processes; or *knowledge seeking*, internalizing host-economy creative expertise, technology and R&D capability into innovation and group renewal.

Definition The contemporary multinational enterprise addresses the heterogeneity of its globalized competitive environment through networks of subsidiaries which have secured mandates to play a specific role, or a more or less coherent mix of specific roles, in their group's overall strategic profile. These mandates can either aim to secure the effective use of existing firm-specific sources of competitiveness or pursue the upgrading or renewal of these attributes through subsidiary-level innovation.

A crucial facet of the growing extent and influence of MNEs in the global economy in recent decades has been the increasing range of strategic roles or motivations they can now mandate individual subsidiaries to play. In effect, the extended facility and flexibility of international transfers permitted by institutional changes and technological advances have allowed MNEs to disperse and network more extensive parts of their value chain. Thus, these companies can now select, from an expanding range of locations, the most effective from which to pursue separate elements of their diverse strategic needs and profile. Such an understanding of the strategic heterogeneity of the contemporary MNE allows us to model both how their operations can draw the needs and potentials of separate economies into globalization at a point in time, and also how they can sustain participation in these economies as they develop and change over time (Papanastassiou and Pearce 2009: 1–20, 216–229; Zhang and Pearce 2012: 23–41). Here we elaborate on the derivation and application of a typology of subsidiary-level motivations pioneered by Behrman (1984: 101–113) and extended and refined by Dunning (1993: 56–61; 2000; Dunning and Lundan 2008: 67–74).

Resource Seeking

The typologies of subsidiary roles or mandates routinely start with resource seeking (RS). This may reflect two perceptions. Historically, it is accepted that RS was the most pervasive motivation in the first wave of expansion of firms conforming to the norms of MNEs, that is, up to 1914, when the need was to access resources, mainly to support home-country industrialization. In terms of the contemporary MNE, it is still plausible to see RS as the *first* step in vertically integrated value chains that will subsequently bifurcate to encompass other motivations.

In their categorization, Dunning and Lundan (2008: 68–69) see natural resource-seeking operations being located where they can 'acquire particular and specific resources' that can 'help to make the investing enterprise more profitable and competitive in the markets it serves'. They discern three strands of RS. First, they seek physical resources in terms of 'mineral fuels, industrial minerals, metals and agricultural products'. Then, second, 'labour-seeking' investments target 'plentiful supplies of cheap and well-motivated unskilled or semi-skilled labour'. The third facet of Dunning and Lundan's RS aims to acquire for the wider use of the MNE technological capability, management or marketing expertise and organisational skills.

An alternative approach to categorizing subsidiary mandates (Papanastassiou and Pearce 2009; Zhang and Pearce 2012) adopts a more parsimonious perspective on such resource accessing, with natural resource (or primary product) seeking constrained to the first of the Dunning and Lundan strands. This serves two purposes. First, it allows the sourcing of cheap labour supplies to be seen as so central to efficiency seeking that it is reallocated there. In a similar way, the co-option of technological and skill-expertise resources is perceived as a vital component of the more broadly defined knowledge seeking. Second, the focus on natural resources then delineates those that are either 'non-renewable' or subject to notable vulnerabilities in future supplies. This proves very helpful in attempts to trace the effects of different types of MNE motivation on the developmental potentials of host economies (Zhang and Pearce 2012: 23–41).

Market Seeking

If RS operates at the start of value chains, broadly defined market seeking (MS) operates at the final stage where goods/services are sold to ultimate consumers. But the way in which MS has been a role mandated to subsidiaries has evolved considerably over time to proactively reflect key changes in MNEs' competitive environment. Thus, the broad-brush essence of MS has been long understood as production within a country specifically for that country's market (or, at most, with some spread into very similar and probably contiguous markets). But the positioning of this can be seen to have changed over time from being defensively motivated ('to sustain or protect existing markets') to more active or aggressive ('to exploit or promote new markets') (Dunning and Lundan 2008: 70).

The 'traditional' mode of MS has been designated as 'tariff jumping FDI', suggesting that MNEs relocate production of successful mature goods into economies they would prefer to supply through trade (from a lower-cost location) owing to the imposition of protectionist restraints. Though this type of operation may have reached its apotheosis in the 1960s, its roots are most influentially found in the waves of protectionism provoked in the more successful industrial economies in the 1930s. It then received an extending impetus in the immediate postwar decades when, with trade barriers still in place, many domestic economies grew more significantly owing to expansionary (Keynesian) fiscal policies (including reconstruction). In addition, the aggressive import-substituting industrialization policies adopted by poorer countries during this era also began to generate a new context for MS production of MNEs.

Individual subsidiaries pursuing an MS mandate in this manner were reflecting a multi-domestic strategy (Porter 1986) by MNEs, such that each unit fought an isolated competitive battle for its host-domestic market. The overall organizational structure of MNEs dominated by this motivation can, therefore, be designated as a multi-domestic hierarchy (Papanastassiou and Pearce 2009: 1–20), with a portfolio (notably not a 'network') of similar subsidiaries operating in a self-contained competitive environment, but with sources of competitiveness provided by the parent group. However, this mode of operation encompassed endemic inefficiencies, essentially those attributed to protectionism per se; failure to meet economies of scale; use of inappropriate technologies; X-inefficiency (Papanastassiou and

Pearce 2009: 5–8). Therefore, the lowering of trade barriers and the generalized intensification of international competition with globalization rendered such MS supply indefensible. One response to this, we will see, was efficiency seeking, in which subsidiaries became cost-effective producers of goods for their MNE's integrated supply networks. But alongside this a new variant of MS operations emerged.

Indeed, when analytical frameworks in IB began to address the diversity of strategic positioning available to subsidiaries within the growing complexity of globalization, one of the first influential approaches focused on the apparently contrasting imperatives of *integration* and *responsiveness* (Prahalad and Doz 1987; Jarillo and Martinez 1990; Taggart 1996, 1997a; for a review see Papanastassiou and Pearce 1999: 37–40). Here, responsiveness acknowledges that MNEs very quickly learned that securing competitive benefits from globalization went far beyond the potentials of standardization and homogeneity in products and recognized the strategic value in utilizing (rather than fearing or overriding) heterogeneity in different economies. Thus, 'second generation' MS targeted aggressive responsiveness to separate markets by using localized production and marketing to secure effective adaptation of the group's successful goods to local tastes and regulations. This can also provide for exploratory learning processes that help enhance overall group-level effectiveness. One example of this may be found in the way that studies in the 1990s of MNEs' early entries into newly opening economies in Central and Eastern Europe found MS much more pervasive than lower-cost efficiency seeking (ES). This not only provided for a potential first-mover advantage in still idiosyncratic and markets that are not fully formulated but also allowed for an understanding of the economy's productive potentials and vulnerabilities before any commitment to low-cost ES supply to the MNEs' wider markets. Similarly, a recent study of the Chinese subsidiaries of leading manufacturing MNEs (Zhang and Pearce 2012) not only found MS to be the prevalent motivation but that this very promptly encompassed product adaptation for the local market.

Efficiency Seeking

Though a growing awareness of the value of responding to market heterogeneity led to the emergence of the new variant of MS during the era of globalization, the more immediately systemic and pervasive reformulation of subsidiary roles was that of efficiency seeking (ES). This reflected two factors. First, the persisting intensification of competitiveness in the internationalized markets for standardized mass-market products (Papanastassiou and Pearce 2009: 6–8); second, the ability, with the progressive lowering of restraints on trade, to separate where such goods are produced from where they are most often sold. These developments were, indeed, quite precisely those predicted by Vernon (1966) for the *standardized product* stage of the original product cycle model. The most influential pioneering manifestation of this strategic motivation became the substantial relocation by Japanese firms of the production of their labour-intensive price-competitive goods into other, low-wage, Asian economies, most notably those that would become the first generation of Asian tigers' (Kojima 1978; Ozawa 2009).

Thus, the essence of ES, operationalized at the subsidiary level, was that of taking 'a specialised position within the MNE group's supply programme . . . [that] could involve the manufacture of limited parts of the group's current range of final products, supply of component parts for assembly by other group subsidiaries, or performing a particular stage in a vertically-integrated production process' (Papanastassiou and Pearce 1999: 27). This represents a complete reconfiguration of the MNE's decision process with regard to the location of production of its current products. Whereas an MS subsidiary would produce all those parts of the current range for which the *demand* side determined a viable *host*-country market, an ES operation would only manufacture a subset of goods or intermediates where local *supply*-side (input availabilities, static comparative advantage) factors matched their production requirements, but do so mainly for *export* markets.

Three sources of efficiency, usually denied to MS operations, then emerge from this. First, access to the group's international markets facilitates realization of economies of scale. Second, matching location input availabilities with manufacturing technologies (appropriate technology transfer) should minimize costs. Third, the fact that any ES subsidiary is always competing for its status *within* the group, since the relevant mature technologies can serve as highly mobile public goods for the MNE, should minimize X-inefficiency. Subsidiaries with such an ES mandate can be interpreted as integral to a network hierarchy MNE structure (Papanastassiou and Pearce 2009: 1–20). Their specified responsibilities are carefully defined to operate interactively and interdependently with other components of a network. But the precise forms of these supply roles and, crucially, the firm specific capacities to play them, derive from higher decision levels in the MNE that, thereby, exercise almost existential hierarchical power.

If an ES subsidiary activates a country's current sources of input competitiveness more effectively than would otherwise have occurred, then its efficiency (for its group) also devolves onto the wider global economy by generating trade along the lines of comparative advantage. Such activities have thus been designated as 'trade-creating' welfare-enhancing FDI (Kojima 1978). By contrast, then, the protected profitability-defending MS activities are seen to be 'trade destroying' and welfare compromising.

We have suggested that MS and ES represent essentially hierarchically dependent positioning in that they fulfil roles defined for them within wider competitive *strategic* profiles determined elsewhere in the MNE group (HQ or regional HQ). Their common responsibility is to optimise, in very different contexts, the ways in which the group seeks performance (profitability, market share, growth) from its *currently available* sources of competitiveness; goods and services and the attributes they embody. But a major strand in subsidiary positioning over perhaps the last three to four decades has been to devolve to the subsidiary level the responsibility for accessing/creating important *new* sources of competitive advantage; a status that, in and of itself, affects strategically how the whole group is likely to evolve. Subsidiaries' mandates now enter the territory of seeking *assets* and core new knowledge.

Knowledge/Strategic-Asset Seeking

In the traditional typology of potential subsidiary-level motivations, strategic-asset seeking has been characterized (Dunning and Lundan 2008: 72) as 'FDI, usually by acquiring the assets of foreign corporations, to promote their long-term strategic objectives – especially that of sustaining their global competitiveness'. Alternatively, knowledge seeking (KS) (Papanastassiou and Pearce 1999, 2009; Pearce 2012) focuses more precisely on the strategic value of dispersed learning and creative processes, but incorporates a wider range of mechanisms through which this can be expedited. Here, KS 'involves itself with the dynamic and creative resources emerging in a host economy as it pursues its own programmes for sustainable *national* development, but with the primary aim of regenerating the *global* competitiveness of the MNE' (Pearce 2012: 10).

Thus, the emergence of KS in MNEs reflects the scope for hopefully mutually beneficial overlaps (for discussion see Papanastassiou and Pearce 2009: 138–162) in the increased emphasis by both countries and firms on the pursuit of new technological potentials at the centre of policies for competitive survival. At the country level this has taken the form of national systems of innovation (NSI) (Freeman 1991; Lundvall 1992; Nelson 1993; Edquist 1997) comprising variegated and flexible nexus of institutions, enterprises, policies and funding sources that aim to derive the knowledge/skill bases for innovation-driven development. An MNE's network of KS operations can then tap into selected facets of individual NSI as components of their programmes for competitive enhancement (Papanastassiou and Pearce 2009: 142–146). Two complementary facets of this have taken prominence in the recent literature, 'the emergence of subsidiaries that themselves develop products (as, in effect, part of increasingly globalised approaches to innovation itself)

and the greatly extended and deepened use of decentralised R&D facilities' (Papanastassiou and Pearce 1999: 7). Here we focus on the former.

The pioneering detection of the emerging propensity for subsidiary-level product development in MNEs occurred in the early 1980s, through case studies of mainly US firms' operations in Canada. These were described as product mandates (Poynter and Rugman 1982; Rugman 1983; D'Cruz 1986; Rugman and Douglas 1986) or as product specialists or strategic independents (White and Poynter 1984). The essence of the mandate given by the parent MNE to such subsidiaries was to take full responsibility for the development of a new product, its initial production and further competitive evolution, but with the aim that this good will then enter many of the group's international markets. The defining ability of the mandated subsidiary to do this will derive from accessing and internalizing distinctive knowledge scopes from its host NSI, though supplementary use of other group-level competences is likely to be relevant.

Product mandates and similar subsidiaries, in effect, play roles in what Bartlett and Ghoshal (1989) described as a 'locally leveraged' approach to innovation, itself part of their perception of the transnational organizational structure. Thus, the subsidiaries draw their individualizing essence from their host economy but exercise it interdependently with the group's wider strategic needs and objectives. This would seem to defy the expected trade-off of integration and responsiveness implied by the early formulations of that typology. But later amplifications of that approach did often find subsidiaries with both high I and high R, in the form of *actives* (Jarillo and Martinez 1990; Taggart 1997a, b) which, according to Taggart, develop products responsive to the market needs of sister subsidiaries.

This discussion of the operationalization of KS at the subsidiary level has clearly indicated that such companies are asserting individualized positions *within* the overall technology generation and application strategies of their group. This implies strong interdependencies in terms of knowledge flows, which was placed at the centre of a subsidiary typology of Gupta and Govindarajan (1991: 445–446, 1994: 773–775). Two variants in this typology seem to imply the exercise of KS subsidiary responsibilities: the *global innovator*, which provides technology outflows without receiving comparable inflows, and the *integrated player*, which is involved in significant two-way flows.

Finally, the potential for *strategic* influence at the subsidiary level also emerged in the typology of Bartlett and Ghoshal (1986). Here they detect a *strategic leader* as operating in a host market that itself has a high strategic importance, and doing so from the possession of a high level of competences. Such a strategic leader will have sensed new potentials emerging from the market and/or technologies of its host economy and then have internalized these scopes so as to generate its own competitive response to them. This allows it to serve 'as a partner of headquarters in developing and implementing strategy' (Bartlett and Ghoshal 1986: 80).

With the arrival of these various formulations of competence-creating subsidiaries (Cantwell and Mudambi 2005) the contemporary MNE acknowledges the scope for utilization of the innate heterogeneity of its globalized environment through the dispersion of all key facets of its value chain. An influential articulation of these potentials comes with the projection by Hedlund of the ▶ heterarchy as a 'hypermodern' organizational structure (Hedlund 1986; Hedlund and Rolander 1990; Birkinshaw 1994). In a similar way, Bartlett and Ghoshal introduced the *transnational*, which draws in the need for its subsidiaries to address the combined imperatives of 'global efficiency, national responsiveness and the ability to develop and exploit knowledge on a worldwide basis' (Bartlett and Ghoshal 1989: 58). Thus, in their distinctive ways, subsidiaries in MNEs can be mandated to pursue any firm's unavoidable twin objectives, of securing the most effective available performance from its mature established competitive advantage (their exploitation) and of accessing and co-opting differential sources of inputs into their upgrading and renewal (their augmentation).

See Also

- ▶ Corporate Strategy
- ▶ Exploration and Exploitation
- ▶ Heterarchy

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Multi-plant Economies

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Definition Multi-plant economies are the amount by which the costs of internally coordinated investment and operations at two or more facilities in one or more geographical locations are lower than would be obtained by two or more companies building and operating the plants separately.

Multi-plant economies occur when the operation of two or more plants producing the same output costs less when they are under common ownership than when they are owned and managed separately.

Multi-plant economies can have multiple sources. Examples include the ability to optimize inbound or outbound transport costs across locations, the ability to time investments in multiple geographical markets so as to limit excess capacity, and the ability to use the large internal demand to gain price concessions from suppliers. As the third example suggests, multiplant economies overlap with ▶ economies of scale.

Multi-plant economies also share some similarities with ▶ scope economies, applied to different plant locations rather than to different products. Caves (1980), for instance, identifies ▶ intangible assets as a channel by which common ownership of multiple plants may lead to lower costs because intangibles such as brand image are joint inputs to production. Although some intangibles, such as know-how, are costly to transfer, they are still easier to transfer within a single firm than across corporate boundaries (Teece 1977).

A multinational enterprise that produces the same products in different geographical markets is a specialized case of the multi-plant firm (Caves 1980). The ability of the company's decision centres to receive and act on local market feedback from each of its locations represents a possible informational advantage over arm's-length sources of data. The multi-plant multinational therefore enjoys a potential cost advantage from making timely adjustments in response to disturbances, compared with a single plant selling overseas through exports.

Running a multi-plant operation can, however, lead to some costs being higher. In particular, the multi-plant firm requires better information and control systems than are needed by a comparable group of single-plant firms (Scherer et al. 1975: 387).

According to Scherer and colleagues (1975: 387), multi-plant operation, in which plants in different regions produce comparable products, makes the most sense when (1) transport costs are high relative to product value (e.g., cement), (2) scale economies do not impose an inordinate penalty on running several smaller plants rather than one large one and (3) markets are less than perfectly competitive so that each plant has some pricing power within its regional market.

See Also

- ▶ Economies of Scale
- ▶ Intangible Assets
- ▶ International (Cross-Border) Operations
- ▶ Multinational Corporations
- ▶ Operations Management and Strategy
- ▶ Scope Economies
- ▶ Sub-additivity

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Multipoint Competition

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Abstract

Multipoint (or multimarket) ▶ competition describes a situation where firms compete simultaneously across multiple products or markets, and competitive actions taken in one market trigger reactions in other markets. Although multipoint competition provides more opportunities for competitive interactions and retaliation, paradoxically it results in less intense rivalry owing to mutual familiarity and deterrence. Empirical research provides substantial support for the 'mutual forbearance hypothesis' that multipoint competition reduces price and non-price rivalry and improves performance. The frontier of research explores multipoint competition in more general strategic settings such as multinationals or diversified firms, and assesses spillovers between competitive and cooperative relations.

Definition Multipoint competition describes a context in which firms engage in competitive interactions simultaneously across multiple products or markets, so that competitive actions in a given market may lead to responses in a different market or across multiple markets.

Firm performance can be undermined by intense rivalry. Therefore, an important facet of strategic management involves anticipating and managing competitive interactions in ways that improve performance. Traditional models of ▶ competitive strategy and oligopoly theory tend to assume that competitive interactions take place within a given market or industry, and do not affect behaviours outside it. However, a broader range of competitive interactions is possible when firms overlap with competitors across multiple markets (a condition called *multimarket contact*). Multipoint ▶ competition models explicitly incorporate the possibility that actions in some markets may result in competitive responses in other markets or across multiple markets.

Multipoint (*or multimarket*) *competition* refers to the situation where firms engage in competitive interactions across multiple markets. The ability to interact across markets increases the familiarity between competitors, and provides opportunities for competitive signalling and retaliation. Therefore, multipoint competition can facilitate coordination and deterrence among competitors. Robust empirical evidence suggests that multipoint competitors engage in less intense rivalry than otherwise similar firms that overlap in only one (or few) markets.

Trends in business evolution make multipoint competition more relevant than ever. Modern corporations engage in activities across multiple industries, product categories or geographical markets. Examples of multimarket companies include diversified firms such as General Electric or Siemens, multiproduct firms such as Procter & Gamble or Unilever, multinationals such as Ford or Toyota, and multi-unit organizations like Hilton and Marriott. As those companies overlap across multiple markets, they create multimarket contact and the potential for multipoint competition.

Research on Multipoint Competition

Corwin Edwards provided the first academic analysis of multipoint competition in a business context. Edwards led the US antitrust mission after the Second World War to investigate the Japanese conglomerates (*Zaibatsu* groups) that had collectively dominated many sectors of Japanese industry before the war. His view was that the size and diversity of these conglomerates constituted a source of ▶ market power beyond market-level conditions of seller concentration or entry barriers. In his well-known 'mutual forbearance hypothesis', Edwards suggested that multimarket contact among such diversified firms could result in a reduction of competitive intensity among them, and 'an incentive to live and let live, to cultivate a cooperative spirit, and to recognize

priorities of interest in the hope of reciprocal recognition' (Edwards 1955: 335).

Multipoint competition remained a niche research topic within industrial organizations up to the 1980s, with a focus on tacit collusion among conglomerates or bank holding companies. Empirical evidence was mixed. During the 1980s, strategy scholars integrated multipoint competition on competitive strategy frameworks (Karnani and Wernerfelt 1985; Porter 1985). Their interest was on understanding competitive interactions among heterogeneous firms and firm-level outcomes. The game-theoretic model by Bernheim and Whinston (1990) provided a dramatic impulse to rigorous theory development by suggesting boundary conditions under which multipoint competition would (or would not) affect rivalry and performance. Starting in the 1990s, a sophisticated empirical literature has emerged in strategy and economics to examine the effect of multimarket contact on the intensity of price and non-price competition, entry and exit from markets, and firm performance, among other outcomes (Baum and Greve 2001).

The Mutual Forbearance Hypothesis

Edwards' *mutual forbearance hypothesis* is the most studied theoretical model of the consequences of multipoint competition. It provides a causal logic between several theoretical constructs: multimarket contact (antecedent), extended interdependence (mechanism) and mutual forbearance (consequence).

Multimarket contact represents the overlap with competitors across multiple markets. It provides an opportunity for these firms to gain familiarity with each other's strategy and competitive behaviour, and opens the possibility of competitive signals and interactions across markets. For example, airlines attacking the main hub of a rival may face retaliation not in the attacked market but in their own hub. Similarly, multinationals dropping prices in the home market of a rival may find the rival retaliating in the attacker's home market. Such cross-market interactions reveal *extended interdependence*, since the competitive interdependence between firms spills over to multiple markets. Over time, multipoint competitors learn to anticipate competitive reactions not only in those markets in which they initiate competitive actions but also in other markets where they overlap. The mutual recognition of extended interdependence among multipoint competitors discourages them from initiating aggressive actions for fear of triggering multimarket retaliation. This behaviour, known as *mutual forbearance*, implies a reduction in the intensity of rivalry among multi-market competitors. Other things being constant, forbearance also increases profit margins relative to similar market conditions lacking multimarket contact (Gimeno and Woo 1999).

The previous model linking multimarket contact with forbearance does not assume universal validity, since each of the causal links depend on particular contingencies which may or may not be present in particular contexts. Those contingencies represent important boundary conditions for the theory.

First, multimarket contact may not always result in extended interdependence. For example, firms with multimarket contact may still manage competitive interactions in a market-by-market basis, without the added coordination complexity of cross-market interactions. In fact, research has shown that even when companies have multimarket contact, cross-market interactions are less frequent than same-market interactions. Extended interdependence is more likely to emerge if competitors manage competitive decisions across multiple markets in a centralized or highly coordinated way. For example, capacity and pricing decisions by airlines tend to be centralized into operations and revenue management departments. In contrast, hotel chains tend to centralize capacity expansion decisions but delegate pricing decisions to hotel managers. When competitive actions in different markets or industries are delegated to different managers, the existence and effectiveness of multipoint competition depends on the presence of coordination mechanisms, incentives and control systems (Sengul and Gimeno 2013).

Second, extended interdependence may not always lead to forbearance. The ability to expand rivalry across markets could result in an escalation of rivalry, rather than de-escalation. Mutual forbearance is an equilibrium outcome if firms anticipate a credible threat of cross-market retaliation, and such threat is effective in deterring competitive actions. Bernheim and Whinston (1990) examined the conditions that determine whether tacit collusion is the equilibrium outcome of a repeated game among multipoint competitors. That outcome requires that gains from cheating in a multimarket collusive agreement be smaller than the loss from retaliation. The authors argue that multipoint competition multiply both the losses from retaliation and the gains from cheating. Therefore, having multimarket contact across multiple identical markets may not necessarily help in sustaining mutual forbearance. Mutual forbearance is more likely when ▶ market structure conditions differ across markets, so that market power obtained in more collusive markets (highly concentrated, high growth) can be used to sustain collusion in markets that are structurally less prone to it (moderate concentration, lower growth). Mutual forbearance is also more likely when firms have different positions across markets, and particularly when firms have symmetric advantages in different markets (e.g., when airlines have advantages in different hubs, or multinationals have advantages in different home markets). In that situation, sustaining tacit collusion in a single market would be difficult owing to the heterogeneity among rivals. But being able to threaten retaliation in the rivals' other markets provides more balanced incentives to forbear. This result is consistent with the commonly observed behaviour of 'spheres of influence' or 'mutual foothold equilibrium', where firms keep small foothold positions in each other's core markets as a deterrence mechanism.

Empirical Evidence

Over the last 20 years, empirical studies have provided substantial, but not perfect, support to many of the predictions of the mutual forbearance hypothesis (see Yu and Cannella 2013, for an excellent up-to-date review of the literature). There is substantial evidence that multimarket contact reduced price rivalry in several industries, as well as non-price rivalry, such as new product introductions, marketing expenses, service quality and other competitive action repertoires. Multimarket contact is negatively related to market exit, and positively related with firm performance, such as profit margins, which is consistent with the forbearance effect.

The effect of multimarket contact on market entry has received substantial attention, since entry may serve to increase multimarket contact while also being affected by it. The evidence suggests an inverted-U relationship. Moderate multimarket contact may encourage firms to enter each other's markets, but beyond a threshold, additional multimarket contact may deter further mutual entry. The evidence also suggests that changes in multimarket contact may be driven by non-strategic motivations, such as mimetic behaviour or parallel diversification, in addition to strategic motivations such as building contact points for deterrence (Scott 1982). However, multimarket contacts may facilitate forbearance even if they were not established for that purpose.

Empirical research on multipoint competition is still under development. Prior work has tended to focus on contexts where the variables were easy to measure, predominantly in industries where single-product firms compete over multiple geographic markets and competitive variables are easily observable. But those contexts are ideal for the theory to hold, and may not generalize easily. The frontier of research is now shifting to more general strategic settings, such as rivalry among multinational enterprises over multiple countries, multiproduct rivalry and competition among multi-industry firms. There is also interest in multipoint competition in more dynamic, innovative industries, where mutual forbearance may be hard to achieve. These studies help determine more clearly the empirical boundaries of this phenomenon, and explore the influence of organizational factors (Sengul and Gimeno 2013).

In addition, multipoint competition research is starting to broaden to consider other

non-competitive relationships that create economic interdependence between organizations, such as cooperative alliances or buyer–supplier relationships. It is not difficult to find organizations that are connected by multiple competitive contacts, cooperative ties and trading relations (such as Apple and Samsung or HP and Oracle). Such a situation, known as *economic multiplexity* (Gimeno and Woo 1996), creates an even more complex set of interactions, since conflict in one relation may affect other relations in common. Research on multiplex competitive and cooperative ties is still in its infancy.

See Also

- ▶ Competition
- ▶ Competitive Strategy
- ▶ Industrial Organization
- ▶ Market Definition
- ▶ Market Power
- ▶ Market Structure
- ▶ Rivalry and Collusion

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Multiproduct Companies

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Abstract

Multiproduct companies, which produce products in multiple technological or market categories, exist because of the characteristics of organizational knowledge, the limitations of markets for know-how and the dynamic nature of market opportunities.

Definition Multiproduct companies are those that manufacture products in more than one technological or market category.

Multiproduct companies, which produce products from two or more technological or market categories, represent a particular type of ▶ diversification. Multiproduct companies pose a challenge for economists and for management theorists. For economists, it is not clear from the neoclassical economic model of the firm why it might make more sense for a single firm to produce these products instead of separate firms. If there are benefits from specialization, as Adam Smith first proposed, then why should a business enterprise be a jack-of-all-trades if it wants to perform well?

Mainstream economics generally resorts to ▶ scope economies to explain the existence of the multiproduct firm. However, this is not an adequate response, because it is theoretically possible, in a perfect-information world, for multiple firms to reproduce the same cost and output results by executing contracts that cover the sharing of the services from the relevant resources (Teece 1980). Put

differently, it's not clear why separate firms couldn't specialize and each produce one of the products under an alliance arrangement and even aggregate them if consumers want one-stop shopping.

This conundrum is ignored by many economists but has been addressed by management theorists, who recognize that there must be a reason that multiproduct firms exist and, in fact, are ubiquitous. Teece (1980, 1982) explores the factors behind this outcome in detail. The basic argument is sketched here.

The primary factor is the nature of organizational knowledge, much of which is embedded in routines that extend beyond the knowledge of any single individual to encompass the communication patterns that have built up over time (Nelson and Winter 1982: 105). As this description implies, organizational knowledge must be accumulated. It is not something picked off a shelf as needed, so the amount and type of knowledge available to the firm at any one time is limited.

According to Penrose (1959), the accumulation of knowledge leads to a build-up of excess knowledge resources. Resources are also freed up as routines become well established and more efficient.

Much of a firm's organizational knowledge, particularly at the managerial level, could potentially be used for the production of a number of outputs. In other words, the output of a firm at any point in time is just one of the potential output patterns to which the firm's resources could be turned.

A second factor is that the market conditions facing firms are always changing, creating new profit opportunities. As a firm's present market becomes saturated, it is likely to consider expansion opportunities elsewhere, especially where the new opportunity is a good fit with its excess resources.

In theory, a firm might be able to exploit new opportunities by renting the services of its excess resources to a third party. In reality, however, organizational knowledge is difficult to specify in contractual terms, hard to price fairly, and costly to transfer (Teece 1977, 1981).

In view of this market failure, the firm is likely to exploit a new opportunity directly, augmenting its resources with any necessary complements. It is in this way, and for this reason, that multiproduct firms exist.

The rich historical record of diversification in the United States in the early twentieth century is broadly consistent with the theory. The eminent business historian Chandler (1969, 1977) documented how a major wave of multiproduct diversification was triggered by the Depression. Due to the collapse of consumption, many large, sophisticated firms found themselves with excess labour and equipment that they needed to put to work. Examples of diversification during this time include General Electric's expansion from light and power equipment into household appliances and General Motors' move into diesels and tractors.

Chandler also showed that further multiproduct expansion of US firms was brought on by the Second World War, which stimulated demand for new products, such as synthetic materials and telecommunications gear, to support the war effort. Existing firms were drawn more rapidly into these new fields than might have been the case in peacetime. At the end of the war, the large firms once again found themselves with underutilized knowledge and equipment, which they turned to the service of post-war consumer demand. The knowledge and resources being leveraged across multiple product categories were not just technological but also included marketing and purchasing know-how and personnel.

The evidence from these examples tends to support the hypothesis that multiproduct diversification results from a combination of pre-existing (knowledge) resources and a market that offers new opportunities/imperatives. Furthermore, it is entirely consistent with the notion that imperfections in the market for knowledge make it difficult for firms to take advantage of opportunities in adjacent industries through external channels such as licensing the services of their ▶ intangible resources.

See Also

- ▶ Diversification
- ▶ Intangible Resources
- ▶ Scope Economies

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Multistage Games

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Definition Game theory is the study of situations with multiple decision makers, and each player's payoff depends on what other players do. A multistage game is one in which the decision makers make their decisions in multiple stages.

Games can take multiple forms. In games such as rock-paper-scissors (aka Ro-Sham-Bo), each party makes a single move. In the traditional one-shot prisoner's dilemma game, each party makes a single simultaneous choice of whether to 'cooperate' or 'defect'. In the one-shot prisoner's dilemma game, the only ▶ Nash equilibrium of the underlying stage game involves each player choosing to 'defect' (which is actually a dominant strategy for each player). The resulting outcome is Pareto-inferior to the 'both cooperate' outcome, which, however, is not an equilibrium. This conflict between what is 'individually rational' and what is 'collectively rational' is the source of the 'dilemma'.

In games such as draughts or chess, each player plays a series of moves, with the alternatives available at each move dependent (in whole or in part) on previously made moves. Usually, multiple-move games are analysed by considering the strategies available to each player, with a strategy being a complete contingent plan covering alternative possible moves at each opportunity. (Strategies can be either pure or mixed; in the latter, choices at each move are made at random according to some randomizing mechanism. In rock-paper-scissors, the only equilibrium involves mixed strategies.)

One well-known example of a multistage game is Selten's (1978) 'Chain Store Paradox'. An incumbent operating in multiple markets faces the prospect that new firms may enter in different geographic markets, and the incumbent must choose whether to fight the entry of some or all of the potential entrant(s) or to accommodate the entrant(s). In any given market, the potential entrant would rather stay out of the market than enter if the incumbent chooses to fight, but within each market it is better for the incumbent to accommodate the entrant rather than to fight. The incumbent would be better off if it could deter entry by gaining a 'reputation' for fighting. Unfortunately for the incumbent, with known payoffs and a fixed finite number of potential entrants, a backward induction argument starting at the last stage suggests that, for each entrant, the incumbent will accommodate rather than fight, and thus each potential entrant will enter rather than stay out. It is possible for the incumbent to attain a reputation for deterring entry by fighting early entrants if entrants are unsure of the incumbent's payoffs, so that there is some possibility that it is rational for the incumbent to fight rather than accommodate.

In 'repeated game' contexts, a single 'stage' game is repeated a number of times. The number of repetitions can be finite or infinite, fixed (and typically assumed known) or indeterminate. Typically, one assumes that the parties' payoffs from

the repeated game are the (discounted) sum of their payoffs from the constituent stage games.

The individual stage games have equilibria. One interesting question is whether the overall repeated game has any equilibria other than repetitions of the equilibria of the underlying stage game.

If the game is repeated a known finite number of times, backward induction arguments suggest that the only equilibria of the repeated game are repetitions of the one-stage equilibria. If the game is repeated an infinite number of times or repeated with only some probability, additional equilibria can arise (see Friedman 1971).

The 'folk theorem' shows that, for infinitely ▶ repeated games with low-enough discount rates, any feasible, individually rational outcome can be sustained as an equilibrium of the repeated game (see Fudenberg and Tirole 1991: 150–160).

See Also

- ▶ Nash Equilibrium
- ▶ Repeated Games
- ▶ Zero-Sum Games

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Myopia

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Definition Myopia is decision-making or action without full consideration of all relevant factors, including goals, forecasts of likely outcomes, and the experiences of the same organization or other organizations. Myopia is associated with models of bounded rationality in decision-making and learning in organizations, and especially with the behavioural theory of the firm.

Although myopia is defined as contrasting with a full consideration of factors, determining exactly what myopia can be compared with is difficult. Rational choice models are not myopic because they assume that all relevant and available information is considered. Strategic management generally assumes bounded rationality of managers due to limitations in the ability to collect and interpret information, suggesting that all firms act myopically to some extent. In order to gain precision, myopia is often understood as decision-making that uses narrower goals or less information than many boundedly rational decision-makers might apply. Even with this restriction in the definition, myopia is an important part of organization and strategic management theory. Major areas of interest include exploring how myopia is created by ▶ organizational learning and, in turn, how it affects strategic behaviours.

Myopia entered modern organizational theory in the concept of problemistic search in the ▶ behavioural theory of the firm (Cyert and March 1963). Problemistic search is myopic in two ways. First, it occurs when the organization has detected a problem and so is driven by a narrow consideration of faults, such as low performance, rather than a broad consideration of opportunities (Greve 1998). Second, it is directed towards finding solutions to the problem near the current set of activities rather than away from them. Although distant opportunities could drive strategy, problemistic search instead leads to incremental changes in strategy when the performance is low (Cyert and March 1963).

Some organizational learning processes lead to an increase in myopia as organizations gain experience (Levinthal and March 1993). Organizational learning displays path-dependence in which initial variations in choices are magnified over time because organizations incorporate their experience into structures and routines. For example, a historically problematic part of the environment will have liaison roles or organizational units

attached to it, and a historically successful action will be memorialized through stories. It follows that the problems or opportunities in historically quiet parts of the environment will be less likely to be detected, and untried actions are chosen less often than those that produced past successes. This path-dependence leads organizations to become increasingly adept at solving known problems, and increasingly poor at identifying and solving new ones.

Strategic behaviours include growth and ► innovation, which may seem less influenced by myopia than problem-solving, because they involve longer planning horizons; but, in fact, organizational learning from experience causes a tendency towards myopia. Initiatives with reliable performance are favoured over innovative initiatives when decisions about future directions are based on little experience with each alternative, because innovative initiatives have a lower likelihood of success overall and longer lead times to produce success. Although the patience needed to adopt innovations might be offset by greater rewards, decision-making is biased towards earlier and more reliable returns (Levinthal and March 1993).

Myopia is also seen in how organizations form goals and activate goals in decision-making, and this has important consequences for strategy formulation. Organizational goals are often seen as outcomes of political contests among participating managers (e.g., Cyert and March 1963), and an important feature of this political process is its association with selective participation and organizational learning (March 1981). As an organization makes decisions and responds to problems, participants learn their own impact and preference for the decision-making process, while the organization adapts to its problem-solving competencies and the aggregate preferences of its management teams. These experiences, in turn, can lead to differential participation in the decision making process and a buildup of beliefs on the distinctive competence and competitive advantage of the organization. Once agreement on distinctive competencies is reached and decision-making participation is organized around this agreement, setting strategic goals is easier. This process of organizational learning produces increased perceived clarity in strategic objectives, but the clarity comes at a cost of myopia. Thus, in goal formation, as in problem-solving, learning and innovation, myopia produces decisiveness by removing alternatives.

See Also

- ► Aspiration Levels and Learning
- ► Behavioural Strategy
- ► Innovation
- ► March, James G. (Born 1928)
- ► Organizational Learning
- ► Organizational Routines

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