# Designing for Innovation or Adaptation: The Symmetry, Syntopy and Synchrony of Boundary Spanning Partnerships

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**Abstract:** The Internet is enabling a new economy based on the networking of human knowledge. While the benefits of using I.T. to connect people to people and people to information within a business are commonly understood, much less is known about the advantages of well-managed partnerships across corporate boundaries. Building on the findings of a recent study of knowledge creating collaborations (Gadman and Cooper 2003), and the growing interest in Open Source Software development communities, (Von Hipple and Von Krogh 2003), (Cole and Lee 2003), this paper addresses the importance of selecting the most appropriate collaborative strategy to meet business needs and the challenges of managing relationships which often span organizational cultures and boundaries. The findings are relevant to any company that depends on the free flow of ideas among smart people and provides a lens through which we can learn and discover new and creative possibilities for the future..

**Keywords:** Knowledge Management. Open Source Communities. Communities of Common Interest, Communities of Practice, Collaboration. Organisational Behaviour. Organisational Design.

## 1. Introduction

In a recently formed collaborative partnership, Intel and IBM came together to speed up the development of wireless applications based on Intel's servers and clients and IBM's WebSphere middleware. Having a pan-Scandinavian focus the initiative also allowed teams located at IBM's Helsinki-based mobile e business centre and Intel's wireless competence centre in Stockholm to work together with greater ease. The deal extended both company's existing relationship in the wired world, and paved the way for further partnerships with application developers.

Increasingly, companies like Microsoft, Linux, IBM, Intel, BP, Benetton, 3M, Oracle, Dell and Proctor and Gamble are creating competitive advantage by collaborating inside and across their organizational boundaries to create new knowledge to take on and overcome complex business challenges. Over the past two decades, management innovations enabled by information technology (IT) have moved companies toward the ideal of the "boundary less" organization (Winograd and Flores 1987), (Morgan 1993). In these organizations, formal reporting structures and detailed work processes have a diminished role in the way important work is accomplished. Instead, informal networks of employees are encouraged to exist alongside the formal organization and these communities of common interest are increasingly at the forefront of new idea development. The general health and "connectivity" of these groups has a significant impact on their knowledge creating capability, strategy execution and organizational effectiveness. Many corporate leaders intuitively understand the benefits of this flexible approach, but few spend any real time assessing or supporting them. And because they do not receive adequate resources or executive attention, these groups are often fragmented, and their efforts disrupted by management practices or organizational designs that are biased in favour of task specialization and individual rather than collaborative efforts. (Gadman 1996)

Not surprisingly, the best examples of I.T. enabled collaborative practices are to be found in companies where information technology both defines competitive strategy, as in the case of Microsoft, Intel, Linux and Dell and where it enables competitive strategy, as in the case of BP, Benetton, 3M and P&G. For example at BP, knowledge creation through collaboration is considered a critical factor in their ability to adapt to rapidly changing market forces. B.P. manages a vast range of activities including exploration and production of crude oil and natural gas; refining, marketing, supply and transportation; manufacturing and marketing of petrochemicals. The company used to be mired in procedures, but now has processes that foster learning and tie people's jobs to creating value. It is flat and lean and every individual in the company has the basic capability to communicate, collaborate and share information routinely, without the underlying infrastructure acting as a barrier to information flow.

## 2. Integrating business and collaborative strategies

Results showed that, when it comes to strategic collaboration, companies do not adopt a standard approach. They employ two very different strategies depending on their competitive focus, their financial goals, how

they create value for their customers, their willingness to take risk and the degree of trust existing between members of the collaboration. In some companies, their strategy centres upon *adaptation*. Knowledge is required to deepen penetration of existing markets with existing products/services, or to extend into new markets. A*daptive strategies* apply existing knowledge structures to new opportunities. Consequently, strategic partnering is predominantly closed or internally focused. For example, when GM introduced their Saturn line of automobiles they were targeted at a specific market. The attractive, inexpensive but high-value cars appealed to young adults just starting out in their careers. While initially assessing the tastes and values of that generation, Saturn subsequently introduced newer models that reflected the increasing affluence of its core customer base. This example illustrates the limited use of external collaboration as a source of knowledge creation and innovation. Similarly, Dell operates in the highly commoditized personal computer market where there is little to differentiate one PC from another. Consequently, they are constantly looking for ways to secure their future. Their strategy is not to innovate or spend on R&D. Instead, they *adapt* existing knowledge to build on the ideas of their competitors and then enter the market later with cheaper prices enabled by an extremely efficient in-house manufacturing process. Their strategy is to *adapt* within a well-defined strategic domain. Their intention is to deploy validated knowledge to another task. Consequently, Dell looks for markets where standards have emerged. It then innovates with its processes - the area where it does hold a large number of patents - and, perhaps most importantly, gives customers what they want, not what it thinks they need.

By contrast, other companies studied adopted a business strategy centred upon *innovation*. In these companies, knowledge is required to introduce new products/services into existing markets or to introduce new products/services into new markets. This *innovating strategy* requires the application of new knowledge to new opportunities. It emphasizes experimentation as a natural and spontaneous way of working, whereas adaptation emphasizes a more planned and controlled approach. Consequently, innovative strategies are predominantly open or externally focused. Open Source is one extreme example of this approach where software development programmers are able to read, redistribute and modify the source code for a piece of software and the software evolves. (Raymond 1999) People improve it, adapt it and fix bugs and this all happens at a speed greater than that of conventional software development. By working together, a community of users and developers improve the functionality and quality of the software and it appears that this rapid evolutionary process produces better software than the traditional closed source process where a privileged few programmers have access to the source and others use an opaque block of bits. A less extreme, but equally effective innovating approach is adopted at Oracle when forming new technology partnerships to build new software applications. They are highly skilled at creating strategic partnerships with smaller companies. Their aim is to leverage and combine with their own, the unique knowledge and talent of these companies to create new products and to quickly exploit highly lucrative markets dominated by their competitors. While this approach is more radical than the fine-tuning of their adaptive counterparts it is less extreme than Open Source. The primary concern when making decisions about degrees of openness in the amount of risk involved in exposing proprietary assets to outside agents who could potentially put them to their own advantage. On the other hand the risk is balanced by the benefits to be gained from spreading their knowledge creating capacity among a wider community of people.

While Open Source software development communities appear to be an idea whose time has come, it is important to remember that knowledge creating communities have been operating across a wide range of industry sectors for many years. (Amidon and Skyrme 1997) Companies like Xerox, Proctor and Gamble, Intel and 3M pretty much lead the way in intentionally creating and managing communities of common interest (Seeley Brown and Solomon Gray 1995). While there is growing interest (Von Hipple and Von Krogh 2003), (Lee and Cole 2003) in Open Source strategies, it is important not to hype them as the next wave, but to be informed by them as we continue to develop new and creative ways to increase a company's ability to gain competitive advantage through strategic collaboration.

## 3. Balancing adaptive and innovative strategies

The major distinction between *innovating* and *adapting* strategies is that the former approach requires the harnessing of learning & innovation through natural and spontaneous

 

experimentation. From a management perspective, this means ensuring and maintaining knowledge connectivity, recognizing patterns in environmental data, creating and supporting new ideas that don't necessarily conform to corporate culture but provide options to pursue new challenges. (Savage 1996) This is enabled by knowledge creation from external knowledge sources working in concert with internal knowledge sources to form a community of innovation. As mentioned previously, in their purest form, Open Source strategies such as Linux and Apache take an innovative approach. But more typically businesses opt for a balance of adaptive and innovative approaches when it comes to managing their business. (Groves 1996) For example, in an attempt by Microsoft to make one of its operating systems more competitive with open-source software developers, the company introduced its "shared source" programme. This allows some governments and technology companies access to selected Microsoft code. In addition, Microsoft has added a new category to those eligible to view its code: so-called Most Valuable Professionals (M.V.P.'s), individuals who have been recognised by the software maker for their contributions to Microsoft's online support community. While there are obvious risks attached to giving people access to their most valuable proprietary asset, the benefit is that they increase reliance on the Windows platform. In an attempt to limit this risk, those eligible for Microsoft's various shared-source programmes are permitted to see some of Microsoft's code, but they can't make changes or use it for their own projects. Unlike open-source projects like Linux, where developers see the code, make changes and then distribute the modified product.

## 3.1 Finding the Best Fit

As the above examples show, a company's choice of strategy is far from arbitrary and has a lot to do with their competitive strategy, an analysis of the risks and benefits associated with taking on any new venture, their knowledge creating capacity and, as Microsoft illustrates, the degree of trust existing between collaborating members. All of these factors have a significant influence on their ability to successfully exploit information to make better decisions that are highly knowledge intensive and entail significant business risk. This does not mean that *adapting* and *innovating* strategies are mutually exclusive but that one takes precedence and is supported by the other. It is the role of strategic management to understand the unique balance of each and to align financial and intellectual resources accordingly. Remarkable companies are those that have mastered the art and science of striking the fine balance between adapting and innovating. See figure 1. They are remarkable because they are made up of people who know how to live alongside one another even though their purposes are not obviously aligned. For example, when Apple Computers decided to develop the "Mac" they went out of the way to protect it from the traditional Apple culture. A new location was found and organizational processes; systems and structures were designed specifically to support its unique purpose and mission. The new facilities they occupied proudly flew the pirate skull and crossbones flag and its people, many of whom were new to the company considered themselves to be part of something very special. They also knew, however, that at some point they would have to involve people from the wider Apple community if they were to successfully transform their prototypes into product that could be manufactured by the existing organisation. The success of the Apple Mac was due, to a large part, to their ability to work alongside the original business with people who did not share the same interests or priorities. This did not happen by accident, it is the single most important aspect of any collaborative effort and the job of every manager and member of the collaboration to ensure that this is anticipated up front and managed throughout the life of the programme.

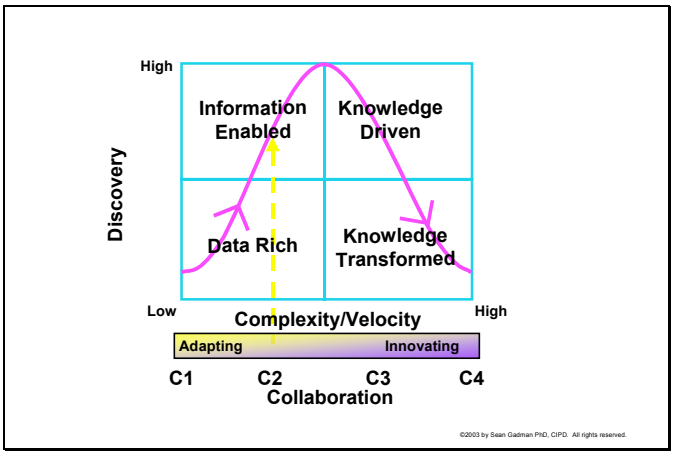


**Figure 1:** Adaptive and Innovative Strategies

C1 – In low complexity environments where knowledge creation is not considered mission critical, partnering of any kind tends not to be regarded as a priority. The objectives of strategic management in these situations is to maintain tight control by managing the input – output relationship between the company and its environment through ensuring clear product

 

– market positioning, resource allocation, planning, organizing, human resource management, and control. Management practices and organizational design principles are biased in favour of task specialization and individual rather than collaborative endeavours. Consequently, self-organization among workers is discouraged. Detailed plans rather than guidelines tend to be the norm. Knowledge connectivity is low. Relationships are based on power, control, and hierarchy. Interaction essential to the generation of new knowledge and problem solving are captured, categorized and stored for retrieval. Knowledge networking is neither valued nor encouraged and access to networks via phone, Internet, face to face and videoconferencing are discouraged. There is a significant downside to this strategy, as many in the banking industry are realising. Their historical dominance in none cash transactions from debit cards to electronic transfers-is under assault from nimble competitors never before imagined. Companies like Tesco in the United Kingdom and Wal-Mart in the United States are ready to serve customers demanding choice, convenience, lower costs, and better service. Additionally, there is increasing competitive pressure from within their industry to "off shore" their back office work to low cost locations in India and the Far East. Failing to review pricing and partnering strategies, product ranges, infrastructure, and customer needs in the face of this challenge could have serious consequences.

C2 – In situations where there is low environmental complexity yet high need for knowledge creation that cannot be delivered by people locked into formal structures, alternate collaborative strategies are formed within the four walls of the business. Known by a variety of names these communities of common interest or communities of practice (Seeley Brown 19??) are designed to create knowledge by encourage free idea exchange among their members. However, while both communities share this fundamental philosophy, their motivation is entirely different. In business, these communities exist predominantly within the boundary of the business. They are formed with the purpose of increasing competencies, reducing time to market, increasing the value of intangible assets. They are designed to appeal to our natural desire to take on a common challenge, the experience of working with high-calibre colleagues, the opportunity for learning and personal development, collaboration and teaming. Businesses create reward mechanisms for sharing knowledge; in some cases these are linked to the main performance review process, and therefore become a mechanism for penalty as well as reward. Typically, the individual's knowledge-sharing abilities are related to measurable contributions to "knowledge- bases", the number of presentations given to fellow employees, participation in training courses. The reward is increased chance of promotion, an extra percentage of salary increase, or a bonus.

These groups may range in size from small working groups of less than 20 members to full communities of hundreds of participating individuals.

Their survival depends on how well interests are met by the community resources. In the course of a successful project, different communities will come and go. New ones will spring up, grow, and possibly become dormant or die. As long as thriving communities still exist, the larger project can be considered alive and well. The death of a community does not equal failure. Consider a community that arose to develop a new microchip process.

- After the standard process developed was tested and accepted by the firms lines of business the process development community, having achieved its purpose was no longer be necessary.
- If in the future revisions to the standard process are called for, the community might be resurrected.

Information technology and the Internet enable these communities to gather for social and commercial interaction. Networks provide strategic and operational benefits by enabling members to collaborate effectively. Boundaries are permeable. The number and density of connections to the environment is increased to speed information flow and adaptation. Information is transparent and diversity of opinions and experience to speed innovation is promoted. The challenge is to recombine to reinvent and people are encouraged to borrow ideas and practices liberally, making every product upgradeable, breeding ideas and processes early and often, and viewing interchangeable modules for people and products essential for mass customization. These experiments are aimed at continuously upgrading the performance of services and products, understanding the requirements of customers, knowing where to target their products, how to market and sell their products and developing new channels to market. Dell and B.P. fit well into this category because

 

they have successfully used their strategic knowledge to develop and run proprietary processes and practices that give them a significant competitive advantage over the competition. Sharing this with others outside the business would not be to their advantage.

C3 – In high complexity environments where existing knowledge assets are in place and highly capable of creating new levels of knowledge required, partnering tends to be predominantly externally focused and designed to enable self-organization among workers. The objectives of strategic management are to balance control with experimentation. Consequently, guidelines rather than detailed plans tend to be articulated. Knowledge connectivity is also an essential aspect of relationship building because it enables interaction essential to the generation of new knowledge and problem solving. In such a culture, group memory is really the holy grail of knowledge management efforts. However, the effort to capture and categorize is often more hassle than workers and managers are willing to put up with. If the organization's or team's culture is suitable to a conversational working style, the best I.T. solutions offer a combination synchronous collaboration tools such as videoconferencing, instant messaging and screen sharing with asynchronous environments that allow teams to work across geographic and chronological boundaries. In this way, they can quickly produce both a highly effective online workspace and an instant archive that becomes searchable group memory. New team members coming on board can easily get up to speed and ask questions that haven't already been answered. Managers can tune in and get a solid pulse on the state of the project. Customers can be an integral part of the project team, viewing the process and giving feedback along the way. Trusting and stronger working relationships are established for future contracts. And everything is embedded in a clear context (the flow of the conversation), which makes for better, more integrated work and learning. Sun Microsystems fits well into this category. For example, in their recent NetBeans open source project, the company used an open source community to develop an integrated development environment for the Java language. The benefits company benefited because it was able to increase not only its own population of Java skilled programmers but that of its customers. Also, because their servers run well on Java, they were in a position to sell more of them. Lastly, an unexpected outcome from the community was an innovative idea that created the potential for a future geographic information systems market, which had never before been contemplated.

C4 – Where environmental complexity is high, but requirements for knowledge creation are low having been already been established and held in patents etc., the C4 domain is that of the expert entrepreneur. These partnerships are characterized by highly knowledgeable people delivering products/services that are the result of extensive research and have become the de facto solution. For example, a biomedical start-up company focusing on the product development of biomaterials for orthopaedic applications might incorporate some key expertise in its founding team, this team might also include graduate students who had developed and refined some of the earlier key processing technology. This may also foster other relationships with the original laboratory, and with those who had tacit understanding of how the idea really works, by adding many of those people to its scientific advisory board this company would become adept at drawing complex ideas and external scientists into its R&D group without upsetting its existing ideas and culture. These partnerships are highly skilled at measuring, valuing and managing their intellectual assets. They acquire and retain highly skilled employees and they are knowledge driven in that they are able to embed individual-based knowledge in the company and make it accessible and useful across the organization. Typically, this category is occupied by companies that have been in some or all of the previous categories and are now able to benefit from the results of their experiences. The benefits of this are stable, safe and reliable products and services protected by time based patents like those seen in the aerospace, academic, pharmaceutical and nuclear sectors. The risk of being in this category is that of complacency and those who occupy this category must remain vigilant to replacement opportunities when patents run out.

## 4. Managing collaborative relationships

The Buddhist principle of “dependent co-arising,” states that, every recognizable entity on every scale of existence participates in the universal exchange of energies, supporting and being supported by the existence of others (Thich Nhat Hanh 1975). Successful collaborative relationships, whether

 

predominantly adaptive or predominantly innovative follow this principle. They possess a potential source of wisdom, compassion and timing that allow their members to thrive in highly complex and fast changing environments. They do not come about by accident but are designed and managed to ensure they possess a balance of symmetry (unity of form), a syntopy (unity of field), and synchrony (unity of flow) (Richardson 2003) and that these elements form an integral, integrated and interactive part of the whole organization. Such integration is made possible through a strong foundation of valuing and trust where people in the partnership interact with one another in mutually dependent ways. The measure of an effective partnering relationship is how much they encourage intellectual, emotional and spiritual growth and personal insight through a deeper understanding of and tolerance for the perspectives of others.

### 4.1 The Business Benefits

The business benefits to be gained from adopting the most appropriate partnering strategy and organizational design are significant. Whether it's a desire to tap expertise globally to solve problems locally, a wish to respond faster to changing customer demands or a desire to develop and launch new products/services faster than the competition, a company's partnering strategy and its design and execution must be inextricably linked. Whether it's a case of doing the same things better, doing better things or doing entirely new things a company's choice of one of the four partnering strategies will be influenced by the nature of its business environment and its confidence in the knowledge of its people to successfully take on and overcome the challenge. In cases where environmental disruption is considered high and knowledge levels well suited to maintaining existing product/service offerings, a company will tend to favor a predominantly *adapting* strategy over an *innovating* one. Consequently, any efforts to innovate will be more controlled and iterative in nature with partnerships designed to foster knowledge creation, capture and dissemination inside and across the organization. On the other hand, in situations where environmental disruption is tolerable and knowledge levels high, a company might favour a more innovative approach to delivering its portfolio and take on a more experimental approach. In such cases, partnerships are more externally focused and designed to challenge existing knowledge with radically new ideas.

Strategies aimed at adapting and innovating must be balanced with the right blend of partnering. If companies intend to stimulate knowledge development through external partnerships they have to consider the state of the organization when they decide how much experimentation is enough. To manage external partnerships, managers must continually assess when experimentation is moving away from the guiding values and core mission of the company. Such loose/tight control is essential if knowledge generation is to continue to feed the strategic aspirations of the firm. Managers should also be open to making use of new perspectives which might ultimately change the core mission of the company. They should carefully observe the impact of new ideas on existing culture and gauge the degree of stress people in the organization are willing and able to accept (Cooper and Sutherland 2000) (Meyer 2002) Ultimately, the difference between going it alone and going with others is a personal choice but I hope that the information presented here will make that choice more informed.

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