Word Count: 4886

Knowledge is the organisation's essential source of 'competitive advantage.' Discuss.

Introduction

To refer to knowledge as a firm's competitive advantage is to repeat a phrase echoed so often over the past two decades by industry executives, senior bureaucrats, and academics that it has become a bland cliché. The only expression that might be more hackneyed in these same circles is 'talent as firm X's competitive advantage.' The first phrase in its variations has been co-opted so gratuitously that it is highly unlikely that the audience ever pauses to ask the questions that must have arisen the first time it was used: "Can knowledge be a source of competitive advantage? What kind of knowledge? How does this vary with context, e.g. timeframe, industry dynamics? How does knowledge compare to other sources of competitive advantage and what are the implications for business investment in a resource-constrained environment? How is all of this changing over time?"

Answering these questions comprehensively and definitively, if this is even possible, would be the work of tomes. The objective of this essay is less ambitious, desiring only to clarify the issues involved in answering these questions and suggest some possible implications for executives, drawing from the organisational psychology and business management literature as foundation. Any useful discussion of 'knowledge as a source of competitive advantage' must bridge the two disciplines. We desire to do this in the context of formal business organisations, leaving informal, nonprofit, and public sector organisations out of scope for the purposes of this essay.

In general, we believe that the strategic importance of knowledge, its subclasses, and related gerund (knowing) will vary with the organisation itself and its situation. If your organisation is a business empire run by a Russian oligarch with state patronage, your essential sources of competitive advantage are likely to be different than those of an Internet startup headquartered in Silicon Valley. The term 'competitive advantage' is meaningless without a sense of the competitors against which such an advantage exists. We will seek to stay conscious of this reality while offering a body of examples from which generalizations can be drawn.

It will also be critical to unpack the term 'knowledge' if we are to arrive at some insights that are useful. 'Knowledge' connotes very different things for, say, a pharmaceutical company versus a management consultancy. The layman's use of the term 'knowledge' being a somewhat blunt instrument for this discussion, we will take advantage of the existing epistemology for clarity and utility's sake. This will assist us as we make the argument that while knowledge can undoubtedly be a source of competitive advantage, it is the *capabilities* surrounding knowledge and embedded in what Brown and Cook call the 'generative dance' between knowledge and knowing (1999) that are far more interesting.

What do we mean by 'knowledge'?

We will start then with a brief discussion of what we mean when we refer to 'knowledge.' Rather than recreate existing work, we will borrow from Cook and Brown's excellent article (1999) bridging the existing epistemologies. As we will draw on their terminology heavily in our discussion, it is worthwhile taking a few moments here to review the language. In so doing, we assume that the reader is already aware of the distinctions in the literature among data, information, and knowledge (Boisot, 1995; Choo, 1998; Davenport and Prusak, 1998; Nonaka and Takeuchi, 1995).

At the top level, Cook and Brown draw the subtle distinction between knowledge and knowing. As they describe it, knowledge is what is possessed while knowing is part of action. Knowledge may be used in action but it is static, while knowing is 'dynamic, concrete, and relational.' Knowledge is 'possessed' while knowing is 'part of action' (Cook and Brown, 1999). Within organisations is an ongoing *generative dance* between knowledge and knowing, whereby knowledge is used in practice and *productive inquiry*, which in turn generate new knowledge.

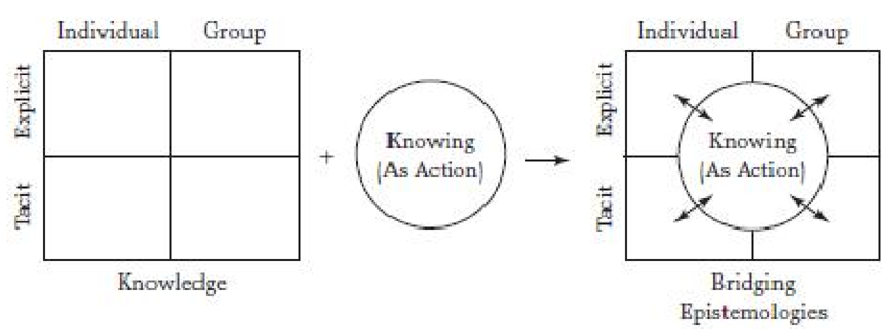
At the next level, knowledge is understood by Cook and Brown as having four forms defined by two axes – *tacit-explicit* and *individual-group*, a frame that borrows from Michael Polanyi's tacit-explicit distinction (1966). Cook and Brown argue that tacit ("know-how") and explicit (able to be formalized) knowledge are distinct forms that cannot be converted into each other, though each type may be an aid to gaining the other. The other axis, *individual-group*, refers to the 'holder' of the knowledge. Using a simple 2x2 structure and these axes, Cook and Brown delineate four forms of knowledge, which we will use in our later discussion:

a) *Explicit-individual* (concepts): Examples include engineering formula calculation and basic spreadsheet manipulation.

b) *Tacit-individual* (skills): Examples include managing teams and troubleshooting unusual exceptions.

c) *Explicit-group* (stores): Examples include formalized processes and patents.

d) *Tacit-group* (genres): Examples include corporate culture and norms of communication.



(Cook and Brown, 1999: Figure 3.1)

Characteristics of competitive advantage

As our interest here is in treading new ground rather than rehashing existing literature, we will spend limited time on the subject of competitive advantage. It is important, however, to define with some precision what we mean by 'competitive advantage' before we go any further.

Michael Porter (1985: xvi) describes it as the following:

> "Competitive advantage grows fundamentally out of the value a firm is able to create for its buyers. It may take the form of prices lower than competitors' for equivalent benefits or the provision of unique benefits that more than offset a premium price."

In this light, any discussion of a given asset or competence as a source of competitive advantage must explain how that asset or competence contributes to either lower prices or value-added differentiation. We should keep the view in mind that the desired outcome of persuading a customer to choose one product or service over another is, in business parlance, "the bottom line." Business today has access to innumerable sources of knowledge, but the value of the knowledge is dictated by whether it helps guide customer decisions in a manner that is competitively and therefore economically advantageous for the firm. Therefore, a competitive advantage should be unique relative to the firm's competitors.

Furthermore, a competitive advantage is useless unless it is sustainable to some degree. There is no point in having an advantage if you have little or no time to capture the resulting economic value. We will insert the implied parenthetical then; henceforth, when we refer to 'competitive advantage,' we mean 'sustainable competitive advantage.' However, as John Maynard Keynes once said, "In the long run we are all dead" (Keynes 2000: 80). It is important to define the time horizon we mean when use the term 'sustainable,' since most companies will go defunct within the space of decades. Of the firms in the original 1957 S&P 500 index, only 125 remained intact as of 2003 (Siegel 2006). Most competitive advantage seems to erode given enough time. In this discussion, we will focus on the mid- to long-term time horizon of five to ten years. Within this timeframe, what we call a sustainable competitive advantage should not be substantially eroded, easily replicable, or made obsolete by foreseeable competitor action (Collins and Montgomery 1995).

Knowledge as sources of competitive advantage

It is clear given these characteristics that, even if we come to agree that knowledge can be the essential source of competitive advantage for some firms, this cannot be universally true for all firms. For instance, there are firms with dominant positional advantages that might include, as in our earlier example of a Russian commodity empire, preferential treatment by the state. Other examples could include ownership of unique tangible assets, sole access to key inputs, and market hegemony as a result of path dependence. In these cases, knowledge is necessary to operate but not the essential source of competitive advantage. While the remainder of the discussion focuses solely on knowledge and its relations as sources of competitive advantage, we should not forget that they are not the only sources.

There are firms, however, for whom knowledge will be an essential source of competitive advantage. We will discuss this for each of the four forms of knowledge:

a) *Explicit-individual* (concepts): Sustainable competitive advantage based on explicit-individual knowledge will be rare, since by definition, it can be formalized and readily transferred. Competitors will therefore generally be able to respond by acquiring the requisite knowledge, turning any advantage quickly obsolete. Also, as this type of knowledge is held by individuals rather than the firm, the firm risks the departure of these key individuals at any time, possibly for a competitor, while any economic rents generated by this advantage will tend to be captured by these key players.   Though a few exceptions might exist, such as the intricacies of a secret recipe handed down in a family-owned business, explicit-individual knowledge is generally not a fruitful area to seek sustainable competitive advantage.

b) *Tacit-individual* (skills): Tacit-individual knowledge bears some of the same disadvantage as explicit-individual knowledge, namely that it is subject to the departure of its owner and the gains of any unique knowledge will tend to be captured by the individual as well. It differs, however, in that it cannot be codified and easily transferred. This suggests that, while tacit-individual knowledge alone may not be a rich source of sustainable competitive advantage for the firm, there are a host of related *capabilities* -- such as the access, creation and transfer of individual knowledge (tacit or explicit) and the acquisition (and retention) of talent in possession of it – which, together with the knowledge, may be. We will discuss this later rather than complicate the current discussion by introducing capabilities at this point.

c) *Explicit-group* (stores): Codified knowledge held by the firm has been a proven source of competitive advantage, as seen by the extraordinary growth in patent issues over the past century (United States Patent and Trademark Office 2010). Industries as varied as pharmaceuticals, branded soda, and media have been able to reap lucrative economic gains from their stores. Similar to tacit-individual knowledge, there are related capabilities which may also be a source of competitive advantage, e.g. the control and management of the intellectual property portfolio. Even stores of knowledge without the legal protections of patent and copyright libraries can be a source of competitive advantage, e.g. consultancies with annual industry benchmark surveys and reams of stored documents. Without legal protections, however, these stores do tend to depreciate over time since their value lies in their scarcity and explicit knowledge can be codified and transferred. Without legal protection, it is the rare store that can retain differentiated value over a ten-year period in an age of digitization.

d) *Tacit-group* (genres): "[Culture is] the pattern of shared beliefs and values that give members of an institution meaning, and provide them with the rules for behaviour in their organisation" (Davis, 1984: 1). Certainly tacit-group knowledge, of which culture is one type, seems to fit the characteristics of competitive advantage. Assuming that the pattern of shared beliefs and values are aligned to the firm's strategy, we can easily imagine how such a high-performance culture would support organisational agility and positive competitive outcomes. For instance, a service-oriented culture would guide positive behaviours throughout the organisation, resulting in higher customer satisfaction and repeat sales. The advantages of tacit-group knowledge would also seem to be less susceptible to erosion or employee departure, since replicating another firm's culture is a challenging and possibly infeasible endeavor. Given the potential benefits, we would think every firm would like to install a high-performance culture within its organisation. However, in one study of 200 companies by a consulting firm, fewer than fifteen percent of companies were recognized as having a high-performance culture (Meehan 2006). A clue to this mystery might lie in Cook and Brown's claim (1999) that knowledge is insufficient for knowing. Culture in this context is only a source of competitive advantage when it is enacted in practice, in 'action informed by meaning drawn from a particular group context.' The rules and patterns designed by management alone are not sufficient. Meanings must 'emerge and undergo constant confirmation and/or modification through a kind of 'negotiation in practice' as they are used in the context of the group's ongoing 'real work'' (Cook and Brown 1999: 69). Here again, we find that knowledge, what is 'possessed,' must be joined to *capability* to be a source of competitive advantage.

In general, we find that knowledge which is possessed alone tends to be a weak source of competitive advantage, with the main exception of explicit-group knowledge (especially that which enjoys legal protections). Knowledge which is held by individuals can walk away from the firm on two feet, or otherwise accrues benefits to the owner rather than the firm. Knowledge that is easily codified and transferred tends to 'leak' away (Brown and Duguid 2001), especially in this era of digitization. Knowledge that is, in its essence, rules for behaviour offers trivial advantage next to the constantly negotiated *practice* of such knowledge. As Brown and Duguid notes, knowledge without the context of practice and social learning is only a tool, and one that could potentially even fossilize into a competitive disadvantage (Hamel and Prahalad 1994).

Before we move on to the subject of capability, let us touch upon the topic of *access to external knowledge* as a competitive advantage. This is a one-step-removed version of three of the four forms of knowledge we have just discussed – *explicit-individual*, *tacit-individual* and *explicit-group* (tacit-group being more difficult to access). We can envision situations where a firm might be granted exclusive access to knowledgeable individuals or stores of knowledge, perhaps but not necessarily through contractual obligations, which could offer competitive advantage. The firm itself also may own a positional advantage in accessing flows of knowledge that are constantly refreshed (Hagel and Brown 2005) – for instance, if it plays the role of a broker in a two- or three-sided online market. Knowledge flows that are constantly refreshed are particularly advantageous under conditions of high uncertainty and rapid-current information exchange, the environment that we find ourselves in today. These intangible assets of access are possessed by the firm and are quite different than the capabilities needed to acquire access or use knowledge in practice. However, when paired with the necessary set of *capabilities*, some of these types of *access to external knowledge* appear to fit the characteristics of sustainable competitive advantage.

Knowledge-oriented capabilities as sources of competitive advantage

We will use a different organizing principle in this next discussion, one based on the *capabilities* that surround knowledge, namely a) accessing non-firm knowledge; b) creating (and sharing) knowledge; c) managing (and sharing) knowledge; and d) using knowledge.

This grouping of capabilities is a synthesis of the capabilities discussed in the literature (Boisot 1966, Brown and Duguid 2000, Brown and Duguid 2001, et al). Though we recognize that it is an imperfect taxonomy, still it can be a useful framework for our purposes here. For each group, we will offer examples of the practical relationship between these capabilities and potential competitive advantage. We do, however, understand the limitations of this approach, namely that while *any of these capabilities might be considered an essential source of competitive advantage, the capabilities a given firm should invest in will always depend on its industry, firm-specific circumstances, and assets (including knowledge)*. Furthermore, these groups of capabilities cannot be viewed in isolation. For instance, the ability to access non-firm knowledge is useless without some ability to digest, learn, and wield the new knowledge through practice.

a) Accessing non-firm knowledge

Accessing non-firm knowledge involves more than the standard human resources activities of hiring and recruiting. It includes, but is not limited to, the ability to share knowledge continuously with suppliers to lower costs and improve quality (as in Toyota's knowledge-sharing network (Dyer and Hatch 2004)), outsource and offshore core functions to access world-class capabilities (Hagel and Brown 2005), form mutually advantageous consortia (as in Google's Open Handset consortium), share resources and risk with competitors in joint ventures, tap the resources of the local ecology (as in Silicon Valley (Brown and Duguid 2000)), orchestrate 'process networks' bringing together business partners through trust-based relationships (as Li & Fung does (Hagel and Brown 2005, *From Push to Pull*)), cross-pollinate ideas through use of consulting firms, call upon a rich and diverse network of subject matter experts at a moment's notice, present a 'pull platform' for talent (Hagel, Brown and Davison 2010), and learn continuously from available flows of knowledge.

Bill Joy, a founder of Sun, once famously said, “There are always more smart people outside your company than within it” (Hagel and Brown 2005, “Finding New Sources of Strategic Advantage”). In this light, we advocate a whole-system approach towards the ‘generative dance’ of learning, one that is inclusive of all levels, teams, departments and business units inside the firm as well as those inside other firms, including those from other industries, the public sector, and academia – and engaging with these counterparties within ‘communities of practice’ and through trust-based relationships (Brown and Duguid 2000). In a fast-moving macro environment, a hermetic industry-limited definition of those with whom a firm should engage productively may leave the firm vulnerable to disruptive competitive action. This is relevant for most firms, but particularly those with a specialization strategy whereby a firm focuses on deepening a few key competences rather than seeking to control the entire value chain (Hagel and Brown 2005).

The breadth of potential sources of non-firm knowledge, and the myriad ways in which a firm could engage with these sources, suggest that contracts and other formal constructs have their limits as modes of engagement. Indeed, the approach advocated by Hagel, Brown and Davison (2008) to mobilizing industry players places emphasis on long-term, trust-based relationships, a departure from that requires firms to develop a different mindset and set of capabilities from the purely competitive, zero-sum game.

b) Creating (and sharing) knowledge

We group these two because they share in common the social context of learning. ‘[It] is learning that makes intellectual property, capital, and assets usable’ (Brown and Duguid 2000: 124). This is especially true for tacit knowledge, which can be a rich source of competitive advantage if paired with the appropriate capabilities. Nonaka and Takeuchi (1995) claim that ‘the key to acquiring tacit knowledge is experience. Without some form of shared experience, it is extremely difficult for one person to project her-or himself into another individual’s thinking process.’ What Nonaka and Takeuchi call the ‘four modes of knowledge conversion,’ we think of as knowledge creation (building on Cook and Brown’s assertion (1999) that *new* knowledge is created when tacit knowledge is used as an aid in producing explicit knowledge, and vice versa). Nonaka and Takeuchi’s four modes, however, are still useful to consider as knowledge-creation models: socialization (tacit-to-tacit); externalization (tacit-to-explicit); combination (explicit-to-explicit); and internalization (explicit-to-tacit). There is also the ‘generative dance’ between each type of knowledge and ‘knowing,’ by which new knowledge is created through practice.

These, not coincidentally, are some of the same processes of apprenticeship as well, one of the oldest and most effective models for the *sharing* of tacit knowledge. Some consultancies have explicit ‘apprenticeship models’ whereby junior staff learn through this daily side-by-side ‘generative dance’ with experienced professionals, while supporting the creation of new knowledge by their clients through the processes of socialization, externalization, combination and internalization. Lew Platt, the chairman of Hewlett-Packward, now the largest technology company in the world, once lamented, “if only we knew what we know at HP” (Brown and Duguid 2000: 123). He understood that knowledge-sharing is more than the relatively simple task of making information available in databases, that ‘knowledge appears harder to detach [from people] than information’ (Brown and Duguid 2000). Interestingly, management literature tends to focus on completely novel ‘breakthrough innovation’ that allows firms to jump the existing performance curve, when as Platt noted, there are boundless opportunities that go untapped because knowledge is not widely distributed. Even ‘breakthrough innovation,’ which people generally conceive of as the purview of lone mad scientists, is supported by the social framework. Google recognizes this and offers lavish perks to increase the likelihood that engineers are surrounded by other engineers when they are struck with that moment of inspiration (Lashinsky 2007).

There are clear advantages to creating and sharing knowledge, especially for knowledge-intensive companies in fast-paced industries such as technology. Whether these capabilities are indeed 'essential sources of competitive advantage,' again, depends on the firm. The investments in an organisation's capabilities must be made in the context of strategic objectives.

c) Managing (and Sharing) knowledge

'Knowledge management incorporates systematic processes of finding, selecting, organizing, and presenting information in a way that improves an employee's comprehension and use of business assets' (Brown and Duguid 2000: 117). For some businesses, knowledge management also includes the control, protection, and licensing of intellectual property as well.

Our view of knowledge management goes beyond this to the supporting infrastructure for the regular participation in 'networks of practice' and 'communities of practice.' Like creating knowledge, managing knowledge also has a knowledge-sharing component. Firm investments in this supporting infrastructure must balance the needs of 'networks of practice' that have extended reach but low reciprocity, with 'communities of practice' with limited reach and strong reciprocity (Brown and Duguid 2000: 142). We see green shoots for the technology-enabled model described by Brown and Duguid, in Best Buy's BlueShirt Nation, the growing use of Twitter and Yammer in enterprises, establishment of internal communities of practice in consultancies, but we have not yet seen a successful full-scale implementation. If successful, this model will offer leveraged learning and holds the promise of scaling the sharing of tacit knowledge (Hagel and Brown 2005). The mediation by existing technology, however, still seems at this point to be clunky compared to the age-old process of apprenticeship.

Managing knowledge must also include some aspect of managing talent, given the challenges of separating knowledge from talent. Too often, firms focus on recruiting and hiring strategy and leave the business of community-building and retention to administrative personnel. The technology that enables 'networks of practice' and 'communities of practice' must be built on a foundation of existing personal and professional relationships. It is inadequate to build the platform and proffer it to individuals. Retention must also not be neglected, for it would be silly to invest in knowledge creation only to have it walk away. Fortunately, there are synergies here. In a survey of 320 strategy consultants in the United States, the majority said they cared most about learning through rich experience, i.e. complexity of responsibility and depth and breadth of work experience, even more than compensation and work-life balance ("Survey" 2009). Enabling accelerated learning through networks and communities of practice serves the twofold purpose of enhancing competitive advantage while supporting the retention of talent.

d) Using knowledge

The use of knowledge in practice, the 'knowing' aspect, tends to be revered in the discipline of organisational psychology and somewhat despised in management literature. We tend to lean towards the former view. 'Knowing' is what contributes value to the customer and the organisation, though it requires the other tools and capabilities to do so.

One might ask, however, whether using knowledge can be a source of *sustainable* competitive advantage. In one story told by Brown and Duguid (2000: 122), a firm took over a rival to capture its 'impressive intellectual capital,' only to find after paying generously that the rival's 'real competitive advantage had lain in the operating knowledge of its line employees, all of whom had been let go.' A mature high-performance operational environment depends on 'use of knowledge' as its essential capability.

> Similarly, some organisations requiring agility and decentralized decision-making find that the use of tacit-group knowledge creates a competitive advantage for them. A strong culture implies not just the tacit-group knowledge which is possessed, but also the *enactment* of this knowledge in a consistent way at all levels and in all divisions of the firm. Strong culture could, for example, result in faster decisions, improved customer service, closer alignment with strategic objectives, more opportunities captured, and higher-quality talent acquired and retained. Depending on the firm, these outcomes could prove to be powerful competitive advantages.

These capabilities described above should be viewed as dynamic rather than static, 'rapidly [evolving] among collaborators to remain a source of strategic advantage' (Hagel and Brown 2005: 18). Indeed, Hagel and Brown see capability-building as a capability in itself. To them, 'accelerated capability building is the most powerful source of strategic advantage in a global economy characterized by intensifying competition' (Hagel and Brown 2005: 20).

We have described a set of knowledge-oriented capabilities, but firms will need to decide where they will invest. Treacy and Wiersema (1995) offers a set of generic competitive positions for a firm: '*product leadership, operational excellence, and customer intimacy*.' While all of the knowledge-oriented capabilities are relevant for the three types of firms, *product leadership* companies will tend to focus on creating knowledge, *operational excellence* companies will focus on using knowledge, and *customer intimacy* companies will focus on accessing non-firm knowledge. Sharing and managing knowledge will be foundational capabilities for all three types of companies. In addition, firms with a high proportion of expensive knowledge workers will seek to develop the capability of capability-building (Hagel and Brown 2005).

Conclusion

We had originally included sustainability in our definition of competitive advantage. Since 1965, 'return on assets (ROA) for U.S. public companies [has] declined by 75 percent.' The 'topple rate' at which large firms 'lose their leadership positions has more than doubled.' 'U.S. competitive intensity has more than doubled during the last 40 years' (Hagel, Brown and Davison 2009). If we believe Hagel, Brown and Davison, holding on to a competitive advantage for even a moderate five to ten year timeframe will be a herculean challenge for a firm in this uncertain environment.

The firms that are fortunate enough to have valuable protected intellectual property they can exploit, or the rare dominant positional advantage, have – perhaps -- less to worry about in this timeframe. The majority of firms seeking sustainable advantage, however, need alternate solutions. Going back to our initial question: Is 'knowledge the firm's essential source of competitive advantage'? If we define knowledge as what is held, then probably not, depending on the firm. In fact, the other cliché we originally dismissed of 'talent as the firm's competitive advantage' is closer to the truth. It is talent, after all, that enacts knowledge in practice, facilitates the 'generative dance' by which new knowledge is created, and holds the resulting capabilities. Rather than spend time stockpiling stores of knowledge, firms would do well to consider investing in access to knowledge flows and strategic knowledge-oriented capabilities, as well as consider how to enhance capability-building as a capability in itself.

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