Downscaling to Adapt to Your Environment: Mayekawa Manufacturing Company, Ltd.

This "post marketing" organization's primary value to its customers is problem solving.

Yoshio Iwasaki and Jinichiro Nakane

Today, Japanese companies need fundamental new thinking to remain viable in the high-tech, high-expense environment expected in the next century. To adapt to this new environment, we need more than TQC, the Toyota Production System, or automation, which make mass production more flexible and efficient. Manufacturers everywhere, including those in developing areas, are now using these "Japanese" practices and manufacturing has begun to "hollow out" in Japan somewhat as it did in the United States beginning in the 1970s. An organization that appears capable of meeting the new challenges of the 21st century is starting to be called a vigorous company.

A vigorous company must break the paradigms of mass production. It must be successful with *all* its stakeholders today, and demonstrate new concepts of operation for the future. Some changes may be both basic and dramatic.

People interested in vigorous companies, or new ideas by any name, frequently visit Mayekawa Manufacturing Company, Ltd. Mayekawa is not a conventional organization in Japan or anywhere else. It consists of over 100 small, legally independent companies called Doppos — all affiliated through the Mayekawa group.

Outsiders looking for the principles behind Mayekawa's organization have variously referred to it as

Figure 1. *Mayekawa personnel working production.*

The Lines of Business of the Total Mayekawa Organization (Zensha)

Within Mayekawa, each Doppo, or legally independent affiliate (LIA), may focus on a particular customer or customers, or it may engage in production, or in R&D. As a whole, the Mayekawa group engages in the following activities:

Products:

- Manufacturing and sales of refrigeration compressors and various kinds of gas compressors
- Energy generators and reclaimers: steam expanders, very high temperature heat pumps, and steam compressors
- Associated units, equipment, and packages
- VLT helium screw compressors
- Screw-type high pressure liquid pumps.

Plant Engineering:

- Automated robot system for food processing
- Energy generation and heat recovery systems
- Large-scale refrigeration plants for agriculture, stock farming, and marine products industries
- Optimum thermal control systems
- Various automated marine cooling systems.

Consulting Engineering Services:

- Total planning, design, installation, and operation services for agriculture, stock farming, marine products, and distribution industries.

Thermal Engineering R&D Programs

Figure 2.

a virtual company, a holonic company, or as an example of successful reengineering. Those concepts, like many earlier ones, came to Japan from the West. In the past Japanese have sometimes modified Western ideas, the best known example being the Toyota Production System. However, no known management theory, Oriental or Western, was used to plan the development of the Mayekawa organization. The basic idea was to let the company develop like a biological organism so that it could readily adapt to a changing environment.

Mayekawa's major product lines are heavy refrigeration systems for commercial and industrial use. Almost all are custom-engineered. Conventionally, the company is described as a manufacturer of large compressors and refrigeration systems, but like many other manufacturers, that description obscures the fact that the primary value Mayekawa gives its customers is problem solving. The Doppos consult. They install and operate systems. They perform research. They assist customers in identifying and overcoming their problems. (See Figure 2.) Most solutions involve a core competence of thermal engineering, but the Doppos sometimes develop in other directions with their customers if a solution takes them there.

Financially, the Mayekawa group is hugely successful. The real return is on human investment, not investment in plant and equipment, and the company believes that very high ROIs are simply a side effect. The objective of each Doppo, and therefore of Mayekawa as a whole, is the same as any biological organism: simply to survive — in its present form, or in an adapted form.

Neither is the objective to grow market share, a traditional Japanese business objective, although Mayekawa has increased its market share. Nor is it to press the limits of technology, although Mayekawa's thermal engineering capabilities are excellent. Simple as it seems, the objective is just to adapt and survive.

Masao Maekawa, the president, whose name is a slight variant from that of the company, sometimes refers to the Mayekawa group of Doppos as a "post marketing organization," meaning that Mayekawa does not sell hardware and compete on price. Instead, Mayekawa complements the capabilities of each customer through long-term partnerships. The trite phrase, "selling solutions" does not quite capture the intent. Every customer should be stronger because Mayekawa is combined with it, helping it to overcome both the problems that it sees, and those that it cannot see by itself.

Survival is assured by paying very close attention to each customer, trying to make sure that everything done helps that customer to distinguish itself with its own customers. Most Doppos are focused on a special market centered on a core customer. For example, many years ago Mayekawa began serving Hok-Ren, a very strong fish and agriculture cooperative near Sapporo. After first studying and improving Hok-Ren operations with thermal engineering, serving the needs of related Hok-Ren suppliers and distributors was a natural outgrowth. Mayekawa had carefully studied the needs of Hok-Ren's entire operations network.

Most Doppos are similarly dedicated to the service of a special market, all of whose participants it comes to thoroughly understand. If the core customer and its dependents must adapt to a new environment, the Doppo helps it make the transition. If these customers survive, the Doppo survives. If they die, the Doppo must die or transform into something else. Therefore each Doppo's attention is beautifully concentrated.

How the Mayekawa Organization Began

Mayekawa was established in 1923 as a small, family-run company in the Fukagawa district of Tokyo, a

Overview of Mayekawa Manufacturing Company, Ltd.

Capital:	US $21 million
Gross Sales in 1993:	US $1.008 billion
Profit rate in 1993:	7~8% of sales.
Number of Employees:	
Japan:	1750 (male 1420; female 330)
Overseas:	600
Number of Doppos:	103 (80 domestic; plus 23 overseas)
Number of Production Facilities:	13 (4 in Japan; 9 overseas)

Figure 3.

skilled-craft section of the working class area that for centuries Japanese called "shitamachi" (as contrasted with the "yamanote" where the upper crust lived). In the Edo era (1603-1867), when the shitamachi was at its cultural peak, the pride skilled craftsmen took in their work was fearsome. This long tradition lives on in Mayekawa, and it is the root stock of the group's culture to this day.

At first, Mayekawa had no formal structure. Every worker had his own skill and function in the factory, but otherwise responsibility was never clearly divided. Each person did whatever was needed at the moment if he was capable of doing it. Communication was face-to-face.

This organization formed naturally, like a growing family. Small, close-knit groups evolved, each overseen by an oyakata, or senior craftsman. No one could separate their personal time from their working time. Everyone's character, foibles, and family background were soon learned by everyone else. Communication was smooth and intimate. A culture evolved that prized thrift, hard work, craft pride, and teamwork.

This free-form organization generated little stress from its own internal politics, so it could flex to respond to the varied demands of customers and to a changing environment. A strong spirit of cooperation developed — all for one and one for all. The roots of Mayekawa's culture grew in this period, which lasted until about 1960. When later forms of organization failed to work as expected, the culture repotted from its roots to grow into the much wider network that exists today.

Bureaucracy Fails

The 1960s was the era of high growth in Japan, and Mayekawa was captured by it. The company designed standard products for mass production, and volume increased so fast that the informal organization was swamped. Production of large volumes required a more efficient production system. To feed production, a more bureaucratic management structure seemed to be necessary throughout the entire company. The fast-growing company split into functional departments: production, sales, development, and administration.

From the beginning, unhappiness clouded the growth of bureaucratic structures. The assembly of compressors became more efficient with a bureaucratic system, but the process of customizing designs for various applications did not. Departmental separation created friction among former close associates. Worse, the walls between departments inhibited the flexibility serving the customer that formerly had been a matter of pride. Informal systems kept trying to twist through the confines of bureaucracy.

How Organic Thinking Began

During the bureaucratic period from 1960-69, the Mayekawa organism, too big to live in its old informality, looked for a new form to break free of its bureaucracy. One of the strong influences on its later development was its experience with a new Mexican subsidiary formed in 1964. Aware that they had entered strange territory, Mayekawa managers tried some new ideas to understand Mexican society and the nature of the Mexican market. The result was a cycle of concentration and dispersion that two decades later germinated the basic concept for communication of business plans and other information within the Doppo network.

In Mexico, concentration and dispersion evolved through trial and error. To understand the whole market, every Mexican employee (there weren't many in the beginning) was asked to create an overview of the market according to his or her speciality. These varied inputs were integrated into a total market picture and viewed more strategically. That was called concentration.

Based on the total market picture an overall management plan was developed. This basic plan was given to each employee as a guide to their actions, but not as a set of strict orders. That was called dispersion.

About the time that this system was becoming established in Mexico, Masao Maekawa became the company's third president at 39. Viewing the unhappiness, he met with employees again and again, and asked them to think of ways to change the working style to break the confines of bureaucracy. He began a lifelong search for a better organization himself.

The young president had always been interested in biology. In the 1960s his managerial philosophy was strongly influenced by reading a book, *The World of Living Things*, by the biologist Kinji Imanishi. According

Profile of Mayekawa Employees

Ages in 1993: Education (graduated from):

			Male	Female
18-25:	18.0%	Less than senior high school:	9.6%	2.5%
26-25:	33.2%	Senior high school:	36.0%	56.1%
36-45:	26.1%	Two years vocational school:*	7.0%	15.0%
46-55:	15.8%	Five years voc-ed — junior college:*	11.5%	17.1%
55- :	6.9%	University (all degrees)	35.9%	9.3%

**Junior high school graduates receive five more years of vocational school. Senior high school graduates receive two more years of vocational school.*

Figure 4.

…the closer a living organism approaches its natural state, which is harmony with its environment, the better are its chances of survival.

to Imanishi, the closer a living organism approaches its natural state, which is harmony with its environment, the better are its chances of survival. That is, for any natural organism to live, it must be able to adapt to its surroundings. Organisms that can live in a range of habitats are able to adapt or compensate. Maekawa concluded that a company is a type of living organism. Therefore the same principle should apply to the Mayekawa organization, but how could a big organization be flexible?

After many discussions with employees, a group network system was begun in 1970. Mayekawa broke into a number of small divisions and flattened the organization, a change that sounds familiar to many companies today. Care was taken to have clear, regular communications between the divisions. Things improved, but not enough. Too much bureaucracy remained. Big organisms cannot adapt as quickly as small ones even if they are flexible for their size. Thirteen years passed while Mayekawa struggled to find something better than flattening and decentralizing.

Downscaling into Autonomous Units — The Formation of Doppos

A mechanical thinker might refer to the formation of small independent companies as downsizing. "Downscaling" is more descriptive because Mayekawa did not lose people. In 1983 it began separating operating divisions into more autonomous "cells" — the smallest possible units that could serve a customer. The Doppos directly concentrating on customers have only ten to 20 persons in each. Some of the plant Doppos are a little bigger — up to 100 persons. However, each Doppo became legally independent — a business responsible for its own survival. The objective was for each Doppo to take an imaginative approach to serve its unique market niche environment.

At the outset, downscaling provoked apprehension that the company was destroying itself. Three of the most commonly voiced reservations were:

1. R&D will stagnate because small Doppos cannot support it
2. Communication between many small units will be weak
3. The Doppos will splinter from each other — lose interest in other units or in Mayekawa as a whole.

As it turned out, the fears were unfounded. The pressure for each Doppo to meet its own customer needs required them to form different kinds of ties throughout the group. All units relied on a common technology of thermal engineering. The Doppos were still dependent on each other, so the patterns of communication grew where communication was really needed, and those linkages eliminated structural blockages or delays. The root culture of the old Mayekawa nourished the growth of a network of Doppos, and the new organization began to evolve. Nine years elapsed from the time the Doppos were formed until 1992, when the Doppo-Block-Zensha system was formed to better integrate the Doppo network. The details of Mayekawa's network organization as it currently functions can be better appreciated after reviewing what the Doppos do.

The Manufacturing of Quality Results

At Mayekawa, quality means superior quality of results for the customer. The fabrication and assembly of quality equipment merely enables the delivery of the most important value Mayekawa can deliver to each customer — a high-quality process in the customer's own environment. If the customer processes in which Mayekawa participates are truly outstanding, they should sustain that customer as a premier performer in its own industry. That is the manufacturing of quality results.

More conventionally, Mayekawa's Doppos sell systems — equipment plus supporting processes — for a variety of special applications. Many of these systems create the proper thermal environment for the food industry. Food is delicate. To achieve the best results in both taste and nutrition for a wide variety of foodstuffs requires an equally wide variety of processes for processing and consuming it. The total thermal cycles which work best for vegetables differ considerably from those for fish. Within the Mayekawa network, each Doppo must be able to understand a different kind of customer process in detail, then apply Mayekawa's core technology

to give the customer exactly what is needed.

These systems are developed case by case, and if successful, Mayekawa expands into a total industry process. Thermal histories of products seldom accumulate in only one location. Before taking on a new customer, a Doppo wants to be sure that it understands a key problem well enough to give that customer a unique solution; otherwise the Doppo is only selling hardware. With any customer, both pre-sale and post-sale analyses check whether the total processes, of which thermal conditioning is only a part, are achieving quality results.

For example, Mayekawa has now established a long-term partnership with a cooperative association in Abashiri, and with many of its suppliers and distributors. The first project was a machine to continuously freeze scallops to -20° on line instead of batch-freezing them. Next came a machine to automatically shell and slice scallops. Then a machine to automatically sort scallops for the sashimi, cannery, and consumer store markets. To execute these projects well, the Doppo began talking about scallop processing with fishermen, distributors, and other parties associated with the cooperative. Now Mayekawa's Doppo concentrates on improving the total scallop process centered on the cooperative at Abashiri, from the time scallops are caught until they are eaten.

Mayekawa's working approach must draw out the actual needs of customers, and sometimes those of the customers' customers. Some of the most important clues are not found in operating data, technical knowledge, or concerns voiced by the customers. Then problem discovery consists of learning first-hand the environment in which a Mayekawa-influenced process must produce a superior result. Engineers personally enter the customer's world to see, to feel the impact, and to understand. They must "see the customers' faces," or to use an American phrase, "walk a mile in the customers' moccasins."

The essence of manufacturing quality results is to learn to think like a customer, and like a customer's customer, and then create or adapt a system to fully satisfy real needs, whether or not anyone can clearly articulate them. Just satisfying the first-tier customer falls short of Mayekawa's ideal.

People from Doppos regularly live with customers. Many of the custom made products need regular maintenance. In a few cases, the Doppos operate systems for customers. The service fees from doing this contribute to financial stability, but more important, they create frequent opportunities to review how the needs of customers are continually changing. When this is successful, customers understand that their processes are far better than if Mayekawa simply provided equipment to their specification. Sometimes this approach is called creating intellectual value-added; customers rely on Mayekawa for much more than just receiving a well-made compressor.

Figure 5. *Mayekawa's Doppos initially attract customers by conventional means. Here are a couple of engineers working a show.*

History of Mayekawa's Organizational Phases

Stage	Period	Form of Organization
The first stage	1923-1960	A small-town factory in which the individual is the whole
The second stage	1960-1969	High growth: departments and divisions formed a bureaucracy
The third stage	1970-1983	Group network: flattening to form a more flexible organization structure
The fourth stage	1983-1992	Doppo network: development of autonomous decentralization
The fifth stage	1992-now	Doppo-Block-Zensha network: local autonomy coordinated through concentration and dispersion.

Figure 6.

The essence of manufacturing quality results is to learn to think like a customer…

Mayekawa's marketing concept is to serve just one customer at a time, trying to make each one the best that it can be. This idea is subdivided into four components:

1. Break big markets into small ones.
2. Transform old commodity markets into new, exciting ones.
3. Give specific solutions, not variants of general solutions.

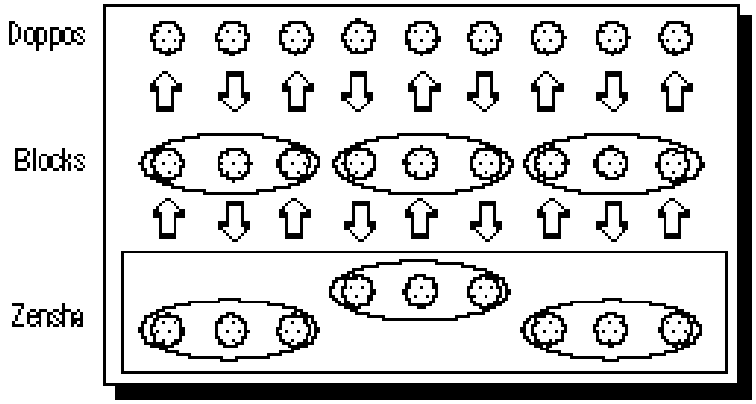

Figure 7. *The diagram shows that the Zensha and Blocks should support the Doppos, which is Mayekawa's organizational strategy. The two-way communication suggested by the arrows is actually multi-directional all around the network.*

4. Find creative solutions, not prosaic ones.

The Doppo network system evolved into the Doppo-Block-Zensha network with the intention of implementing the marketing concept, thus manufacturing quality results for each customer.

Doppos: The Customer Adaptive Units

The Doppos form the base of the Doppo-Block-Zensha network shown in Figure 7. Note that the diagram is inverted. The Blocks and the Zensha support the Doppos; they do not command them.

Within Mayekawa, it is often said that each Doppo encapsulates the means and abilities to find one's own way and to use one's special talents in harmony with the Doppo's ever-changing environment. That defines what a Doppo should be, and it is the most important concept in understanding Mayekawa.

A rule of thumb is that a new hire at Mayekawa does not begin to pay for himself for at least ten years.

All Doppos are independently chartered within Japanese commercial law; all have a separate P&L statement. "Doppo" is a Japanese term. Within Mayekawa we more often call these units "LIAs" — the English acronym for Legally Independent Affiliates. Every part of Mayekawa except headquarters has now become a Doppo in this sense. Headquarters remains the original rootstock of Mayekawa. It has learned to reproduce itself many times over as a Doppo in a different environment, but all the parts are linked through the network.

For instance, central R&D is attached to headquarters. It is free to contract research programs that do not directly support field Doppos, but R&D is also highly dependent on the field Doppos for intelligence. All the Doppos need each other with differing degrees of affinity, so communication links are necessary.

A typical field Doppo might be called a sales branch so that those uninitiated to Mayekawa's way of thinking quickly grasp what it does in conventional business terms, but rarely with full understanding. These Doppos do "sell" relatively standard equipment when that is what the customer needs, but they do much more than that.

A Doppo should be very detailed, comprehensive, and original in approaching each customer. Therefore it should determine its own marketing strategy, "becoming a new mutation of Mayekawa" as the needs of each customer's environment unfold. A Doppo is responsible for system design — which may be a combination of relatively standard components, or a truly unique concept. It is also responsible for production of equipment, for obtaining help — and for the manufacturing of quality results.

For example, one of the Doppos served a customer that manufactures, markets, and distributes frozen pizza. That Doppo conceived a project to give its customer the best-tasting frozen pizza in the Far East. The taste of pizza depends on the ingredients, the recipe, and the thermal cycle from preparation to consumption. The "big equipment" portion of the project was a freeze blaster for pizza. Members of the Doppo designed the blaster. Some of them worked at the plant — in a more active role than merely customer representative — to realize the design objectives of the blaster. However, the total project encompassed working with the customer and numerous other parties to assure, as best possible, the optimum thermal history from preparation to consumption.

Another core customer is a specialized bakery for bread. At first, they saw the need to control the climate of one room in their total process. Discussions and exploration of the total environment for bread continued for about a year. Then the customer discovered for themselves that a controlled climate from raw material to consumption would improve product quality and reduce product waste while also cutting total energy costs. This insight allows them to reposition themselves in a niche of the bread market.

This kind of work requires individuals to master a broad range of expertise. A rule of thumb is that a new hire at Mayekawa does not begin to pay for himself for at least ten years. First he must learn the total business and how to use the "Mayekawa human network." Daunting as this is, Japanese graduates are attracted to

Mayekawa because they ultimately have more freedom than in a big company.

Significantly, the one area in which the Doppos do not have full autonomy is recruitment of the professional staff, a requirement of affiliation in the Mayekawa network. Headquarters hires professionals, one reason being that Doppos are too lean for recruiting. About half have work experience, and half are straight from school. After that, Doppos freely transfer professionals between themselves, and they hire local staff. Hiring to a common standard preserves the Mayekawa culture by seeing that the key people in each Doppo come from Mayekawa root stock. This practice helps differentiate Mayekawa from a "financial franchise system."

Organizational Strategy: The Doppo-Block-Zensha Network

The legally independent affiliates, Doppos, all belong to one or more forums called Blocks depending on the types of markets they serve or the region in which they operate. Blocks exchange resources and information, either at regular meetings, or otherwise. Thirteen Blocks have been established.

Blocks are not incorporated. They have no staff or management. They do not represent a higher level of management. All participants in Block activities are representatives of their Doppo. The role of a Block is not governance, but assistance and exchange between legally independent companies.

Block meetings are substantive. The Block may decide to exchange personnel between Doppos within that Block, or with other Blocks. Most transfers are between Doppos. The Block may decide how to bail out a member Doppo with a problem, technical or otherwise. It may formulate an overall market strategy or even an approach to a specific customer. Blocks are a link between each Doppo and the overall company, or Zensha.

To make decisions, Blocks must judge the performance of each Doppo. No Block uses a fixed formula, but by custom Doppos are judged about half on total financial strength, and half on other factors, such as the status of its human talent and technical expertise, its potential to adapt to change, its creativity working with its market, etc. Overall Doppo ratings are in five classes: A-B-N-C-D (where "N" stands for neutral). Usually about 15 percent of the Doppos get a D rating, and those are deemed to need advice or assistance.

Zensha means the whole company, or the counsel of the entire company. Headquarters is only one part of it. Just as at a Block meeting, everyone goes to a Zensha meeting as a representative of their Doppo, or of their Block.

The Zensha tackles problems too big for Blocks and Doppos to deal with alone. Typical Zensha concerns: overall marketing direction and opportunities (stopping or starting Doppos), major geographical business issues, and determining the priorities for R&D.

That is, the overall strategic business direction of the army of Blocks and Doppos is determined collectively by the Zensha. No edicts come from headquarters. Functioning in this way takes a well-honed approach to communication and decision making. The total Doppo-Block-Zensha network is intended to be an integrative mechanism.

A first reaction to this form of "organization" is that decision-making must be painfully slow. Some of it is, but not the critical decision making. Each Doppo can react to local changes very quickly, and "call the fire department" for help if necessary. Mayekawa does not need to make high-level decisions about mass markets because it doesn't have any. It survives on a large number of very small markets.

The Doppo-Block-Zensha system is called a "heterarchy" rather than a hierarchy. Almost all operating decisions are taken within the Doppos themselves, or within the Blocks which are creatures of the Doppos. The Zensha is a means of integrating Blocks and Doppos, but integration depends on common culture and smooth communication, not on a command and control structure.

The Basic Concepts of the Organizational System at Mayekawa

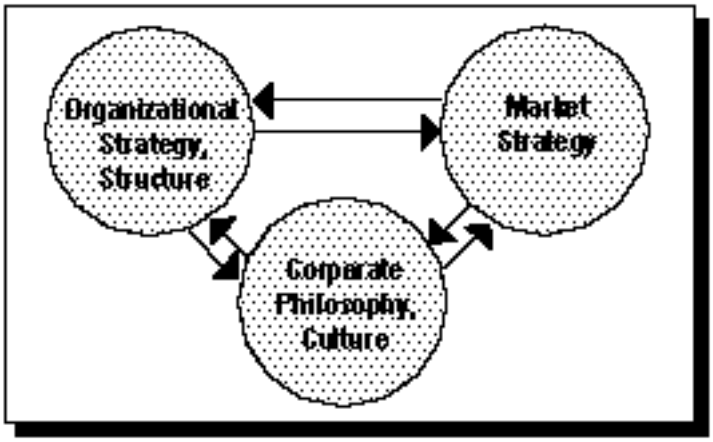

Figure 8. *Each of the major thrusts of the Mayekawa system cannot be easily understood outside the context of the others. That is, the Zensha-Block-Doppo system supports the market strategy of manufacturing quality results, and vice versa, and neither would be possible in the same way if they were not supported by the basic culture of the company.*

Mayekawa does not need to make high-level decisions about mass markets because it doesn't have any. It survives on a large number of very small markets.

Care and Feeding of the Mayekawa Culture

Headquarters consists of President Masao Maekawa, the staff, and R&D, almost 160 persons in total, whose mission is to support the Doppos. Headquarters does not "boss" independent Doppos.

However, headquarters does have specific duties. It takes care of public relations. It operates the Mayekawa welfare system: retirement funds, insurance, and the like. Headquarters also operates the computer network communication system for the entire Mayekawa group. It acts as the bank for all the Doppos, receiving funds, disbursing loans, and staking new Doppo start ups, which means that it fertilizes entrepreneurial risk-taking from time to time.

However, the most important headquarters function is the care and feeding of the Mayekawa culture — that which makes Mayekawa what it is, and which simplifies the human communication between far-flung Doppos. President Maekawa has occasionally been called the "spiritual advisor." The primary means of culture feeding is the initial hiring of professionals and the counseling of them. It has become very effective. Most Mayekawa employees identify more with the common culture of Mayekawa than with their local Doppo.

…the most important headquarters function is the care and feeding of the Mayekawa culture …

The common features of Mayekawa are a core technology and shared respect for the primary values: Thrift, hard work, craft pride, teamwork, and local initiative. A "no rules from headquarters" policy reinforces the culture. Management manuals that dictate detailed procedures or rules of corporate behavior are a no-no. All Doppos operate by a recognizably similar pattern, but each Doppo creates rules to adapt to the environment in which it finds itself.

Communication in a Distributed Network

Doppos are encouraged to communicate with each other, but not to report to anyone. Written communications should be few in number and short in length. A large volume of paper is considered a sign of poor communication. Employees in Doppos soon learn to keep communications short and simple, and to rely heavily on effective informal communications.

Two types of communication exist: Standardized data processed by computer, and information interpreted by a person. Human communication is more subjective, but more important because experienced people can cut through the routine to determine what is important or different for a specific problem.

The most formal communications process within Mayekawa is preparing and sharing business plans among Doppos. This process illustrates the principles of concentration, dispersion, and brevity.

Each Doppo prepares an annual business plan, called a Kigyokakeikaku in Japanese. All members of a Doppo join in preparing an annual Kigyokakeikaku that expresses what they want to become in the future. Since the Doppos operate in many different environments, no standard format can cover all the cases, but in final form, all business plans are carefully thought out and tightly written on only one or two sheets of paper.

The preparation cycle for the Kigyokakeikaku, or business plan briefs, begins with a Zensha meeting to create a planning guideline for Blocks. Block meetings refine and add to the Zensha guideline, then disperse it to their Doppos to create their own Kigyokakeikaku. After the Doppos' plans are prepared, they become input for developing a Block plan at a Block meeting, followed by concentration of the Block and Doppo plans to prepare a Zensha plan at a Zensha meeting.

After Zensha and Block plans are finished and dispersed to the Doppos, changes to the original Doppos' Kigyokakeikaku are minimal. Block and Zensha planning considers a broader strategic perspective than the Doppos, although some of the same people consider plans at all three levels.

The Doppo-Block-Zensha network system is intended to further stimulate useful communication by promoting ties between the people of the Doppos. The questions the Doppos ask of each other during the Kigyokakeikaku cycle serve as a take off point for "benchmarking." In this way, each Doppo builds relationships directly with other Doppos without seniority or hierarchy obstructing the flow of information. The lines of communication thus open where there is interest.

These new ties are forming a new culture of Mayekawa, difficult to explain in words, but evident in people's behavior and thinking. To understand its essence, one must look beyond their patterns of behavior. This new culture is clearly the descendent of the original one formed during the earliest stage of Mayekawa's history. Today's relationships between globally-scattered Mayekawa individuals and Doppos are somewhat like seeing the seeds of the old Mayekawa culture blown around the world, then taking root in a different envi-

ronment. The resulting growth is not identical, but it has a familiar pattern.

The Purposes of the Mayekawa System

No one had a clear, detailed plan of organizational development in mind from the beginning. All Mayekawa had was an intent to adapt to its customers' environments, and the Doppo-Block-Zensha system emerged from years of trial and error in daily business operations. The people of Mayekawa are happier with it than with any previous stage of development, but the system will continue to evolve. Allowing the organism to evolve in response to change continues to be the intent.

Only recently have we at Mayekawa been able to articulate the goals we wanted to reach through organizational development. The Doppo-Block-Zensha network system is now consistent with our targeted intent because it creates:

1. Entrepreneurial consciousness among employees
2. An attitude of cooperation and affiliation world wide
3. An organizational structure able to delve deeply into market demands and specific customer needs, thus binding us very closely to our customers.

These three features of Mayekawa's management system achieve three goals: First, the manufacturing of quality results, as defined earlier. Second, the discovery of an optimum relationship between an individual, a group, and an environment. Third, always to be adaptable — to seek a new form of human organization.

As we approach the next century, the values that people share are gradually changing. As these change, society, including economic society, has to change. Mayekawa believes that the purposes of a company do *not* lie in gaining profit, in increasing market share, in adding large numbers of employees, or in growing just to be growing. Instead, Mayekawa's real purpose is to achieve the ability of all our people to find their own way and to make full use of their talents in harmony with nature under changing circumstances.

…the Doppo-Block-Zensha system emerged from years of trial and error in daily business operations.

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Jinichiro Nakane is a professor at the System Science Institute of Waseda University, Tokyo, and is a member of AME. He has combined 30 years of pragmatic experience with academics, consulting with Toyota and other leading Japanese companies, and writing several books. WIth Masao Maekawa, Mayekawa's company president, he will present the Mayekawa case at the AME annual conference in October.