A New Tool for Resurrecting an Old Theory of the Firm

Published : May 17, 2006 in Knowledge@Wharton

This is a single/personal use copy of Knowledge@Wharton. For multiple copies, custom reprints, e-prints, posters or plaques, please contact PARS International: reprints@parsintl.com P. (212) 221-9595 x407.

It's one of the oldest, most fundamental ideas in management theory: that executives should understand how the many distinct functional components of a firm -- production, distribution, product mix, human resources -- interrelate to achieve the proper fit. For a firm to establish an effective, overarching strategic position relative to its competitors -- what management theorists call "firm positioning" -- the varied functional elements should, ideally, be complementary and reinforcing.

In recent years, however, this notion of comprehending the "part-whole" relationship of the firm fell out of favor as thinkers turned to other concepts to analyze and explain why organizations are effective. One well-known concept that emerged was the idea that companies could turn to core competencies to attain competitive advantage. Instead of thinking holistically, companies began to embrace the notion that they should, say, benchmark and imitate the best practices of other firms in order to develop these core competencies in their own organization. In that rush many firms forgot, however, to think hard about whether practices that worked so well for other companies would fit well in their firms and, in turn, offer similar benefits.

Now, two members of Wharton's management department, Daniel A. Levinthal and Nicolaj Siggelkow, say it is time to resurrect the idea of addressing the part-whole relationship of the firm. Without this systemic way of looking at companies, the researchers say, firms run the risk of engaging in compartmentalized thinking that can lead to the adoption of practices that are a poor fit and work to the firms' disadvantage. The two scholars have addressed issues related to firm positioning and the part-whole relationship of the firm in a number of papers and articles.

"Companies should be cautious about benchmarking or imitating certain policies and practices of other firms," Levinthal warns. "Benchmarking can have value and power. But the implicit assumption in this thinking is that the policy that is benchmarked and adopted is independent of what my firm is already doing. The best human resource management practice for Nordstrom may not be the best for McDonald's. It may actually be dysfunctional."

"Firms that have been able to sustain their competitive advantage for a long while are those that have been very good at managing interdependencies within the firm," says Siggelkow, adding that "the ability to attain and sustain competitive advantage arises from creating systems of interdependent strategic choices. Dell Computer and Southwest Airlines are good examples. If you want to know the source of their strength, it's not just one thing; you have to rattle off 15 things that each does well. Those systemic qualities make it hard for other firms to directly imitate them or straddle them."

"Fitness Landscapes"

The idea that the parts of a firm should fit together to strengthen the whole sounds convincing enough. But how, exactly, can management researchers make progress on more deeply understanding the impact that different structures of interdependencies have on a firm? A different domain of academic research actually has some helpful tools available.

All materials copyright of the Wharton School of the University of Pennsylvania.

In the field of biology, the part-whole relationship problem is the relationship between an organism's genetic structure, which contains a vast number of elements, and the organism's phenotype (or overall structure of the organism) and, in turn, its fitness. Stuart A. Kauffman, an emeritus professor at the University of Pennsylvania who is now at the University of Calgary, developed a model that allows one to consider analytically the impact of different structures of interdependencies on so-called "fitness landscapes," which map the "genetic structure" to fitness (or, in the world of business, a firm's performance).

Levinthal has been a pioneer in adapting Kauffman's work to a business context. In the absence of interdependencies, landscapes have what Levinthal calls a "single peak." In business, this corresponds to a world in which there exists a set of best practices corresponding to each functional strategy of the firm -- that is, the best human resource management policy would not depend, for example, on the firm's production processes, product positioning and functional components. Indeed, practitioners who advocate particular best practices are typically making an implicit assumption that the proposed practice has no interdependence with other firm policies. In this view, the human resource management policy for Nordstrom would also be thought to be best for McDonald's.

Clearly, for most business settings, such interdependencies do exist. Interdependencies result in a performance landscape being multi-peaked -- that is, there are multiple distinct configurations of strategy choices that are internally consistent. However, not all local peaks are created equal. A firm could have an *internally* consistent set of choices that is not well suited to the firm's competitive environment -- meaning that it is not *externally* consistent. For example, contrast a hub-and-spoke carrier such as United Airlines versus a point-to-point carrier such as Southwest or Ryan Air. A distinct set of choices regarding route structure, pricing and operations management correspond to an effort to optimize the business system for each way of competing. However, the profitability of the hub-and-spoke business system has declined in recent years relative to that of the point-to-point system. This is an issue of external fit or consistency.

"The presence of multiple peaks -- multiple internally consistent ways of competing -- poses a challenge for firms that choose to adapt their strategies or strategic positions," according to Levinthal. "Any incremental movement away from their current set of choices will, in fact, be dysfunctional --- a movement 'downhill' on the performance surface. Thus, for a hub-and-spoke carrier to adopt a limited set of policies from the high-performing Southwest business model may actually drive down the firm's performance."

Effective change would require that the hub-and-spoke carrier shift to an entirely new configuration of strategy choices about how the firm competes. As a result, a firm is often a prisoner of its prior strategic commitments. For instance, the challenge that a company like Hewlett-Packard faces in possibly imitating Dell Computer's business model is not just the complexity of Dell's build-to-order business system but HP's existing relationships with resellers and retail channels.

"One danger is the implicit assumption that what's good for you is good for me, but the other treacherous risk of companies imitating each other is that they all are racing to the same peak in the landscape," Siggelkow explains. "The more firms that crowd on the same peak, the more that peak's height will decline as all the companies will look the same because they are all engaged in the same activities. This process is known as strategic convergence. Copying best practices may make you more efficient, but it will also make you look more like your competitors, and thus is quite unlikely to be a source of competitive advantage."

Big Change in the Brokerage Industry

Unlike biological organisms, managers make conscious strategic choices about how they wish to compete. At the same time, the array of positioning choices that must be made is generally extensive and the nature of interdependencies among these choices often subtle and not fully understood by management. This raises a number of challenges. For instance, can a company simply tell its marketing

All materials copyright of the Wharton School of the University of Pennsylvania.

department to specify the policies explicitly germane to the marketing function with little attention to choices in, for instance, manufacturing? Or does the company need to manage these choices in a more coordinated manner? Answers to these questions require deeper understanding of the role played by organizational structures and the use of cognitive shortcuts, both research topics of Levinthal and Siggelkow.

"Managers will make efforts at ... theorizing about what might constitute more or less effective basic positioning choices but subsequently will need to flesh out and elaborate these basic choices and in many instances may find these basic choices misguided," notes Levinthal.

In addition, the competitive environment may change drastically. Consider the upheaval that has transformed the brokerage industry in recent years. What once was a sensible set of positioning choices for a retail brokerage firm prior to deregulation of the industry and the emergence of the Internet is no longer viable.

For decades brokers' compensation was based on making securities trades for customers to generate commissions, a model that motivated some brokers to churn clients' assets. Brokers' commissions were not what researchers call a "choice variable." Commissions were a given; brokerages created the commission-based system to drive transaction volume. However, the real value-added provided by the brokers was the advice they provided their clients, Levinthal says. "In the 1980s and 1990s, in response to the opportunity provided by deregulation and customer dissatisfaction with the current system, Charles Schwab and other discount brokerages came along and created a consistent transactional system. Today, full-service brokerage firms have moved away from the commission-based model to a relationship-based one where revenues are derived from a percentage of the level of assets a client has at the firm. That has been a big change for firms that had done business the same way for 60 years."

To get conceptual traction with these complex problems, Siggelkow and Levinthal have developed a number of agent-based simulation models, representing a new tool in management theory and practice that can be used to create performance landscapes and that allow the study of ways of managing interdependencies.

"We are trying to model firms as agents with different properties and trying to use landscapes to see how they are performing," Siggelkow notes. "We think our work in agent-based modeling has rejuvenated this area of management research. We know choices have to fit together but the question is how. Agent-based modeling allows you to see how well firms are able to solve these highly interdependent decision problems."

This is a single/personal use copy of Knowledge@Wharton. For multiple copies, custom reprints, e-prints, posters or plaques, please contact PARS International: reprints@parsintl.com P. (212) 221-9595 x407.