Research Directions for Knowledge Management

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The emerging interest in knowledge management requires, and will probably receive, considerable scholarly inquiry. As research advances, it ought to be especially sensitive to preserving, and building upon, the already significant literatures on the management of technology, entrepreneurship, innovation, and business strategy. Indeed, there is a real danger that knowledge management will become discredited if it proceeds in ignorance of these large extant literatures, thereby creating unnecessary intellectual clutter and confusion. Properly understood, the knowledge management umbrella can be a convenient rubric for integrating important work in accounting, economics, entrepreneurship, organizational behavior, marketing, sociology, and strategy. Each of these fields provides important insights into one aspect or another of knowledge management; but standing alone, none provides an integrating framework. While there are many potentially valid research issues that one could identify, there are several topics that are particularly salient and warrant special attention:

Assemble evidence to test the proposition that firm-level competitive advantage in open economies flows fundamentally from difficult to replicate knowledge assets.

This proposition, advanced in my article in this special issue, is a contention that is not uniformly accepted. The empirical evidence needs to be further developed.

There clearly are exceptions; but these tend to prove the rule. For example, regulations (e.g., state and federal telecom regulations in the U.S.) create
rent-seeking opportunities that arise from the ability to out-lawyer or out-influence one’s rivals in the courts and political arenas. Witness the success of MCI in entering the long distance phone markets in the 1970s. Such instances illustrate that government regulations, which frequently serve to limit competition, create incentives for firms to expend resources to influence regulation in ways that favor particular competitors and disfavor others.

As another example, trade barriers are still ubiquitous in many countries, and there are domestic policies that shield competitors (e.g., government restrictions) on entry into particular markets. Accordingly, there are more than a few nooks and crannies where rents still flow from old-fashioned restrictions on trade (e.g., the protected French automobile industry, the U.S. electricity industry). Domestic competitors will normally compete away these rents unless there are further restrictions on entry, or if there are scale effects that favor incumbents.

However, surveys of industries exposed to global competition (and not shielded by governmentally imposed controls) will demonstrate that superior profits stem from intangible assets such as know-how, customer relationships, brands, and superior business processes. One indicator of the new regime is how the sources of wealth creation have changed over time. John D. Rockefeller, Andrew Carnegie, and Henry Ford and other capitalists in the late 19th century and early 20th, gained wealth in ways rather different from Gates (Microsoft), Branson (Virgin), Eliason (Oracle), Dell (Dell Computer), Moore (Intel), and Swanson (Genetech). An analysis of industrial and business wealth creation today might be rather suggestive of the role of intangible assets and dynamic capabilities.

The task is methodologically quite challenging. To analyze these issues quantitatively, one would need to establish measures for intangible assets as well as dynamic capabilities (the entrepreneurial way in which such assets are deployed). However, as an interim step, qualitative historical comparisons can be made. More quantitative approaches—using histories of matched pairs of leading firms analyzed with non-parametric statistics, where the “treatment” is investment in intangibles or some other such proxies for intangible assets—are also possible. Other approaches that are initial steps include Hirschev and Weygandt, who demonstrated that Tobins Q ratios are cross-sectionally correlated with R&D intensity.

**Make greater effort to quantify the value of intangible assets.**

Balance sheets prepared under GAP endeavor to represent the firm’s tangible assets, but completely omit intangibles—with the exception of goodwill. As a consequence, balance sheets are at best a poor guide to the value of an enterprise; at worst, they can be almost useless and quite misleading.
There have been various efforts to create adjusted balance sheets by capitalizing the value of income streams earned by certain intangibles, most notably technological know-how, brands, and customer relationships. This is a very useful beginning and is suggestive of further work that can be done.

The value of some types of intellectual property can be observed when certain rights of use are sold (licensed) or exchanged (cross-licensed) in arm’s-length transactions. Patent, trade secret, and copyright licenses are not infrequently granted. Royalty rates are sometimes reported, and vary considerably by sector and by the strength of the intellectual property rights involved. The orders of magnitude—up into double digits as a percentage of sales for very valuable patents and patent portfolios—suggest that intellectual property can have great value. Likewise for brands.

**Understand generic inputs, idiosyncratic inputs, and profitability.**

The information/knowledge/competences dimensions of inputs (especially intangibles) used to create products remains almost completely unexplored in economics and in strategy. There is some recognition that information economics does not conform too much to standard economy theory; indeed, the economics of knowledge and competence (which is distinct from the economics of information) is even more primitive.

Like information, the development of knowledge and competence involves certain important costs; but unlike information, the marginal cost of subsequent use is by no means zero. Like ordinary (generic) inputs, knowledge assets and other intangibles are required in production on a repetitive/continuous basis. Also, unlike information, the costs of transfer are generally high; and, as noted, such assets are different to trade.

Also, because such “inputs” cannot be purchased on the market, the growth of the firm is limited in the short run by the “stock” of such intangibles and competences possessed by the firm. In the longer run, investment in training can soften these restraints.

Further research is clearly needed on imitation and replication. Relevant research now exists through the study of the replication of quality processes and best practices. Because of the tacit elements of knowledge, replication can only be accomplished internally; imitation from the outside is difficult. Value thus flows from a profitable business model undergirded by intangible assets and supported by business processes with a high tacit component.

It is obviously desirable to test such a theory. However, if it is possible to identify circumstances where these factors are at play, then investment opportunities abound. Put differently, any researcher who can work this out can also make money on Wall Street, assuming such characteristics are not already fully understood by investors. Accordingly, the internal credibility of any published
statistical analysis is questionable. Nevertheless, empirical work along these lines would be of great interest and ought to be strongly encouraged. An important starting point will be coming up with acceptable operational increases of superior financial performance. Market-based approaches (e.g., Tobus Q) are likely to be preferable.

**Explore the importance of entrepreneurial versus administrative capabilities.**

In today’s world of converging technologies and markets, rapid innovation can transform markets overnight. Administrative systems that effectuate organizational control, while necessary, no longer provide the underpinnings of value creation. Control over internal cash flow is likewise of marginal value. If not astutely crafted, administrative systems can stifle initiative and weaken performance-based incentives. Moreover, they no longer suffice for value creation because the relevant organizational skills are so ubiquitous.

Accordingly, performance differentials should open up between firms that excel at the entrepreneurial, while nevertheless possessing administrative skills. Firms that are more entrepreneurial are likely to rely on more high-powered incentives, are likely to be more decentralized, and are likely to have open and transparent governance. Such firms are likely to favor investment in innovative activities, but not necessarily through centralized R&D facilities. A changing kaleidoscope of alliances and joint ventures is also likely to characterize firms that elevate the entrepreneurial over the administrative. Characteristics of such “high flex” Silicon Valley organizations are identified elsewhere, suggesting obvious possibilities for empirical research.

**Notes**