

Entering the Era of Networks: Global supply and demand outsourcing networks and alliances

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Abstract.

A supply chain traditionally links production units, one unit’s outputs providing inputs into another unit from raw materials through intermediate products to end-products and finally to consumption. Waste disposal or recycling then lead to close-loop or reverse chains. All these “chains” are of course complex networks. And the “chains” are no longer just the “push”, i.e. supply chains, but increasingly and more significantly the “pull”, i.e. demand chains. In reality, there exist interacting supply and demand networks of allied, cooperating and partnering companies - along any “chain”. Coordination of these networks is about alliances, partnerships and cooperation among companies – outsourcing or offshoring being the main driver of assuring their global competitiveness and sustainability at the same time. It is in the interest of all network members that their relationships are both competitive and sustainable on a global scale. Finally we have a model for global cooperation and sustainability. It is just a model, for sure, but it has arisen naturally and spontaneously, not through misplaced political designs of man, and therefore it has a good chance of surviving and persisting. In a network, publishing companies have taken a keen interest not in competitive bidding, but in “sustaining”, i.e. preserving, renewing and stewarding, the world forests. That is the future. This paper is a short reminder of the importance of such spontaneously emerging global trends.

Networks are the new frontier of business organization and management.

Fundamental changes are taking place in the world of global business. Their implications are significant: organizations and strategies, the ways of organizing and doing business are rapidly changing. In some fifty years the world of business has moved through four revolutionary stages, moving at an ever increasing rate of succession. The current, the Fourth stage, is the *era of networks*.

Once we have networks and alliances in place, the issue becomes what is to be propagated over these networks? Is it goods, information or knowledge? The Fifth and subsequent stages are already taking shape

1 Product, process, and networks: evolutionary stages

The four evolutionary stages include: (1) *Final-Product Orientation*, where final-product improvement is the primary focus and the production process is secondary; (2) *Process-Operations Orientation*, where process improvement comes into focus and Total Quality Management (TQM) emerges; (3) *Integrated-Process Orientation*, where the focus shifts from continuous improvement to discontinuous redesign and from operations to process architecture – business process reengineering (BPR) emerges; and finally, (4) *Extended-Network Orientation*, when the internal process becomes integrated in the extended network of external embedding. Only in the fourth stage, the currently reigning paradigm, both customers and suppliers become truly integrated as driving forces of the enterprise. The ever accelerating process of *outsourcing* has become the main driver of global change [4].

1.1 Evolution of Management Systems

After World War II, the traditional paradigm of product-oriented mass production (linear assembly lines, organizational hierarchies of command, product quality control, and mass consumption) had reached its peak in the fifties and sixties.

Soon afterwards, the Deming-Juran process quality teachings spearheaded a new quality orientation (later referred to as TQM) and propelled Japan directly to the post-war *process focus* (process quality control, just-in-time, continuous improvement), while the U.S. went through a painful and prolonged product-to-process transformation, ultimately leveling the playing field by the mid eighties.

At the end of the eighties, business *process* reengineering (BPR) concentrated on the radical redesign of the production process through the reintegration of task, labor and knowledge. As a result, lean, flexible and streamlined production processes were created, capable of fast-response and internet-based integration of both *supply chains* - business-to-business (B2B) - and *demand chains* - business-to-customer (B2C).

In all three described stages, the competitive advantage was derived almost exclusively from the *internal resources* of the firm. At the end of the nineties, the most radical shift occurred as the competitive advantage became increasingly derived from the *external resources* of the firm – through the *extended networks of suppliers and custom-*

ers. In Figure 1 we display the main differences between product, process, and networks – the three dominant categories of management systems evolution.

In view of Figure 1, the managerial focus first shifted from product to the internal process. It has become clear that improving quality of the process leads to a better-quality product, but not vice versa. Improving the process was first carried out by continuous improvement, concentrating on improving the operations (circles). Then the emphasis shifted from operations to process relations (arrows), that is, to a *discontinuous* improvement by redesigning the process architecture, by reengineering the process. In all these efforts, the firm's focus was rooted in developing the internal sources of competitive advantage, knowledge, innovation and productivity.

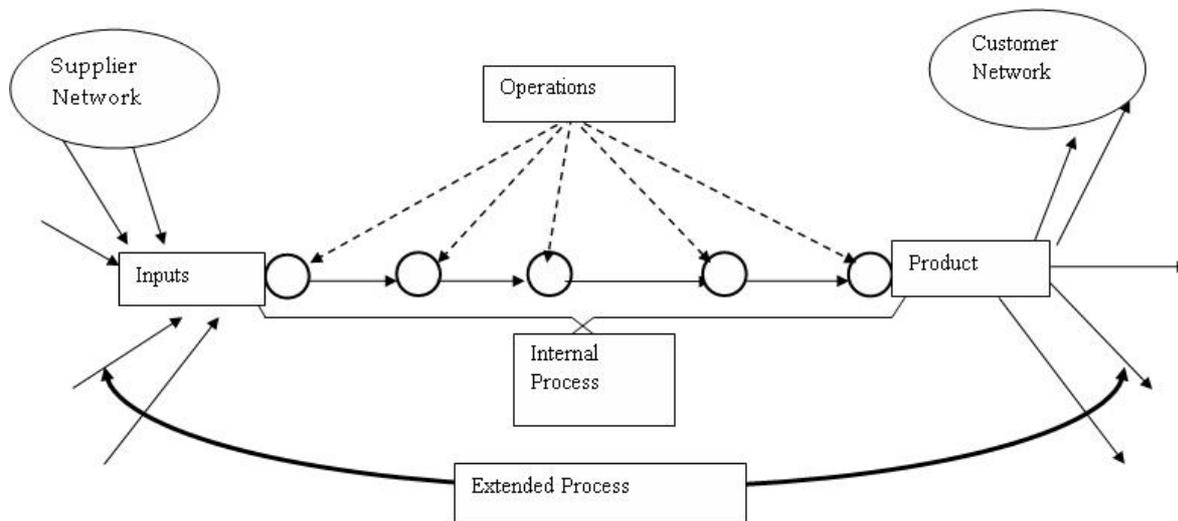


Figure 1 Product, process, and networks.

Only in the last paradigmatic shift was the internal process expanded into the extended process - including supplier networks and alliances as well as customer self-service, mass customization and disintermediation - as main, this time external, sources of competitive advantage. Such a shift changes the very notion of competitive advantage, the sources of knowledge and the concept of the firm itself. It also brings forth and fosters a new set of relationships with customers and suppliers. *Any firm can be only as good as is the network of which it is a part.*

No firm is an island.

1.2 Summary of the Four Stages

1. Final-product orientation.

The final product is primary, the production process secondary. Operations and the processes are considered to be technologically fixed or “given.” Product quality is “inspected in,” mostly at the end of the process. Statistical quality control, inventory control, cost minimization, mass production assembly lines, work specialization, hierar-

chiefs of command, mass consumption, reliance on statistical mass markets and their forecasting are among the defining characteristics of this stage.

2. Process-Operations Orientation

It is the high-quality process that assures high-quality products, not vice versa. The main focus is on the improvement of process operations. Quality of the process was understood as the quality of its operations. Concepts of Total Quality Management, Continuous Improvement (Kaizen) and Just-In-Time systems have characterized this stage. The process architecture is kept intact and remains “given.”

3. Integrated-Process Orientation

The focus of attention shifts from operations (circles) to “linkages” (arrows) – changing the process architecture itself. The reengineering of the process, re-integrating individual components into larger, more autonomous and even self-manageable wholes, has characterized this stage. The production process became a business process and thus subject to qualitative redesign and reengineering (BPR). Discontinuous improvement replaced continuous improvement. Traditional vertical hierarchies of command have flattened out into more horizontal, process-oriented networks. Mass customization, disintermediation, knowledge management and autonomous teams have emerged.

4. Extended-network orientation

Currently, networks of suppliers and communities of customers have extended the internal network into a functional and competitive whole. Both internal and external sources of knowledge and competitiveness now form core competencies. Intranets and extranets have provided a communication medium for business-to-business and business-to-customer exchanges. Quality has become bundled together with cost, speed and reliability. Tradeoffs are being reduced and eliminated.

The extended-process paradigm has ushered in the competitive advantage of cooperation, alliances, networks, knowledge, shared innovation and total communication.

2 Key Role of the Outsourcing Driver

The outsourcing phenomenon is best captured by Stan Shih’s “Smiling Curve”. Both extreme sides of the extended process (R&D and After-sales service) are claiming larger and larger portion of the *added value* upstream and downstream the value chain. The value-added “Smile” is getting broader and deeper – pointing to new business opportunities and new outsourcing arrangements.

The low added-value activities are being outsourced – creating new business opportunities for developing economies, while high added-value activities are being retained and focused on – mandating new business orientations for established businesses. The realignment of global economic and business forces is profound: not following the extended process and the “smiling curve” imperatives could amount to a death toll for many traditional, well-established businesses.

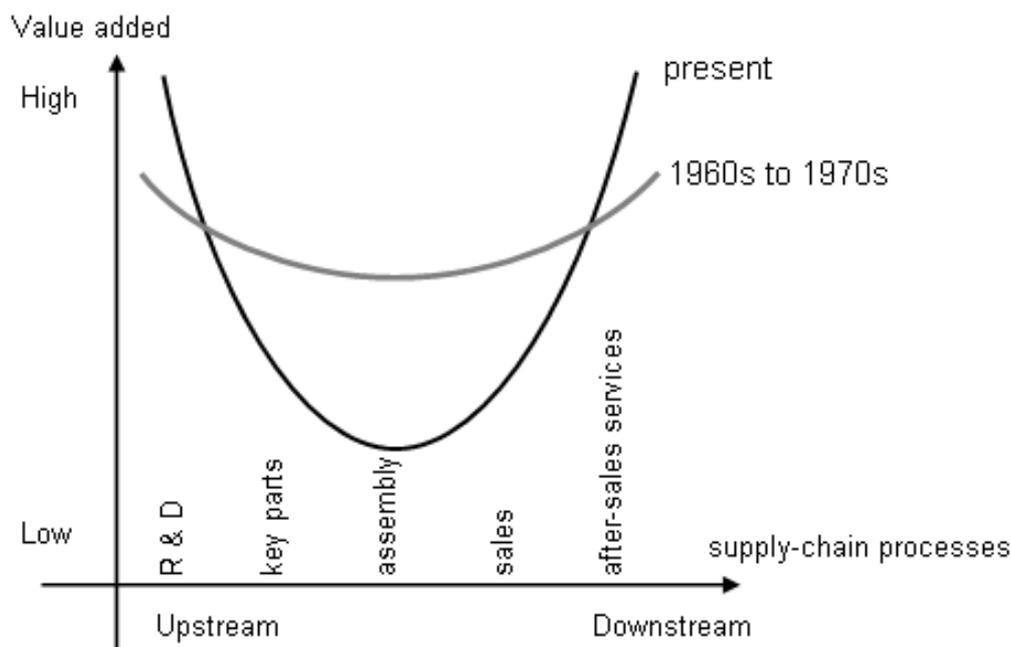


Figure 2 The Extended-Process Paradigm matches Stan Shih's "Smiling Curve"

Outsourced activities produce networks. Whenever a firm outsources its low added value activities, the outsourced firms become its long-term providers and suppliers of parts, assembly or sales. Cooperation and alliances replace competition and competitive bidding across the value chain. [4]

Similarly on the demand side: *outsourcing to customers* becomes an increasingly effective strategy as self-service, do-it-yourself, disintermediation and mass customization bring more and more customers into longer-term relationship with a company. More and lower added value activities are outsourced directly to customers who are much more effective in performing them (automated teller machines, hypermarkets, self-serve technology).

As a result, larger firms are transforming into *networks of outsourced resources* and smaller firms are becoming – through increasingly becoming outsourcees – parts of these same networks. These networks are often interconnected into partnerships, alliances and contractors, often even across competing networks. Cooperation complements competition and transforms it into modern "*coopetition*".

This is quite different from the traditional central management of supply chains by large, dominant firms. Instead, firms and customers are being drawn into longer-term cooperative networks and alliances where *network coordination* and increasingly *self-coordination* replaces supply chain management.

A network replaces a firm as a unit of competition.

Adaptability and flexibility, continuous reshaping and optimization of networks are now more important to corporate success than operational performance. Strategy for agility and marketplace differentiation is more important than cost reduction and exe-

cution - effectiveness drives efficiency. It is more important to do the right things than just doing things right.

R&D and design as well as customer service, the highest value added activities at both ends of the extended process, are becoming key differentiating factors for business success.

Certain knowledge workers become employed as shared outsourced resources across networks. These “portfolio workers” or free agents move across traditionally competing firms and provide the necessary competitive advantage to a network as a whole.

2.1 *Problems with offshoring*

Offshoring is simply outsourcing directed abroad. Both outsourcing and offshoring contribute to the effectiveness of the global economy. For example, the US economy gains more than \$1 in new wealth for every dollar of corporate spending that US companies outsource abroad. More specifically, every dollar of spending that US companies transfer to India creates as much as \$1.46 in new wealth. India receives 33 cents, through wages paid to local workers, profits earned by Indian outsourcing providers and their suppliers, and additional taxes collected by the government. Offshoring can be a story of mutual gain, cooperation and newly created value.

One exception is Germany: according to McKinsey Global Institute [1], every euro of corporate spending that German companies send offshore returns only €0.80 of value for Germany's economy. However, averaging the savings across both India *and Eastern Europe*, German companies save €0.48 for every euro of spending offshore. Eastern Europe is not a good prospect for Germany.

The problem is the *reemployment rate* of workers who lose their jobs due to offshoring. In the United States, many people whose work is outsourced move on to other, *higher-value-added activities*. That is the key to successful and sustainable value-chain management. If Germany could increase its reemployment rate to match that of the United States, offshoring would create €1.05 of value for the German economy for every euro offshored. The drain of wealth would end.

All that is needed is creating jobs in *high-value-added* occupations, not just at the lower end of the wage scale.

2.2 *An example of value-added reengineering*

Maximizing added value is the main criterion of success and a major contribution to global economy, of supply chain management, or, more effectively, *cooperative network coordination*.

As a simple example, take a production of carpets. In Fig. 3, the traditional view of non-cooperating, contracting companies is presented. There are five different orders, five low-value “trucking” phases, non-value-adding activities, sixteen weeks of lead time and a low value, high unit price (\$10.69) for the customer.

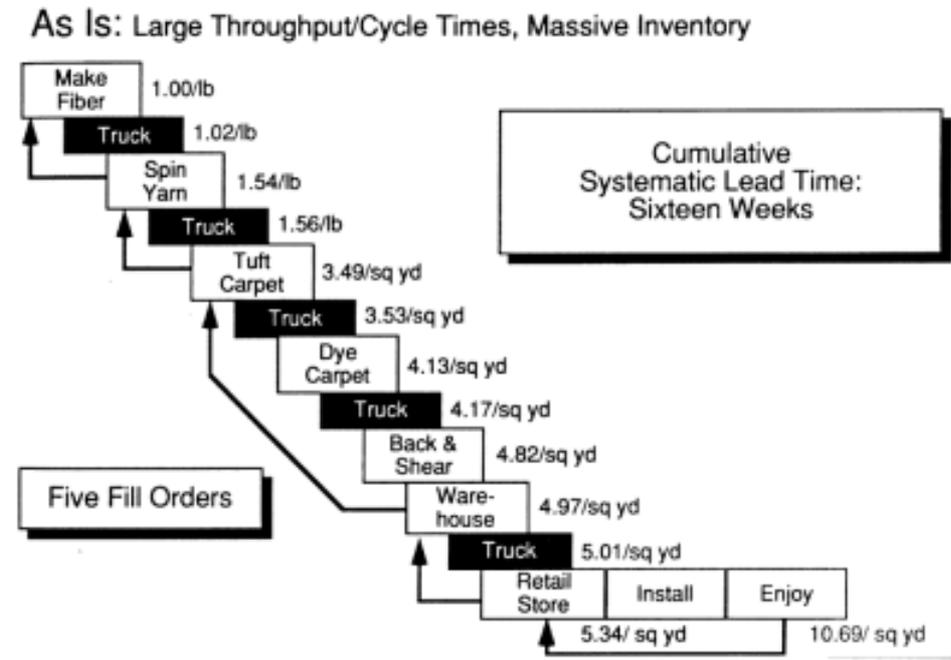


Figure 3 Reengineering the supply chain: traditional view

In Fig. 4 we present a network view of cooperating, allied companies. Here a real re-engineering is possible and it allows putting things as they should be. The new situation adds significant value to the customer (\$8.66 for the same carpet), only one order, two trucking phases and only one week of lead time.

Should Be:

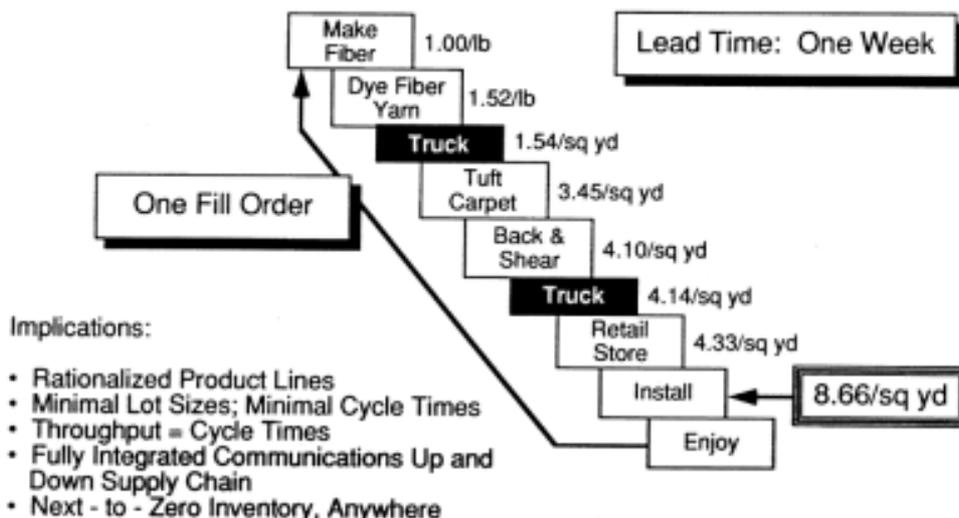


Figure 4 Reengineering the supply chain: network view

3 It is all About Adding Value

Added value is the most effective measure of business. Minimizing cost, maximizing speed, maximizing quality, etc., all these performance measures are useless if no value is added. Value must be added in two ways: for the customer and for business.

Essentially, added value is the measure of human knowledge embodied in the production or service delivery process: all other inputs can be purchased, internally or externally, and do not add value.

Human knowledge is very *real* and very *tangible*. What can be more tangible than an automobile we have produced, bread that I have baked or milk that she has brought from the stable? Knowledge *produces* very tangible things and very tangible things are the measuring rods of human knowledge [3].

The value of information is intangible, unless it is translated into knowledge and thus into measurable action.

Because knowledge, wisdom and ethics are so intimately related to action and are the products of action, they are eminently *measurable*. [5]

Knowledge is measured by the value our coordination of effort, action and process adds to materials, technology, energy, services, information, time and other inputs used or consumed in the process. *Knowledge is measured by added value*. [4]

In any business (and human) transaction, value has to be *added to both* participants or sides: the provider *and* the customer. Adding value is what makes the transaction satisfactory and sustainable.

There are two kinds of value to be created: *value for the business* and *value for the customer*. Both parties must benefit: the business – in order to make it; the customer – in order to buy it. In the global age it is precisely this business-customer *value competition* that is emerging as the hardest and the busiest battleground.

In Fig. 5 we attempt to explain the process of creating new value. This is crucial for the identification and assessment of innovation.

First, the customer pays for the service or product: the *price paid*. The producer subtracts the *cost incurred*, including all direct and indirect materials and services purchased. The difference is the *added value* for the business. This added value can also be interpreted as the *value of knowledge* engaged in producing the service or product. In order to pay wages and salaries, the production process and its coordination must generate this added value. Added value is the only source of corporate wages and salaries and profits.

If the added value does not *cover* the wages and salaries, then these must be correspondingly lowered. If no value has been added, then the value of knowledge is zero and no payment can be attributed to it. The business must add enough value in order to *cover* at least its workers and managers, their salaries and wages. If even more value has been created, then *profits* can be realized, up to the price received.

The customer, of course, must be willing and ready to pay more for the service/product than he actually paid. The *maximum price* the customer would be willing to pay must exceed the price the producer has asked for. The difference is the added *value for customer*.

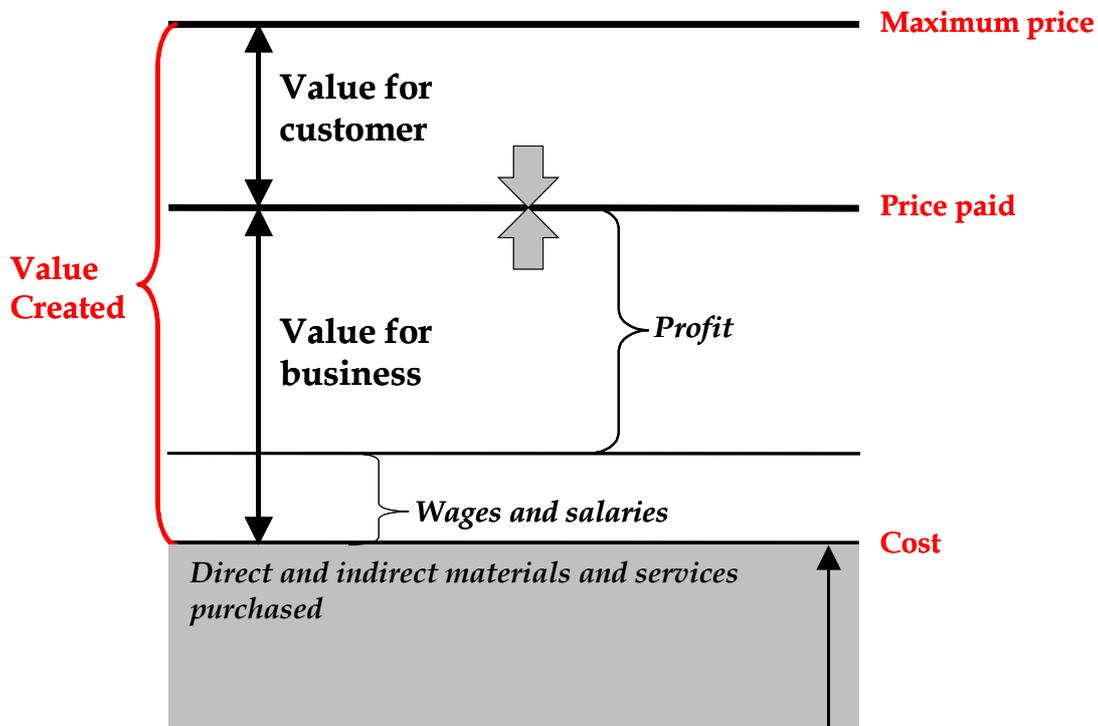


Figure 5 Adding Value for the Customer

If there is no value for customer – the maximum price is lower than the price to be paid – then the customer would not buy the service or product. In a competitive market, the customer pays money only for the value received, i.e. the value for the customer.

Global Customer

Global dominance is steadily shifting from producers to customers and consumers. The emergence of the *global customer* mandates that a globally effective management system must emerge as well. Global customers want things *cheaper, better and faster*, year after year, with no end in sight. In fact, they want it all: *Free, Perfect and Now*.

Satisfying the global customer is not easy. Delivering low cost, high quality and impressive speed requires new, globally effective management systems. We refer to them as the *Global Management Paradigm (GMP)*. GMP is capable of delivering tradeoff-free products and services in at least three dimensions: cost, quality and speed. GMP consists of 10 essential dimensions which have to form a *system*.

Each of these ten dimensions refers to a specific strategic realignment of the organization, its knowledge and skills, technology and product/service design. Without their effective realignment, a company would be doomed to deliver *either* low cost *or* high

quality *or* high speed, but never all the requisite dimensions together, forever. Yet, what is needed in the global economy is to deliver *both* low cost *and* high quality *and* high speed. The need for a shift from Strategy OR to Strategy AND is unmistakable:

Global producer	-----	Global customer
<i>Cost</i>		<i>Cost</i>
<i>OR Quality</i>		<i>AND Quality</i>
<i>OR Speed</i>		<i>AND Speed</i>
<i>OR Reliability</i>		<i>AND Reliability</i>
<i>OR ...</i>		<i>AND ...</i>

Ten dimensions of GMP [4]

1. Horizontal Corporation
2. Reengineering of the Process
3. Mass Customization
4. Autonomous Teams or Cells
5. Customer integration
6. Internal Markets
7. Supplier Integration & Co-location
8. Elimination of Tradeoffs
9. Open-Book Management
10. Corporate Kinetics

4 Network Example: TCG Group

TCG Group is highly innovative, privately held information technology firm in Australia. A federation of 13 small firms, TCG develops a wide variety of products and services, including portable and hand-held data terminals and loggers, computer graphics systems, bar-coding systems, electronic data interchange systems, and other IT products and services. The network grows through a process known as “triangulation” [2].

4.1 Triangulation

Triangulation is a three-cornered partnership among (a) one or more TCG firms; (b) an external joint-venture partner (e.g., Hitachi) that also provides equity capital to the venture; and (c) a principal customer (e.g., Telstra, an Australian telephone company) whose large advance order wins it contractual rights as well as provides additional cash to the venture. According to TCG’s rules of conduct, the project leader firm is

also expected to search among the other TCG companies for additional partners – not only because they are needed for their technical contribution, but also because the collaboration itself is expected to enhance overall organizational know-how. The process of internal triangulation thus serves a dual purpose: It produces direct input to the project, and it helps to diffuse expertise in areas such as business development, partnering, and project management. TCG Network is coordinated through the internal *Rules of Conduct*. [2]

4.2 TCG Rules of Conduct

1. Mutual Independence

The TCG group consists of independent firms whose relations are governed by bilateral commercial contracts. It is open to new entrants who are prepared to abide by the operating protocols. There is no internal hierarchy.

2. Mutual Preference

Member Firms give preference to each other in the letting of contracts. Contracts may be made outside the group, against a competitive bid from a member firm, when circumstances warrant (e.g., work overload or a signal to the member firm that it has to lift its game).

3. Mutual Non-competition

Member firms do not compete head-to-head with each other. Self-restraint helps to establish trust among member firms.

4. Mutual Non-exploitation

Member firms seek to make profits from customers not from transactions among themselves. Member firms can only charge each other a market-determined price for services provided.

5. Business Autonomy

The flexibility of the group as a whole derives from the ability of each member firm to respond to opportunities as it sees fit. Firms do not need to ask for group approval to enter into any transaction or new line of business provided the initiative does not breach any of the operating protocols.

6. Democratic Ownership

There is no overall network owner. Nor is there any central committee or other formal governance structure. However, member firms can hold equity in each other as well as in joint-venture partners.

7. Expulsion

A firm may be expelled from the group if it willfully violates the protocols. Simply severing all commercial ties with the miscreant member can affect expulsion.

8. *Subcontracting*

There are no "subcontractor-only" firms within the TCG group. Each member firm has access to the open market, and indeed is expected to bring in work from outside the group.

9. *Entry*

New members are welcome to apply to join the group but are not to draw financial resources from existing member firms. New members must obtain capital from banks rather than through equity from other member firms. It is membership in the group that serves as collateral for the bank loan.

10. *Exit*

The group places no impediments in the way of a departing firm. However, there is no open market for shares held in TCG member firms. Hence, departure arrangements have to be negotiated on a case-by-case basis.

5 Conclusion

The purpose of this article was to remind myself to my long-silent but never forgotten friend Heinz Isermann. Also, to allow him to recall and remember and so to return to the long-lost but never forgotten years of our professional youth which we have, at least partially and for a while, shared and lived together, at Columbia and in Saarbrücken. *Now* is the time to turn towards the future.

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