PERSPECTIVES

presents emerging issues and ideas that call for action or rethinking by managers, administrators, and policy makers in organizations

Collaborative Networks Are The Organization: An Innovation in Organization Design and Management

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Executive Summary

In August 2000, Peter Drucker made a startling prophesy: "The corporation as we know it is unlikely to survive the next 25 years. Legally and financially, yes. But not structurally and economically." Nine years later, the business world is witnessing the realization of Drucker's prediction. Firms are slowly embracing the power of openness and innovation—not just products and services, but also processes and business models. This is a new way of being for businesses, to pursue opportunities while managing risks that come with globalization.

In this in-depth article, the authors dive deeply into what it means to collaborate, moving far beyond simplistic ideas of working together or having a strategic alliance. As the authors explain, collaboration happens in a network, as organizations open themselves up to a variety of stakeholders and communities. The network is dynamic and "fit for purpose," with the agility to change the components and how they relate to each other legally and operationally as purpose and context evolves. Harnessing the strength of contributors, the network benefits and connects all parties in new and innovative ways. In short, the collaborative network *is* the organization.

The authors draw upon research findings, case studies, and examples from their consulting and operational experience with many different organizations and industries, including government entities, oilfield producers, pharmaceutical alliances, and basic science collaborations. The article illustrates, using real-world examples, the benefit of collaboration, the five factors of a successful network collaboration, the value proposition of the collaborative network, and the role of the network choreographer.

KEY WORDS

Collaborative Capability

Network Design Model

Network Choreographer

Governance

Innovation

Boeing

In honour of the 100th birthday of Peter Drucker, authors have prepared a brief on their perspective of how one of Drucker's most important prognostications is coming to be.

The genius of Peter Drucker was that he made very complex thoughts and concepts seem simple. It was in the summer of 2000 that he gave an interview to James Daly, Editor of *Business 2.0*, a popular business magazine at that time. In the interview, which was published in August 2000, a few short months after the crash of the dot-com market, Drucker stated:[1]

> ***"The corporation as we know it is unlikely to survive the next 25 years. Legally and financially, yes. But not structurally and economically."***

As entrepreneurs as well as educators and advisors to business people, we had been considering the impact of advances in communications and information technologies, as well as the loosening of trade. As a result, we had begun work on a book, *Collaborative Communities: Partnering for Profit in the Networked Economy*.[2] The central thesis of the book was that an organizational form was beginning to emerge that was entrepreneurial in nature and relied on a network of partners to satisfy the needs of customers newly empowered by technology. Indeed, we supposed that the end was near for the traditional vertically integrated corporation.

When we read the interview with Drucker, we knew we were on to something. His views had helped shape our view of entrepreneurial thinking.[3] They would now guide our pursuit of understanding the networked organization. We have spent the past 10 years consulting and doing hands-on research with Global 100 companies, governments, and raw start-ups. We have focused on two things:

1. Understanding the structure and governance – the management system – networks require to operate effectively
2. Defining and developing organization-wide collaborative ability

Drucker's words foretold a significant challenge descending upon corporate management. This paper presents The Rhythm of Business'[4] model of collaborative network design, a set of principles and choices to inform the structure and strategy of an organization for the subsequent 25 years in fulfilment of Drucker's prophesy. It then uses the on-going experiences of the collaborative network organized to design and develop the Boeing 787 Dreamliner as an example of the management challenges of this new form of organization.

HIERARCHIES BECOME NETWORKS

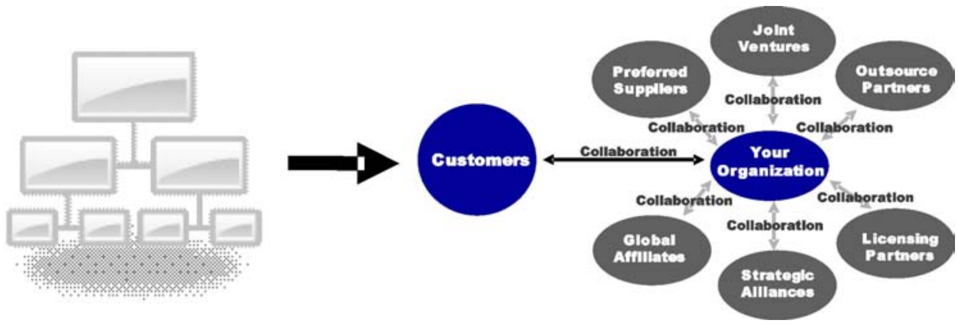
Nine years later, we are witnessing the realization of Professor Drucker's prophesy. Firms are slowly embracing the power of openness and innovating not just product and service offerings, but processes, business models, and ways of working to harness opportunities – and using that openness and collaboration to manage the risks of globalization. Drucker's prophesy applies to all types of organizations. No one company, entity, government, or association has the talent, resources, or time for the continual innovation that the global marketplace demands. No single company, industry, sector, or country can solve the critical issues facing society today.

> "You increasingly have to think through what relationships make the most sense—the customer is the most important relationship."
>
> **Peter Drucker**
> Keynote Speech, Collaborative Commerce Summit June 2001

As organizations open themselves to stakeholders and communities, they tend to specialize and develop relationships with other organizations that complement and extend their core expertise. These relationships are the lynchpin in efficiently and effectively providing a complete solution for their customers. One can think of the organization today as a collection of components which are brought together because of their individual capabilities and assembled for a specific purpose (see Figure 1).

This network must work in a collaborative way to realize the collective and individual objectives of the network organizer, the member firms, and the customers. The collaborative network is a dynamic, fit-for-purpose structure that has the agility to iterate its components and how they relate to one another legally and operationally as the purpose and context of the network evolves. It is a way of organizing that is best positioned to leverage existing resources and create new value. It is a way of working that harnesses the strengths of all who

Figure 1: Hierarchies Become Networks



contribute and thus benefits and connects them in new, innovative ways.

A collaborative network is the collection of businesses, individuals and other organizational entities that possess the capabilities and resources needed to achieve a specific outcome.

Organizing in collaborative networks is a dynamic process, requiring great agility and resourcefulness. In light of the global reach of today's organizations, it is entirely realistic to expect that any organization may seek to satisfy different sets of customers' needs, regardless of whether the organization is large or small. And as such, it may require a different collaborative network to address each set of needs. Thus it is likely that an organization will participate in multiple collaborative networks on a concurrent basis. It will be the network organizer or choreographer as we refer to the role, in certain networks and a member firm in others. These networks may have competing purposes or be comprised of competitive firms.[5]

Indeed, when collaborative networks are the organization, competition itself becomes network to network and that changes the nature of competition. No longer is competition defined by products and services. Rather it is defined by the ability of the people within an organization to build networks of relationships and work across boundaries in furtherance of delivering value to its customers and members. Relationships cannot be bought or copied. They must be built from scratch and they are built by individuals, not organizations. Thus competitive advantage accrues to those best able to assemble and manage a network of collaborative networks.

Most simply, to innovate and grow as the structure and economy of the traditional corporation ceases to be attractive, *firms not only need a specialized expertise; they need a collaborative capability.* While many CEOs and other business leaders recognize the need for collaboration, most admit that it is neither achieved nor realized in their organizations. The disconnect between what is said and the reality of what is happening points to a need for a dramatic, fundamental shift in ways of thinking, acting, relating, interacting, working, and managing.

"CEOs believe collaboration is absolutely critical, but there is a problem: Although collaborative aspirations were high, actual implementation was dramatically lower. Citing a lack of the skills and expertise needed to partner externally, many CEOs refer to partnering as 'theoretically easy' but 'practically hard to do.'"

IBM Global Services
2006 Global Study of 765 CEOs

COLLABORATIVE NETWORK DESIGN PRINCIPLES

Organizations and individuals that develop expertise in working in collaborative networks represent the future of how work is done. The reality is that most people are more familiar with working in silos and are more comfortable with traditional organizational hierarchies and boundaries. We work under the assumption that organizations and people only actively engage in col-

Principle #1

Organizations and people only actively engage in collaboration when the benefit they derive is greater than the time and effort it takes to collaborate.

laboration when the benefit they derive is greater than the time and effort it takes to collaborate. Our approach to collaborative network design and governance acknowledges this inertia and makes it a priority to demonstrate the increased value a well-functioning collaborative network can provide to all participants.

People cannot be forced to collaborate. It can be a risky proposition. The question, "Why collaborate?" must be answered anew each time it is raised. The answer is found in the relative value placed on relationship currencies – the information, insight, access, and expertise one only gets through a relationship. This additionality of resources – the relationship currencies – that collaboration provides is why we collaborate. Using relationship currencies takes time and effort, as does offering one's currencies to someone else. Unless the value of the currencies to the recipient for achieving his/her goals is greater than the effort it takes to access and use those currencies, collaboration would not happen (see Figure 2).

Too often the time and effort it takes to build the relationships necessary to access another's resources are discounted by firm management. As a result, people view collaboration as a nicety but not essential to the performance of their jobs. They see the additional work of collaborating, but not the additional resource it represents. As IBM's study, "Expanding the Innovation Horizon," highlights, collaborative skills are lacking.[6] A better understanding of the work of collaborating and the skills it takes to realize its benefits are required. Make no mistake about it, collaboration is hard work. Chris Huxham, Professor of Management at the University of Strathclyde, Glasgow, is one of the leading scholars on collaboration.[7] Her view is: Don't collaborate unless you must. We agree. We also believe you must, as does every CEO searching for elusive growth.

Figure 2: Benefit of Collaboration

$$\text{Benefit of Collaboration} = \frac{\text{Value of Resources Leveraged}}{\text{Time and Effort to Collaborate}}$$

Structuring for Collaboration

The Network Design Model (Figure 3) presents five factors that must be considered if collaboration is to play a major role in a firm's strategy. Each factor represents a continuum of choice that may be blended as necessary to best achieve the network design most suited for the purpose at hand. The left-hand side of the spectrum generally defines networks that are more informal, while the right-hand side of the spectrum defines more formal networks.

Principle #2

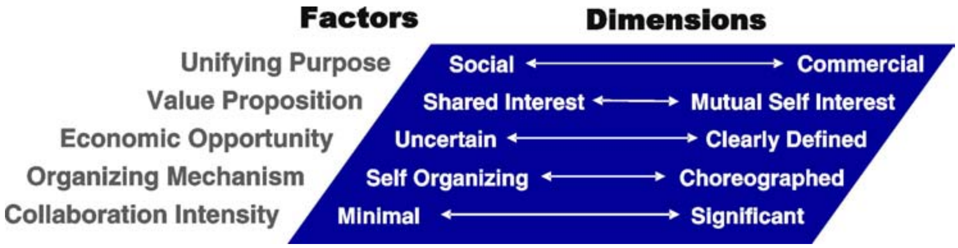
Collaborative networks are fit for purpose. The purpose determines how the network is structured.

The *unifying purpose* is why the collaborative network comes together. The purpose is what the network choreographer and members hope to accomplish by giving of their time, energy, and currencies. The unifying purpose is the goal for the network choreographer. It is why the network is organized. For members of the network, achieving the goal may be a means to achieving their own individual objectives.

On the left of the continuum are social networks, such as Facebook and MySpace. People in a social network make connections, share photos, message each other, rate music and films – generally anything friends would share. Not everyone who is part of these networks has a purely social purpose. People also use them to find jobs. Musicians and artists use them to get noticed. Given the tremendous market valuations that have been placed on social networking sites, the network organizers certainly have a commercial purpose in mind.

At the right side of the spectrum are networks that are mainly commercial. A strategic alliance to develop and market a new product would fall into this category. In

Figure 3: Network Design Model



practice, there is often a blend of social purpose in the form of connecting with others to share, learn, discover, or influence as well as the quest for economic gain embodied in a commercial purpose. Often one of the main reasons alliances are formed is to enhance knowledge or expertise. For example, a biotech company may partner with a pharmaceutical firm to share the risks and costs of drug development. At the same time, the biotech firm may wish to benefit from the pharmaceutical company's knowledge of the regulatory process or how to sell into a particular therapeutic market.

The *value proposition* describes the exchange of goods, services, relationship currencies and other resources that occurs within a collaborative network. To be collaborative and function as a network, relationship currencies must be integral to the overall value proposition.

There are infinite value propositions. One based on shared interests assumes that all members of the network will find the same currencies to be of value. For example, all the individual members of social networks such as Facebook (the customers) desire the connectedness that comes from being a part of that network. Similarly, all the members of an activist network such as Amnesty International have a shared interest in influencing a certain policy or bringing about a desired outcome.

At the other end of the spectrum, mutual self-interest implies that all network members want something of personal value to them, and that personal value is reasonably unique. When the value proposition in a collaborative network is derived from mutual self-interest, members negotiate with each other to obtain the currencies that each value. Every party values different currencies, so the network must be organized to gain and exchange a number of currencies in a variety of ways.

For any value proposition to be effective and produce the collaborative intensity necessary for the network to achieve its purpose, there needs to be a value proposition for:

- each person involved
- the organization each person is most directly connected with, e.g., his/her business unit
- the larger organization, e.g., his/her company.

In a business or scientific endeavour, this usually means the value proposition must include something that positively influences a person's goals and performance targets.

The *economic opportunity* describes how well the network has established a way of monetizing the value proposition, including the collective currencies of the network members. Sometimes the economic opportunities for the parties are distinctly different. MySpace is a perfect example. For most members, MySpace is a network of shared interests and has little to do with economic opportunity. For the company, which is the choreographer in this case, finding ways to monetize this huge community is paramount.

The economic opportunity becomes more clearly defined when the customer is identified, and how the network choreographer and members benefit financially is reasonably well established. The network knows the customer has or can get access to him/her, and understands what is important to that customer. Again, strategic alliances between two or more companies are representative of this type of network.

The *organizing mechanism* is the method through which the people and entities that are members of the network come together and govern (manage) themselves. In a self-organizing mechanism, anyone may participate, and there is no formal process for organizing the work of

Principle #3

Every network has a choreographer, the individual or entity that organizes the network and is responsible for achieving the purpose of the network.

the network. One can think of these networks as communities, even when they occur in a business situation. For example, a community of practice is a self-organizing group that comes together to share information and insight about a particular issue or challenge and to learn from one another. Most networks that are more social in nature are self-organizing, although there is a network organizer who establishes a governance structure for what members can and cannot do within the network, especially as it relates to information privacy.

A choreographed mechanism implies that participants are selected by the choreographer (the network organizer) and that entity determines the criteria for participation and organizes and guides the work of the network. Choreographed networks have formal governance principles that are agreed to by the potential network members before a member can participate. Governance is the system for managing the joint and individual work

Principle #4

Governance is the system for managing the joint and individual work of the collaboration. Governance principles have both structural and behavioural components.

of the collaboration. Governance has both structural and behavioural components, as represented by Figure 4.

Governance includes the management structure, roles and responsibilities, communication protocols, and decision-making within the network. Closely related to governance, but important enough to consider as a separate dimension of high-performing collaborations, is accountability. Effective governance as well as personal and organizational accountability can contribute to the right level of trust and transparency needed for the network to achieve its objectives. Together, these three dimensions merge to create an environment that is conducive to effective collaboration (coordinating, communicating, and leveraging). Without each of these pieces in place, the network is unlikely to achieve the strategic objectives of its partners. Although governance does not occur in a vacuum, the absence of effective governance can undermine an alliance or other network where there is a need for a strong choreographer.

Strategic alliances among two or more entities are highly choreographed. Alliances present an interesting dynamic in that each party to the alliance must manage its respective stakeholders so that the unifying purpose of the alliance network may be achieved. It is often more difficult to align the stakeholders within an organization than it is to create agreement and concord among the network members. Accordingly, considerable time and effort may be expended on getting the people within the many silos in an organization to collaborate.

The *collaboration intensity* is defined by the degree to which activities are coordinated, information of appropriate relevance, quality, and timeliness is shared, and participants' resources are leveraged for the benefit of all parties. The intensity of the collaboration necessary is dependent on the nature of the resource leverage

Figure 4: Collaborative Network Governance Framework

Structural Elements

- Committee Composition
- Roles and Responsibilities
- Decision Making Authority
- Escalation
- Milestones
- IP Rights

Behavioural Elements

- Communication Protocols
- Meeting Management
- Decision Making Norms
- Conflict Resolution
- Evaluation
- Review Processes

sought. The more one seeks to gain from the network, the greater the collaboration intensity needed.

Despite popular belief, minimal collaboration generally occurs in networks organized for social purposes. One need not collaborate with great intensity if the purpose of the network is to make friends and share music. Yes, some information may be exchanged, but it is generally of limited richness. And, unless it is an activist network where the purpose is to influence decisions and policy, there is generally little coordination of activities within socially-oriented networks.

At the far extreme, highly intense collaboration is needed to achieve the unifying purpose of the most choreographed networks. Alliances are a type of collaborative network established to leverage the resources of each party in order to achieve the alliance's objectives (the unifying purpose). They require a very high degree of collaboration as alliances exist within the corporate cultures of their respective partners. Intense collaboration is needed to ensure that stakeholders receive the benefits they expect, which are necessary to ensure their participation.

> "The greatest change in the way business is being conducted is the accelerating growth of relationships based not on ownership but on partnership."
>
> **Peter Drucker**
> Keynote Speech, Collaborative Commerce Summit June 2001

Thinking of the organization as a network of networks, each of which exists only to achieve a specific purpose and which is encouraged by the elements of the governance system to achieve that purpose with increasing excellence, is a significant departure from the traditional organization design. It is indicative of the innovativeness management must demonstrate to achieve its objectives as the structural and economic nature of the corporation is being shaped, as Drucker explained, to succeed where partnership is based more on relationship than on ownership.[8]

Principle #5

Innovation in organization design requires innovation in management

THE CHOREOGRAPHER

Every network, whether self-organizing or highly choreographed, has some individual or entity that takes on a leadership role. The role varies depending on the characteristics of the network.

The network choreographer is the individual or firm responsible for designing the collaborative network by identifying the right dimensions for each of the factors in the network design model. In a more socially-oriented network, the choreographer is the person or group that organizes the network. In strategic alliances, the alliance leadership which is comprised of representatives from all partners has the role. In commercial networks, the firm with the closest connection to the customer is generally the choreographer. This relationship is essential as by engaging potential network members and customers in the design of the network is often how the choreographer ensures that the value proposition will be attractive to the members and customers it seeks. As stated above, when the value proposition is one of mutual self-interest, there is a negotiation that occurs. Even when the value proposition is one of shared interests, the members must be included in the network design to ensure that it meets the members' needs.

The choreographer of any network plays a dynamic and entrepreneurial role, requiring much agility and resourcefulness. Most simply, the job of a choreographer is to rally people and their resources around the vision for the collaboration. As the collaboration and underlying relationships grow, more valuable resources become available. A choreographer must be:

- ***First and foremost, an entrepreneur*** – Rallying people and their resources around a vision is the chief job of an entrepreneur. Collaborative networks have become a way of organizing; so, whether the network being formed represents the totality of what the company does or is a programme or business unit within a company, it is best to think of it as an entity. In that way, efforts are focused on making the network a success. It requires someone or the group to hold the vision and be comfortable with the ambiguity inherent in creating and growing something new.

- ***A passionate advocate* –** The choreographer represents the interests of all network members, the customer, and itself. A non-partisan understanding of value is required to enable it to flow between and among parties to a collaboration.
- ***A dedicated coach and mentor*** – Growing the collaborative capability and capacity of an organization requires sharing learning and proactively developing skills and appropriate behaviour. This often means working with senior leadership to guide them in understanding the implications of some of their actions and decisions. It is also generally in the choreographer's interests to have partners that know how to be good partners.
- ***A tireless communicator* –** A common language with shared meaning is essential for collaborative success. The choreographer must help all involved have a common vision of success and present a holistic view of the relationship – as if it were its own entrepreneurial entity. One of the most important roles of the choreographer is to bridge silos that exist in traditional organizations and create links between organizations. Failure to communicate effectively can set unrealistic or false expectations and can erode trust when expectations are not met.

Networks that have a commercial or business purpose generally require a highly choreographed organizing mechanism. The authority the choreographer needs is directly related to the degree of resource leverage required within the network to achieve its unifying purpose. Much of the authority the choreographer can exercise is based on the value it creates for network members. The greater the resource leverage sought, the stronger the choreographer must be, and the greater the value creation it must facilitate.

The choreographer's job is to organize and engage the network members in the work required to realize the purpose of the network. Thus, the choreographer guides the network to achieving its purpose through the implementation of a governance system specifically designed to achieve the purpose of the network. It should facilitate the necessary intensity of collaboration so that the value proposition inherent in any single relationship may be realized as the network pursues its unifying purpose.

A few of the key responsibilities of the choreographer include:

- maintaining continuity of intentions, motivations, and relationships
- having a single, comprehensive view of the network
- facilitating communication and decision making
- pre-empting issues, facilitating conflict resolution, managing escalation
- managing governance and accountability structures and processes

None of these responsibilities are fully the requirement of any functional leader, yet they are the responsibility of all functional leaders. Experience shows that dedicated collaboration managers are an essential component of success.[9]

The more choreographed the network, the more intellectually challenging and operationally sophisticated is the choreographer's role. It is often the ultimate example of influencing without authority. This boundary bridging role is what management is in the replacement of the "corporation as we know it": dynamic, innovative collaborative networks.

THE 787 DREAMLINER COLLABORATIVE NETWORK

The following updates our analysis of the network management challenges Boeing has been encountering with its 787 Dreamliner that first appeared in our April 2008 white paper Collaborative Network Management: An Emerging Role for Alliance Management.[10]

The Boeing Company's collaborative network for the design, development, and production of its 787 Dreamliner (see Figure 5) offers an illustrative and ongoing example of the challenges management faces as it guides organizations to the appropriate role of collaborative networks within its strategy.[11]

When Boeing set out in 2004 to make a new product for the mid-sized, long-range commercial jet market, it introduced several engineering and production innovations. The 787 is the first family of airplanes constructed from a carbon-fibre plastic resin, instead of aluminum, thus making the plane more fuel-efficient. It offers a satellite-based communications system that allows internet access for all passengers, wireless networks for moni-

Figure 5: Boeing 787 Dreamliner

toring maintenance, and electronic flight bags containing charts and other reference data for the crew. The aircraft has larger-than-normal windows and promises additional comfort for both passengers and crew by maintaining higher air pressure and humidity. With the Dreamliner, Boeing hopes to win back a considerable share of the commercial airline market from rival Airbus SAS. The Dreamliner has been met with enthusiastic responses from customers. As of April 2009, despite some cancellations, Boeing has orders for 850 planes from 55 customers and is sold out of production slots until at least 2017.

Beyond the technical innovations of the 787, the manner in which Boeing is conducting the programme is an innovation in organization design. In an effort to control costs, reduce time to market, and access specialist expertise, Boeing assembled a global collaborative network of more than 50 partners, operating in over 130 locations around the globe (see Figure 6 – Joint Effort). Boeing has long done business with many of the network member firms. However, for the Dreamliner Programme, Boeing has fundamentally altered the nature of its relationships with its network partners.

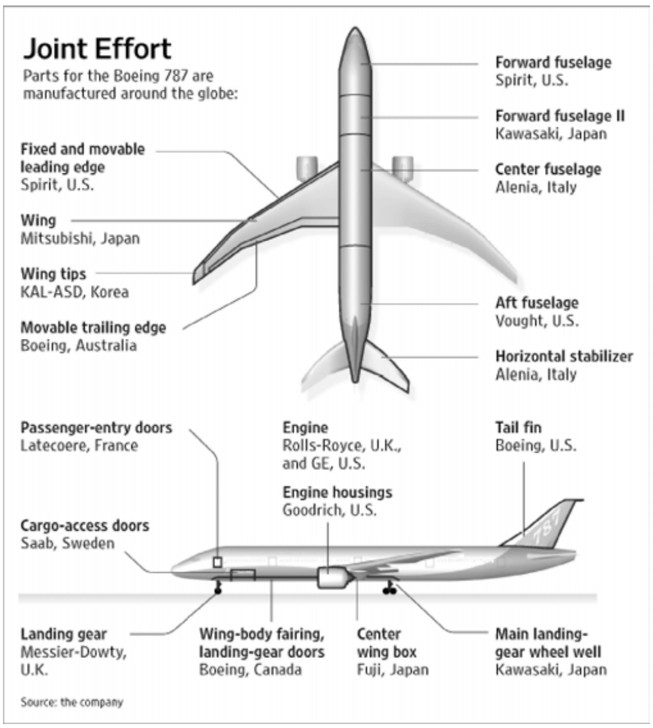
The 787 is the first airplane in Boeing's history to be designed largely by other companies. To lower the $10 billion it would cost to develop the plane alone, Boeing gave responsibility to these partner-suppliers to design and build components of the plane, which are then shipped aboard specially modified Boeing 747s called Dreamlifters to Boeing's facilities in Everett, Washington for final assembly. Boeing anticipated that this distribution of work to specialist firms would reduce the time to market from six years to four, and also shorten the time in the final assembly area from 30 days to three.

To reduce its own costs and spread risk, Boeing required the partners to invest a cumulative $4 billion. In many instances, the partners were asked to delay receipt of payment for their work until customers took delivery of the planes, the first of which Boeing expected to deliver in May 2008. In return for accepting this risk, the partners have long-term contracts, some of which are for 30 years, the planned life of the programme.

The partners were also responsible for more than the usual price, quality, and timeliness associated with arm's-length suppliers. Boeing gave its partners responsibility for the supply chain and required them to perform according to the agreed standards embedded in the overall design architecture.

Boeing was fully aware that designing and building the plane in this manner altered its role in the production of products and services for its customers. In Boeing's view, the Dreamliner design and production network represents an important step in achieving its long-term strategic objective of transitioning from a manufacturer to an integrator. As integrator (another way of saying network choreographer), Boeing adopted a number of man-

Figure 6: Joint Effort



agement practices which have come to be associated with best practices in strategic alliances. It used the design architecture to establish a common set of goals that every partner had a part in achieving. Special attention was paid to ensuring that the partners' roles and responsibilities were thoroughly identified, broadly communicated, and understood. Metrics and milestones were defined, aligned, and agreed upon. Boeing established a common electronic communication and data sharing platform, benefiting from the widely accepted business and technology standards that enable globalization. Recognizing that inter-company teams would govern and conduct much of the work, it invested in team-building and relationship-development activities.

Boeing was optimistic that the global network it put in place for the design and development of its new family of airplanes—among the most complex of machines—would be a significant innovation. It counted on the rewards for every network member to be large and sustained.

Collaborative Naiveté

Myths about collaboration often result in managers and executives failing to understand that the success or failure of many endeavours hinge on the ability of people to collaborate. All too often people are told to go collaborate, but they have little understanding of what that means and what they are supposed to do in a particular instance. Rarely do managers communicate how collaboration differs from one partner to another, one network to another. It is safe to say most have not even thought about how it should differ based on the purpose and economic opportunity of the underlying network. Most importantly, managers do not take the time to build new mental models to reflect the nature of the relationships needed among network members and between the network members and the choreographer. As a result, it is hard to get around the ingrained mindsets and behaviours that have traditionally governed relationships between a firm and external entities.

Boeing's 787 Dreamliner network is a case in point. Despite the efforts to set up the network for success, Boeing finds itself in a very touchy situation. When parts for the first test plane were delivered to Everett, Washington to be rolled out on 07/08/07, Boeing received 30,000 pieces to be assembled—not the 1,200 components the final assembly process anticipated. The events that precipitated this "chaos," as one partner executive described it, have led to pushing back the delivery date for the first plane until the first half of 2010, not May 2008 as planned. This two-year delay exposes Boeing to penalty fees and potential cancellations of orders for failing to meet contractual obligations. Its customers are counting on these planes to help them control the cost of fuel and achieve other operating efficiencies. Some were counting on the Dreamliner to profit from the 2008 Beijing Olympics. To try to get the programme righted, Boeing has thrown people and money at the problems. The head of the programme has been replaced. It has bought one subsidiary of a key partner and is currently rumoured to be in negotiations to buy the rest of the company.

The damage is done. Compensation is being negotiated for customers who do not have their planes. Orders are being cancelled and delayed, magnifying the effect of the moribund economy. Suppliers are unnerved by public disparaging of their performance by Boeing executives.[12] The delays are hurting their businesses, too. And the rival, Airbus, which announced its intention to use a similar global network model on a competing plane expected to be ready in five years, is learning from Boeing's mistakes.

What went wrong? At one level, one can say it was simply a failure of the suppliers to live up to their commitments to perform at certain standards. Parts did not meet engineering tolerances. Shortages in certain materials compounded delays. There was a two-month labour strike. The underlying cause, however, is a failure to appreciate that implementing Boeing's engineering and production innovations would require significant changes in structure and ways of working.

Boeing has failed in certain key aspects of its role as choreographer. It did not understand the complexity of and interdependence of its collaborative network and the amount of direct management the network would need. The partners have partners, too. In some instances, more than one partner used the same second- or third-tier supplier, resulting in an overload of work when the challenges began. There were quality issues as well as language issues. Assembly instructions arrived in Italian, needing translation. More than 6,000 parts required to attach the floor to the fuselage had difficulty meeting strict engineering tolerances. Following the traditional design review process would have meant shuffling an inch-thick stack of papers for each part between Boeing and a long-time supplier in the U S and the floor's designer in Israel. Boeing's managers say they did not know their supplier had outsourced the design.

They did not appreciate the intensity of the collaboration the network required. It underestimated the quality and richness of information needed across the network as well as the depth and breadth of the coordination required. Indeed, the company viewed the network too narrowly, failing to account for its partners' networks. And Boeing overestimated the ability of its own and partner employees to carry out the technical aspects of their jobs in a network environment. It is not possible to say if all the difficulties could have been avoided had Boeing better managed the network. It is safe to say that with a network perspective, the interdependencies between members would have been more apparent, resource leverage would have increased, and communication would have improved.

Being a choreographer is a challenging role; however, it is the role of any and every network organizer.

Boeing's experience dovetails with the findings of Alan MacCormack of the Harvard Business School and his partners from Wipro who examined more than 40 collaborative innovation projects. MacCormack concludes that when companies apply their traditional approach to collaborative endeavours, they make three critical mistakes: [13]

- They do not consider the *strategic* role of collaboration, but see it only as a tactic for reducing costs. As a result their efforts are misaligned with their business strategy.
- They do not *organize* effectively for collaboration. Instead they treat partners like suppliers of parts or raw materials, and manage them using a procurement function.
- They do not make long-term investments to develop *collaborative capabilities*. Instead they assume their existing staff and processes can handle the challenge.

Most organizations are not designed for collaboration. Executives do not appreciate what collaborative working truly entails and thus assume that their existing processes, infrastructure, and management practices are suitable for collaboration. They are not. Moreover, the nature of work is changing, requiring a set of skills, behaviours, and role definitions that are quite different than those that previously brought about individual and organizational success. Peel away at the symptoms, and lack of collaborative ability gets exposed as a root cause of failure.

AN INNOVATION IN MANAGEMENT

Today, innovation is occurring in the very definition of an organization, its boundaries, and how it interacts with its stakeholders and communities.

Change is not easy to accomplish, even when the priority is clear. Nonetheless, if an organization lacks the ability to collaborate, it lacks the ability to innovate and grow (see Figure 7).

Figure 7: The Key to Innovation and Growth

As we approach the 10-year mark since Drucker's prophesy, it is important to acknowledge that business in general is just beginning to understand and make use of collaborative networks. We are still in the early days of acknowledging the fundamental transformation in organization structures and the ways of working and managing. collaborative networks are not a management concept *du jour*. It is not another change initiative that can be ignored until it goes away. Only a collaborative network has the capital, capacity, and expertise required to take on the complex, major challenges of our time – be it reducing the energy wasted in the chip manufacturing process or stemming the spread of swine flu.

Without a doubt, collaboration is the most important capability for any organization to possess today. Building the capability requires a focused effort, sometimes creating a function in addition to ability. The Principles of Collaborative Networks described in this paper offer a framework for shaping and leading complex, collaborative networks. The five factors of the Design Model offer a set of choices along a continuum so that the network is fit for purpose, agile, and highly dynamic. The governance offers process and tools and helps the network learn from its experiences. Individual employees must develop key competencies.

> "Change has begun. There are clear signs that we are on the cusp of a new development – the corporation is about to change."
>
> **Peter Drucker**
> Keynote Speech, Collaborative Commerce Summit June 2001

Few executives believe their organizations are good at collaborating with other firms, or that they personally have a good understanding of how to create value in networks. By and large they generally understand that they must embrace collaborative networks, they just don't know how. Thus, at present there is disconnect between what is being said and the reality of what is happening in many organizations. There is no doubt however, that we are in a time of profound transformation in ways of working, creating value, structuring and managing organizations.

ENDNOTES

1 Daly, James (22 August 2000). "Sage Advice: An Exclusive Interview with Peter Drucker," *Business 2.0*.

2 Shuman, Jeffrey and Janice Twombly with David Rottenberg (2001). *Collaborative Communities: Partnering for Profit in the Networked Economy*, Chicago, IL: Dearborn Trade.

3 Shuman, Jeffrey with David Rottenberg (1998). *The Rhythm of Business: The Key to Building and Running Successful Companies*, Woburn, MA: Butterworth-Heinemann,

4 The Rhythm of Business specializes in collaborative business—the organizations, business models, management and ways of working to innovate and grow through collaboration. For more than 25 years, principals of the firm have built collaborative business models, developed and operated alliances and supplier networks, and consulted within both corporate and civic sectors on building and using collaborative relationships to achieve strategic and financial objectives. Through comprehensive management frameworks, skill development, and measurement and analysis tools, it enables individuals and organizations to innovate and grow through collaboration. Co-founders Jeffrey Shuman and Janice Twombly have co-authored numerous books, articles, and white papers and regularly speak at a variety of venues around the world on the ongoing transformation of organization structures to collaborative networks. Their methodologies inform Shuman's popular MBA courses on Managing Collaborative Relationships and Entrepreneurial Thinking at Bentley University where he is professor of management.

5 Shuman, Jeffrey and Janice Twombly with David Rottenberg (2001), *Collaborative Communities: Partnering for Profit in the Networked Economy*, Chicago, IL:Dearborn Trade.

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7 Huxham, Chris and Vangen, S (2007). *Managing to Collaborate: The Theory and Practice of Collaborative Advantage*, UK: Routledge, Taylor & Francis.

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9 *State of Alliances*, Association of Strategic Alliance Professionals, 2007

10 Shuman, Jeffrey and Janice Twombly, *Collaborative Network Management: An Emerging Role for Alliance Management*, Best Practice Bulletin, The Association of Strategic Alliance Professionals, July 2008.

11 Sources used for the Boeing Dreamliner example are Nambisan, Satish and Sawhney, Mohanbir, *Global Brain: Your Roadmap for Innovating Faster and Smarter in a Networked World*, Wharton School Publishing, Upper Saddle River, NJ, 2008, Lunsford, J. Lynn, "Boeing Scrambles to Repair Problems With New Plane," *The Wall Street Journal*, December 7, 2007, p. A1, Paris, Costas, "Boeing Won't Rule Out Further Dreamliner Delays," *The Wall Street Journal*, 19 February 2008, and conversations with British Consulate Inward Investment Executives.

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13 MacCormack, Alan; Forbath, Theodore; Brooks, Peter and Kalaher, Patrick (2007). *Innovation Through Global Collaboration: A New Source of Competitive Advantage*, Harvard Business School, Boston, MA.

Jeffrey Shuman, Ph.D, has been building networked business models and presiding over global collaborative supply networks and strategic alliances for many years. Shuman has co-founded and operated five companies in diverse industries. He has consulted for numerous others, including startups, Global 10 companies, and national economic development agencies. He is the co-founder of The Rhythm of Business, Inc. and Professor of Management at Bentley University, Waltham, MA. Together with business partner Jan Twombly, Shuman has co-authored numerous books, articles, and white papers and regularly speaks at a variety of venues around the world on the ongoing transformation of traditional organization structures to dynamic collaborative networks.

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Janice Twombly is the co-founder of The Rhythm of Business where she has led the development of a comprehensive management methodology to design, implement, measure, and assess the effectiveness of collaborative networks, including strategic alliances, public-private partnerships, and cross-business unit research teams. Engagements include intervening in troubled situations, coaching good collaborations to become great collaborations. She works with management to develop organization-wide collaborative capability as well as the systems to manage a network of networks, often in conjunction with an organization's strategic alliance professionals. Twombly has held several leadership positions – including partner and human resources director in a leading Boston CPA firm and the President of a business conference and publishing company. She has formed and operated collaborative networks to advance the use of microcredit and basic education to help women out of poverty and was a delegate to the global Microcredit Summit. She has board level experience in both commercial and not-for-profit businesses. She currently serves on the Finance Commission within her local government and is a member of the executive committee of the Association of Strategic Alliance Professionals.

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