## CHAPTER 6

# THE HINGE OF HISTORY: ASSESSING YOUR TEAMNET POTENTIAL

### REINVENTING GOVERNMENT WITH NET RESULTS

In Washington, D.C., the National Museum of American History houses a very interesting exhibit of bureaucratic change. It heralds the start of the Information Revolution. A woman standing in a 19th-century office literally *cuts red tape* while a man in Victorian business suit watches. She is liberating brown accordion folders full of papers, held together by red tape, the prevailing mode of storage since the end of the 17th century. On this day, the organization of information took its next great leap—into the newly invented wooden filing cabinet.

"Bureaucracy," a word first used by Thomas Carlyle, who called it the "continental nuisance" in 1848, institutionalized the storage of information, embodied in the written word. In fact, the now extinct root word *burel* meant a writing desk. This treatment of written material, in which ideas are physically encased, typically with only private access, is quite different from its treatment in networks, where "information wants to be free."[1]

Appropriately, in August, 1993, the seeds of the networking of one of the world's largest bureaucracies, the U.S. government, may have been planted just across the street from the museum on Constitution Avenue.

On a steamy end-of-August dog day, most people in the capital had

left for vacation. Yet the vestibule of the Mellon Auditorium, with its three-story-tall marble columns and oak floors so old that they can no longer be sanded, was crowded and noisy with 200 people.

They were registering for a conference. Its purpose? To launch a network of federal employees committed to "reinventing government." We were there as designers and facilitators of the three-day getting-started process.

Reinvent government? Is this possible? It sounds like the proverbial oxymoron. Even if you could, skeptics say, would you want to? U.S. Vice President Al Gore decided to try. "Latest Plan to Make Government Work Just Might Work," said *The Wall Street Journal* in its page 1, right-hand-column lead story on the day Gore handed his report[2] to the president in full South Lawn ceremony dress. Gore's effort got a similar response from all the major media, even though it reportedly was somewhere between the 11th and 500th study of how to tame the federal bureaucracy beast.

It is big. The U.S. government employs 2.2 million people, *not* including the military. It spent $2.1 trillion in its 1994 fiscal year. It does not move quickly or gracefully. Meanwhile, it employs some of the most intelligent, creative people in the country, many dedicated to superb government service.

The United States is not the only country looking at reinvention. Australia, Canada, Denmark, Great Britain, France, Sweden, and New Zealand, as well as a few less likely candidates—Italy, Mexico, India, Chile, Palestine, South Africa, and Germany—are but a few countries that are reinventing. Virtually every state in the Union has some type of reinvention effort underway, as do hundreds of cities and towns, including such differing places as New York City and Youngstown, Ohio.[3] Even tiny Sanford, Maine, where Gordon Paul, the chief of police, has become an expert in quality and networking.

All this governmental introspection is easy to understand. Like most other centuries'-old organizations, the U.S. government can no longer cope with its problems in the same way it has in the past. Andy Campbell, an organization development specialist at none

other than the Central Intelligence Agency (which also went under the reinvention microscope), adapts a quote from Einstein: "We can't solve the problems of the 21st century with 19th-century organizations."[4]

The 21st century is about speed and information, knowledge and competence, complexity and wisdom. The 19th century was about slow, steady progress, factories and railroads, clockworks and mechanisms. Industrial Age organizations ill serve the turmoil of the Age of the Network.

## A REVIEW OF NATIONAL PERFORMANCE

Gore launched the effort to reinvent the U.S. government in March, 1993, by enlisting the help of 200 federal bureaucrats. Insiders, not consultants and outside experts, staffed the National Performance Review (NPR). This was a highly significant difference from previous government reform studies.

NPR had an exceptionally cross-boundary design. The 200 people formed 33 cross-functional teams, one for each major agency, numbering 22, and 11 cross-cutting "systems" teams looking at issues that spanned departmental boundaries.

The rule for the agency teams was that people could not work on their own department. Marion Metcalf, for example, a policy analyst in the Enforcement Office at the Department of Justice's Immigration and Naturalization Service, was a member of the Department of Labor Team. For the systems teams, "NPR recruited recognized reformers (by networking to find out who they were!)," Metcalf explains. Thus, Lynn Sandra Kahn, an organization development specialist at the Federal Aviation Authority, served on the Organizational Structures Team, and Vincette Goerl, a financial manager from the General Services Administration, worked on the Financial Management Team. A few people served as "special assistants," including Capt. Dennis Egan of the Commandant's Strategic Planning Force at the U.S. Coast Guard, whose work included the design for electronic

distribution of the final report. Larry Koskinen, a career Peace Corps manager, worked on the NPR's U.S. Agency for International Development team, then continued with NPR as project manager for Gore's Internet-based electronic town hall.

This cross-boundary approach to reforming the government was a brand new idea. No one had ever tried it before, and no one was sure it would work. To complement this effort (and perhaps to hedge bets), each agency also set up its own internal reinvention team. For example, Metcalf's effort on the Department of Labor Team had its counterpart in-house. In some cases, the cross-functional teams interacted extensively with the departmental teams; in others, they barely spoke.

The beauty of this design was that it depended on the real experts— the people who, on a daily basis, grind out the federal government. No one knows better than they the pain of securing 23 signatures for a simple travel voucher or the labor-intensive process that can take up to three years to finalize a PC purchase. Several generations of PCs develop, grow, and die in that time.

Nor did NPR play ostrich and ignore the accumulated wisdom of the private sector. They invited numerous management consultants to address the staff at brown bag lunches and give keynote speeches. Tom Peters kicked off the Labor Department's reinvention effort with a packed house of 1,500 at the Mellon Auditorium. Joseph Juran, Peter Senge, Daryl Connor, and Shoshanna Zuboff, to name just a few, along with executives from many corporations coping with complex change, got their 15 minutes, many in front of Gore himself.

We got involved because Marion Metcalf had a sore throat. Our last book, *The TeamNet Factor*, was still in galley stage when Seattle-based Robert Gilman, publisher of *In Context* magazine, read it on a flight to Washington. When he arrived, he called Al Gilman (his brother and Marion's husband), who was at choir practice, which Marion had skipped due to her sore throat. So Marion and Robert started talking, and she explained her new assignment working for the vice president. The toughest problem, she said, was how to get agen-

cies, as well as internal departments, to work together across boundaries. Robert told her about our book, and soon we too were volunteering some help to NPR.

## LAUNCHING NETRESULTS

As the summer wore on and the report's deadline, September 7, loomed, people began to wonder what would happen when they returned to their home agencies. Their experience had turned them into evangelists. They looked at ways to improve the government and saw feasible solutions. How could they go back to, in many cases, their dreary, paper-pushing, meeting-infested, low-results jobs? Couldn't they stay connected in some way, continuing to exchange ideas while actively working to implement the recommendations?

By early August, Carolyn Lukensmeyer, NPR's deputy director, working with Andy Campbell and a handful of others, asked for our help in launching a *people network* to link the returning army of reinventing-government believers. Of the more than 600 people invited, some 200 showed up, and in the last week of August, 1993, NetResults[5] was launched in the Mellon Auditorium, where the president presents the Malcolm Baldrige National Quality Awards each year. By the end of the third day of the conference, the group had named itself, crafted a set of goals, expressed its preferences for how to communicate, developed a plan, and agreed upon a mission statement:

> *"To serve as a communication vehicle and catalyst to facilitate broad participation, stimulate leadership, and support the goals, strategies, activities, and achievements of continuous government improvement."*

Generic, perhaps, this statement was also sufficiently open-ended so that it can harbor many initiatives and tap the creativity of countless bureaucrats bursting with the energy to improve the government.

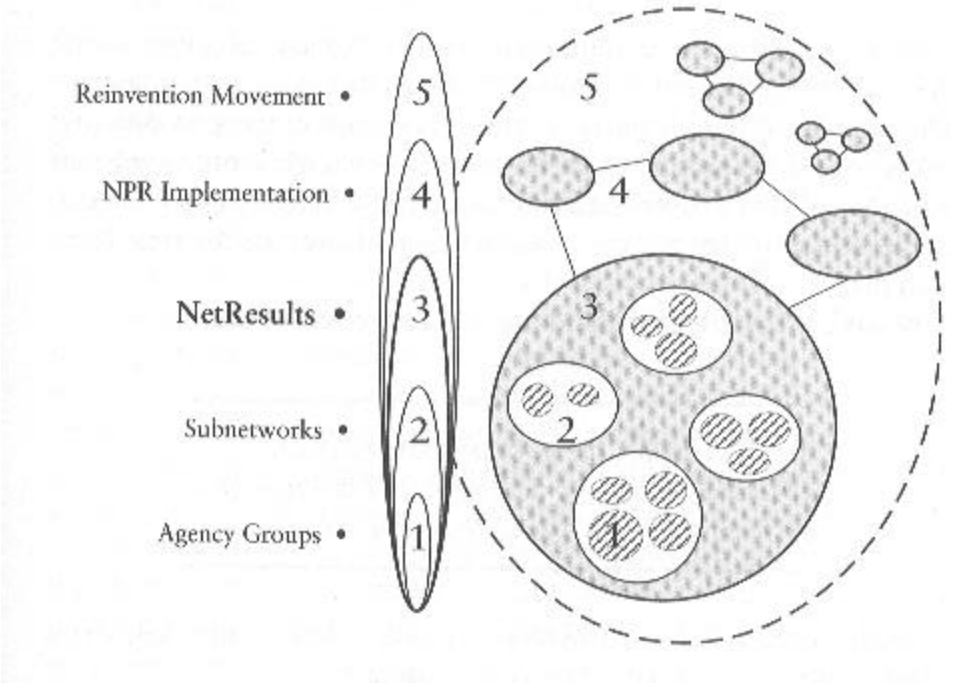
Operating only informally, and with such encouraging word-of-mouth approval as Gore's message on September 16, 1993, to go "full steam ahead"[6] with NetResults, the network soon linked 500 people in 50 agencies. It operates through face-to-face meetings, informal exchange of memos, and electronically. On the Internet[7] fly scads of conversations, manifold e-mail address lists, opinions, articles, drop-in chats, and online computer conferences.[8]

NetResults has also spawned numerous subnetworks addressing focused areas of critical concern to reinvention, including BudgetNet, concerned with the budgeting process; FinanceNet, examining financial management innovations; PeopleNet, looking at human resources reform; MeasureNet, identifying and inventing new types of performance measures; GrantsNet, linking the grants management organizations; IGnet, joining the Inspectors General across agency lines; and Social Services Web, aimed at delivery and integration among the social service agencies.

NetResults is itself only part of the alliance of governmental bodies involved in implementing reinvention, which includes the President's Management Council (largely comprising the COOs of the major agencies), the Federal Quality Institute, the management side of the Office of Management and Budget, and congressional reinvention allies on legislation, as well as a residual NPR staff. The efforts in the U.S. federal government are part of a larger reinvention movement involving localities, states, and other nations.

With NetResults as the point of reference, we can look both inward to its constituent parts and outward to the systems and environments that include it.

Will it all add up to anything? The "net result" remains to be seen, but already something new has happened, something that has never happened before at this scale with this sophisticated technology at the federal level.




*People are talking to one another, building trust, reaching across their stovepipes and silos, exchanging ideas and shortcuts, working faster, and thinking smarter.*

If nothing else, NetResults has unleashed great creativity among people who want to improve government.

## YOUR TEAMNET POTENTIAL

Is your organization, in some respects, like the federal government? Are you trying to move into the 21st century with a 19th-century chassis? Are different parts of your enterprise moving at different rates? Are some groups more flexible and agile, while others are stiff and stodgy? Do people need to communicate across agency lines to achieve high performance? Does so much change all the time leave you dizzy?

What are the drivers behind the Age of the Network?

> *Size and scope, the pace of change, and the coevolution of organizational and technological systems drive the Age of the Network.*

Each of these drivers provides a simple indicator that helps you assess whether you need a 21st-century design.

- *Size and scope:* Any organization that is big and complex or that naturally works across boundaries needs networks.
- *Pace of change:* The faster the pace, the more flexible the organization needs to be. Is your pace of change accelerating?
- *Systems:* Organizations need both social and technology networks if they are spread out geographically, operate in different time zones, or include diverse cultures.

## SIZE AND SCOPE: THE HIERARCHY RULER

Government is the archetype of the Industrial Age bureaucracy. This is natural, for governments are the granters of charters both public and private. Every incorporated organization registers with "the state."

Bureaucracies gain their legitimacy from constitutions, the source of law and all derivative legal systems.

So it should come as no surprise that government is the organizational sector most ruled by policies, regulations, and procedures. Specialization and departmental isolation are rampant. Robert Maslyn, director of special grants initiatives for the Department of Health and Human Services, calls it the "resident solo expert" problem:

people who sit only a few feet apart often have no knowledge of what the other is doing.[9] Vertical functional stovepipes, so bemoaned in business, clog decision making and information flow.

Government, like every other sector, is spinning into the Information Age at an astonishingly accelerating rate, generating networked organizations in the process. Fueled by networked information systems, internal cross-agency networks like NetResults continue to multiply. Meanwhile, networks mushroom among governments in old areas such as trade and in new ones such as the environment.

Governments, particularly national ones, make exquisite network members. Nations—ideally independent, self-reliant, and integrated—enjoy sovereignty. At every level within nations—federal to state, state to municipality, municipality to school district— jurisdictions have sovereignty, with constraints set by the level above.

Sovereigns usually form a network when they agree to cooperate. In theory, no one's on top; everyone bears some responsibility. Boston and its surrounding localities have a fire-fighting mutual aid pact. Outside Portland, Maine, five school districts have joined in the Casco Bay Educational Alliance to enhance learning opportunities across the municipalities. The states in the Southeast are working together to increase exports; in the Southwest on border issues; in the Northwest on natural resource issues; in the Northeast on high energy costs. OPEC, NATO, SEATO, and NAFTA all are alliances among sovereigns formed to address common problems.

Shared purpose and mutual respect among independent partners are the basis for genuine, noncoercive government alliances. Governments are *very* sensitive to matters of sovereignty.

At the global level, the United Nations (UN), a bewildering bureaucracy, is logically and at its heart an inherently networked

organization. As an association of sovereigns with both shared and competing interests, the UN embodies the essence of global coopetition—competition and co-operation.

> *The drama of transition to the Age of the Network is stark here: the UN can further bloat and strangle as bureaucracy hopelessly multiples in the vain hope of "managing" complexity. Or it can reorganize, moving to become the natural network that it is, supported by global technologies.*

As the UN demonstrates, scope and size are not the same. Governmentally, the UN is a modestly sized bureaucracy, although given its affiliations with other global agencies, such as the World Bank, and with myriad nongovernmental organizations (NGOs), it has quite a reach beyond its official employee base of 30,000. Although a small player, the UN's scope is automatically global and transnational. Not itself the global whole, the UN nonetheless endeavors to represent it. It enables and supports a rich set of internation relationships that together make up a major portion of the global fabric.

Historically, trade has been the leading edge for the spread of innovations, causing business to generate a vast part of the global web of relationships. Large and small companies alike export or compete against exports, and most very large companies are multinational or are becoming so. Special interests cross all jurisdictions, reaching customers who are global. Even so, business does not have a formal seat on the Security Council. Everywhere, communication is instant, CNN is ever present, and people go global all the time.

Has your scope expanded? Do you have a distributed organization in any major part of your system—inputs, value-adding processes, or outputs? As the number of relationships increases, does the need

for communication rise? Are your suppliers all local? Are your employees all in the same building? Are your customers dispersed? Your competitors?

**GETTING A GRIP**

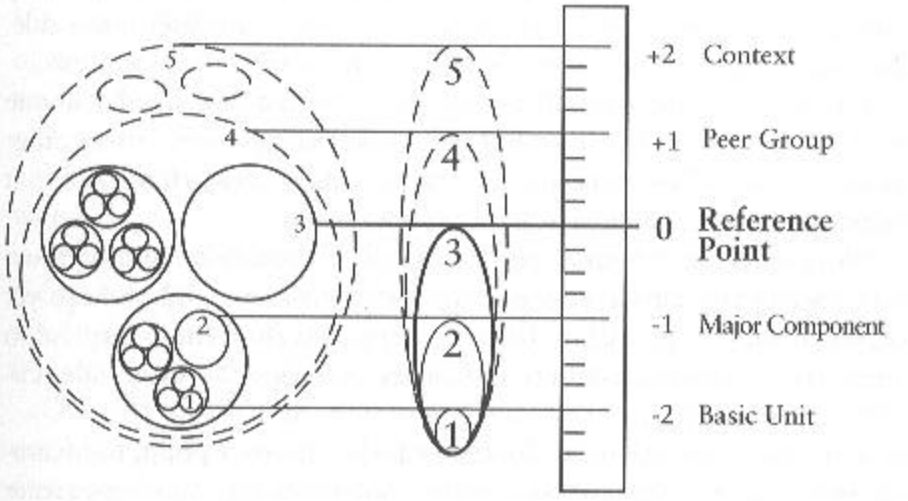
To get a grip on size and scope, use what might appear to be the most unlikely systems principle: hierarchy. Here the term does not represent a social pyramid but rather the concept of sets within sets (see chapter 3, "Turning Hierarchy on Its Side").

Every organization is made up of parts and is itself part of a larger whole. Wholes and parts[10] are gifts from the universe. They make it possible to simplify the complex.

To use this powerful principle, apply the "Hierarchy Ruler":

*The key is to choose a point of reference.*

THE HIERARCHY RULER



The Hierarchy Ruler is one of the most useful mental tools you can ever employ. Set a reference point and then look both ways— internally and externally. Each boundary offers an opportunity for a two-way perspective, like that of Janus, the ancient Roman deity who could look both inside and outside at once from his palace entrance.

The corporate boundary is a good typical point of reference where you can take the CEO's view. The whole organization is your responsibility. From that boundary, you can see both the internal complexities—budgets, politics, love affairs—and the external ones— competitors, markets, global upheaval. With the reference point as an anchor:

- *Externally,* ask what significant relationships the anchor organization maintains. Look at other enterprises like yours, your peers, customers, and suppliers; further out, see the anchor organization in the context of whole industries and markets.
- *Internally,* ask what the anchor organization comprises. Look for the major components, the departments or divisions that tell the broad story of what the corporation does. Each internal division itself is made up of groups within groups within groups.

A ruler is a portable, general-purpose tool that can measure many things. Its anchor—its point of reference—is completely movable. Indeed, to tap a ruler's power, you *must* move the reference point.

On the Hierarchy Ruler, the anchor is in the middle instead of at one end. Place it at different boundaries to assess situations from other points of view. This is a critical cross-boundary networking skill that many people already use well intuitively.

Now move the reference point from the corporate boundary down to your department and drop it again to your team, and perhaps yet again to subgroups within the team. Or go up from the enterprise to alliances, coalitions, markets, industries and regions—ever wider circles of associations.

With Eastman Chemical Company as the reference point, for example, move up one level to see customer alliances and supplier-partner ties. Move up again and see the chemical industry as a whole, of which

Eastman is a part. Return to the company level anchor point, then move down one step to see its six major components (see Eastman Chemical Company's Organization Chart, chapter 3) and 42 business units. Go down another level to see the hundreds of vertical and horizontal teams. To see the level of individual people, move down again to the employees who make up the teams, units, components, and ultimately, the company as a whole.

Another example using the Hierarchy Ruler can be seen in the "NetResults in Context" diagram, moving from small groups up to the reinvention movement as a whole.

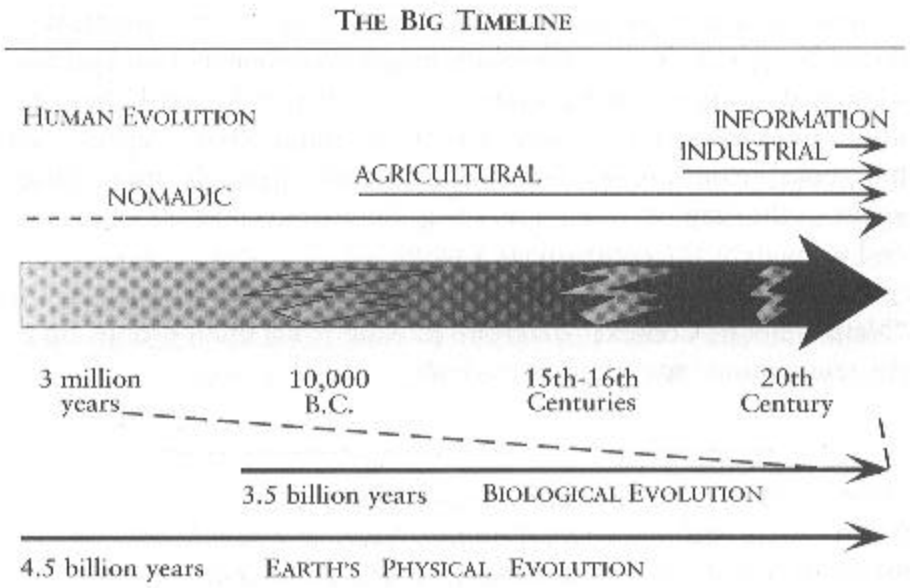
> *The teamnet itself embodies this valuable mental tool of levels within levels, a network whole composed of teams that are themselves complex.*

## MOVING TO THE NEXT MACH

Vibrating at the tip of creative evolution, our world is the culmination of everything that has happened for billions of years. We carry not just traces of our past, but also its flesh and blood as evolution combines old features with the new ones that follow.

We are both past and future, existing in a creative human culture in which daily change hurls boulders of uncertainty in our paths. Change is often uncomfortable, it sometimes hurts, and it can even be fatal. Never before has the world had to cope with the pace of change that affects six billion of us every day. Collectively, we are struggling to learn the new survival skills of life in the Age of the Network.

Our past is very deep. Along with our specifically human heritage is our biological heritage, billions of years old. This biological awareness remains the staple of daily life, engaging our personal attention. Think of your interest in your health, your personal biology. Consider




the enormous public concern with the health system, its economic impact on the cost of government, taxes, and budgets. Our social biology, represented most centrally by each person's own family, is also under enormous stress. Meanwhile, our biological home struggles with myriad environmental challenges.

Beyond our basic biology are the accumulating layers of our organizational life.

### SCALE IN THE LONG VIEW

The Age of the Network is well underway as the 21st century dawns. Connections accelerate explosively worldwide. With *digital convergence—the* integration of computers, telephone, cable, information providers, and myriad other players—soon upon us, we're about to take another leap further into the Information Age.

Looking back, we need very different scales to measure the pace of change: eons, millennia, centuries, and decades.

*? Millions of years mark the Nomadic Age* of human history. A single person's life was very short—30 was old. Epochal changes

were too far apart for any single person to notice them. Nevertheless, slowly over eons, people invented symbols, tools, and finally speech.

? *Millennia measure the Agricultural Age.* Agriculture became dominant 100 centuries before the birth of Christ, and its reign lasted until the end of the Middle Ages—the 15th to 16th centuries. The wheel and writing swept the known world, but rather slowly.

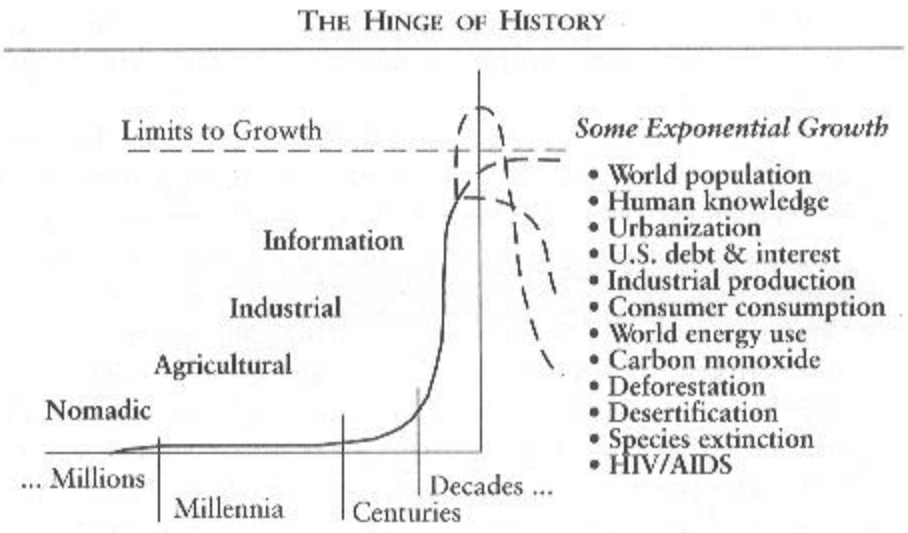
? *Centuries mark the Industrial Age,* from the Enlightenment to the mid-2Oth century. Rational science, machines, and printing powered this industrial engine. The pace of change for an individual's life speeded up, albeit at a measured, predictable, progressive rate. Still, a wheel with an engine is a much faster vehicle than a pushcart.

? *Now epochal change comes in decades.* Even before industrialism reached its peak in the mid-2Oth century, the conceptual shift from Newtonian to quantum physics sowed the seeds of the Fourth Age.[11] Three events in the last six months of 1945 herald its arrival. In half a year, nuclear power exploded on the world stage in Hiroshima and Nagasaki; scientists switched on ENIAC, the first electronic computer, in Philadelphia; and the United Nations Charter was signed in San Francisco. Since then, we have measured significant human change in decades and years.

In the 1970s, information workers surpassed manufacturing workers, just as factory hands once surpassed farm hands. Generations alive today straddle two eras, riding the Third Wave. Together, we inhabit both the old Industrial Age and the new Information Age. It is a difficult but exciting time to be alive. And it is a great responsibility which humanity doesn't get to do again.

At the first light of the 21st century, the baby boom, which started at the end of the Second World War, is in power, the first generation of the Information Age. These are the people of the 1960s generation who inaugurated the struggle between the two epochs, unleashing seismic shifts in values.

The complex global scale of modern business outstrips the capacity of the accumulated organizational wisdom of earlier ages. The overall




pace of change drives the next form of organization in the Big Picture. New technology eventually brings the ability to manage in an increasingly larger context as more success brings more growth. Over the long span, the earth's population has grown at the same logarithmic rate as the pace of change.

Biophysicist John Platt, one of the early chroniclers of the pace of change, called our epoch the "hinge of history."[12] Everything shoots up the hockey stick curve of exponential growth in our time'[3]—from population and ecological load to the spread of HIV/AIDS and the growth of knowledge. Such acceleration cannot be sustained indefinitely; there are always limits to growth.'[4] Three general scenarios accompany the "S curve": overshoot and crash; undershoot and collapse; and restabilization at a higher level of civilization, definitely the best and smartest option.

**PACE IMPACTS PATTERN**

Eons, millennia, centuries, decades. The pace of change increases with each new age of human civilization as time shrinks.

Today businesses exist in multiple environments at once, each mov-

ing at a separate rate. Organizational environments have evolved from the simple and stable to the complex and unpredictable.'[5]

Research since the late 1940s has shown that the pace of change in a business's environment greatly affects its organization. Typically, these studies place organizations along a yardstick that has "mechanistic" types at one end and "organic"'[6] types at the other.

> *In general, slower change correlates with a more mechanistic organization, while faster change leads to a more organic one.*

Speed impacts organizational type:

- Authority runs *mechanistic* organizations, with a strict chain commanding people who perform highly specialized jobs. Superiors pass instructions, decisions, and orders down to subordinates.
- *Organic* organizations, while they have authority structures, do not depend on them. Instead, people enjoy rich communication links that enable them to tolerate less clearly defined jobs. With consultation and broad access to information, self-control rather than top-down command is the *modus operandi.*

While hierarchy and bureaucracy are alive and well *and* needed, they are everywhere in consolidation. Relative to the "good old days," everyone feels the rush of change, which is rising so fast that in the minds of many, **it** appears out of control. Most companies, most groups, and organizations of every kind—from family to nation—are moving in relatively faster waters in this dizzy, speedy age. Each day more people meet even more people, finding themselves operating in more networks as we move deeper into the Information Age.

## WHAT IS YOUR PACE OF CHANGE?

How do you apply these ideas to your organization? Do you have a mechanistic organization attempting unsuccessfully to operate in a turbulent environment? Is networking called for?

Not all work calls for networks. Are you trying to use a virtual networked team where a face-to-face fire-fighting unit would be more appropriate? Are essential infrastructure functions in jeopardy because the rush to flatten has decimated middle management? Have champions of companywide standards been silenced in the push for greater unit autonomy?

A teamnet solution does not have to start with a search-and-destroy mission. It looks for new power and synergies in connections, in distributing information and responsibility, in applying new network approaches to old management problems.

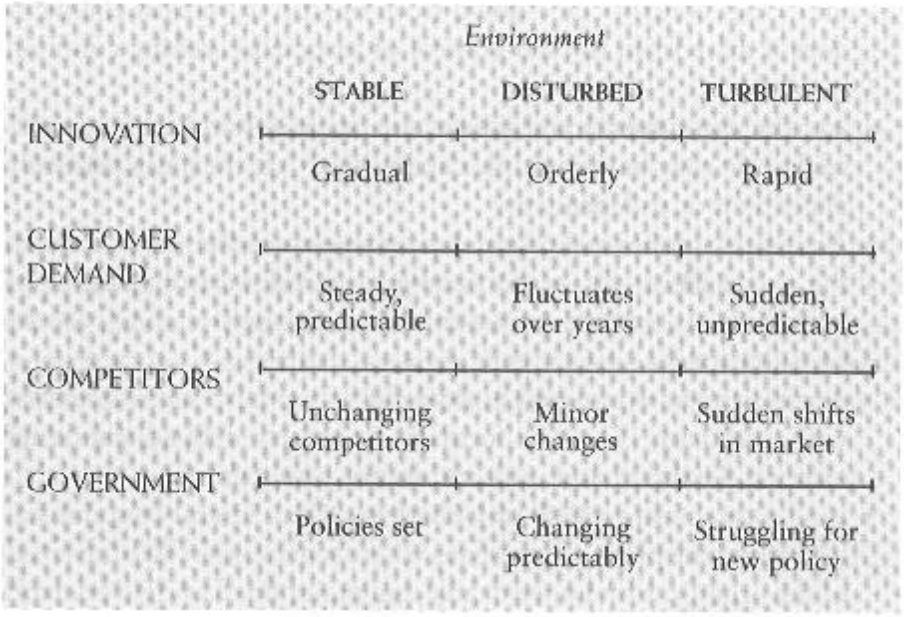
Compare the pace of change with the flexibility of structure to match work with the right organization.

### *Gauge the Environmental Speed*

First, estimate the speed. There are many ways to appraise the pace of change; the following rule-of-thumb chart is just a start. Look at innovation, customer demand, competitors, and government policies.[17] Add variables, such as commodity prices or health care costs, to make the chart relevant to your specific situation.

Where does your organization appear on the range from stable to turbulent? Parts of larger organizations also move at different speeds. Imagine color-coding your organizational chart by the impact of the rate of change on each unit. Think also about your outside networks—with suppliers, customers, competitors, regulators, and reporters—and the velocity of change you experience there.

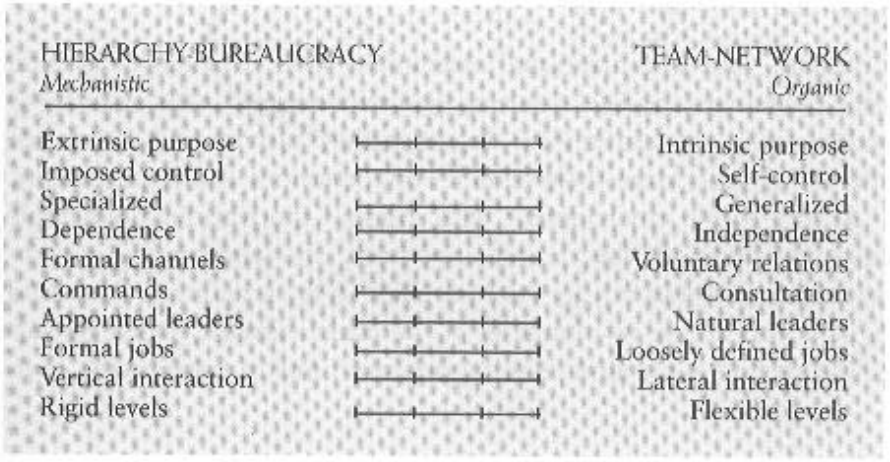
ENVIRONMENTAL PACE OF CHANGE ASSESSMENT




***Evaluate the Type***

Is your organization more mechanistic or more organic? Look at the organization in terms of the characteristics listed in the "Organizational Assessment" chart.

ORGANIZATIONAL ASSESSMENT



? Does purpose always come from higher authorities or is there an internal source of purpose, a spark of independent, self-generated life? Does control come down from the top in vertical chains or does it arise from the self-control of associates seeking common results?
? Are the components and jobs in the organization highly specialized or do they have multiple capabilities? Are the parts relatively dependent or independent?
? Are there only formal channels of communication, up and down the social hierarchy, or do people form voluntary relationships every which way? Is communication through channels or by consultation?
? Are all leaders appointed or does the group have natural leaders with authority? Are jobs formally or loosely defined (the latter offering flexibility and opportunity for leadership)?
? Is all interaction vertical or is there extensive lateral communication along the plane of processes where work exists? Are the levels of the organization impermeable and maintained as rigid controls or are they continuously and flexibly re-forming to meet the needs of change and growing complexity?

No company is either unbendingly rigid or always flexible. Most organizations mix mechanistic and organic features. Imagine mapping the parts color-coded to an organizational assessment.

### *Combine Time and Type*

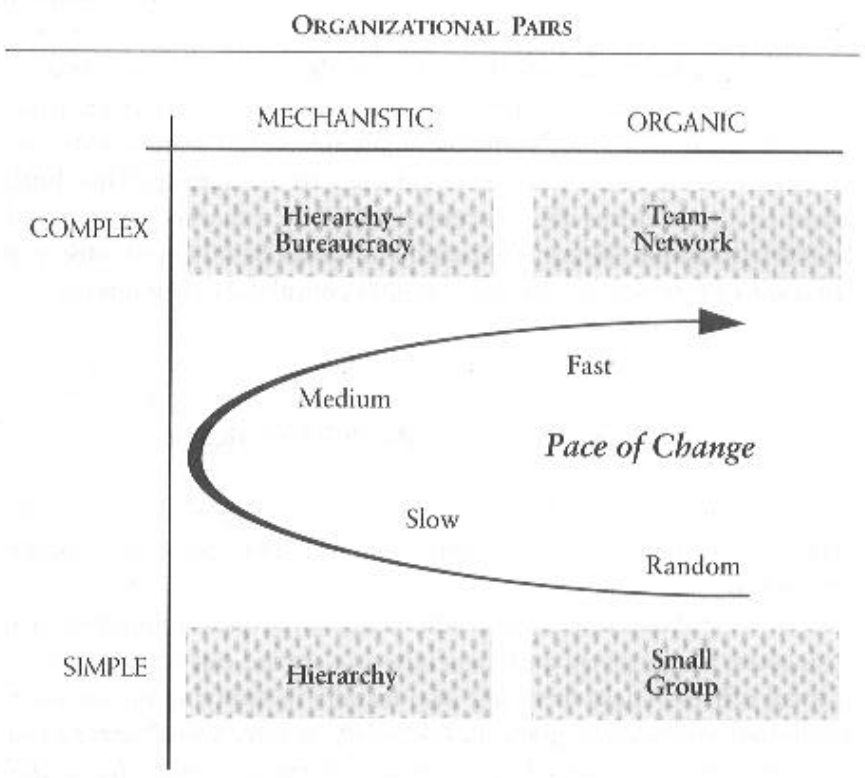
Compare your organizational assessment with your environmental pace of change; consider your mechanistic—organic maps against the stable—turbulent continuum. Together they provide a baseline for evaluating your large-scale teamnet opportunities and requirements.

A very stable environment with gradual innovation, predictable customer demand, the same competitors, and unchanging government policy would not be the first place to try a teamnet. And hold tight if you decide to plunge in at the other extreme. Don't be surprised to find some slow-moving organizations in fast-moving envi-

ronments. Likewise, don't assume that just because some parts of the picture clearly need to be more networked, this solution is best everywhere.

### TEAMNETS: THE ORGANIC SUCCESSOR TO HIERARCHY-BUREAUCRACY

As you sort out the appropriate mixes of organizational type to apply to your situation, you can compress this set of guidelines into a 2 x 2 matrix of simple—complex environments and mechanistic—organic organizations. Remember, however, that over the ages, organizational forms have accumulated. Older forms show up in some basic way in later forms.



*Simple environments.* Small groups and hierarchies operate most effectively in environments where complexity is relatively low. On a daily basis, small groups deal with the vicissitudes of living and working. Their organic, self-organizing capabilities respond to the often chaotic, random changes of in-your-face everyday life. Where the environment is more predictable and size slows the rate of change, people can use simple command-and-control structures to manage larger-scale, fairly simple work.

*Complex environments.* Bureaucracy complements hierarchy; the two have clear organizational affinities. With commands and ranks, boxes and specialties, bureaucracy and hierarchy approach complexity like a machine. Specialization contributed by bureaucracy allows hierarchies to manage much more change and greater complexity. But when complexity accumulates and explodes, hierarchy-bureaucracy is woefully inadequate.

Teams and networks combine in complex environments, just as hierarchies and bureaucracies combine forces. The teamnet incorporates the team, the high-performing organic small group, with the network—the organic, multilevel, distributed metagroup. They both reflect basic structures and processes bound by a shared purpose and deep relationships. Teamnets are old and new, coevolving to meet the demands of fast-paced, changing, highly complex environments.

## SOCIAL-TECHNICAL NETWORKS

Some organizations lead the journey into the Age of the Network. Their businesses are natural networks; their core technology is highly networked.

At Arthur Andersen & Co., like other large professional service businesses, the partners and associates are spread out across clusters of local offices. These firms are also leaders in applying information technology to knowledge work. Likewise, "service webs" spread out in natural networks—such as Domino's Pizza and other franchises

that combine local entrepreneurism with extensive, distributed information systems. Hyatt Hotels manages a far-flung network of hotels

land owners with integrated brand, marketing, and management skills. From a technology perspective, process manufacturing requires more organic management than discrete manufacturing. The horizontal, networked nature of Eastman Chemical Company's work figuratively appears in the maze of pipes and tanks—processes and flows—of their production facilities. Federal Express created a network to provide a delivery service. AT&T's natural network technology, turned loose in the marketplace to face the full pace of change, has made it a leader among the giants in developing new ways of working. "AT&T is the most incredibly flexible large organization I've ever dealt with," says GO Corporation's CEO, Bill Campbell. "You don't need to go to committees. Somebody makes a decision, and we move on to the next one."[18]

While some organizations network more naturally than others, virtually all are incorporating new electronic technologies.

#### TECHNOLOGY OF THE INFORMATION AGE

With the invention of electronic circuits, the ideas of George Boole, Charles Babbage, Ada Lovelace, and others became the seminal technology for the Age of the Network. Chips, circuits, and satellites—the ever-expanding array of electronic devices—restructure old markets and open up new ones. Information, computer technologies, and global markets require networks. Hierarchy alone is too rigid, and bureaucracy is too slow.

- ? New ideas turn into new technologies.
- ? New technologies open up new economies.
- ? New ideas, technologies, and economies provoke new organizations.

Information technology first emerged at the peak of the Industrial Age. Not surprisingly, it looked appropriately mechanistic, and the

first few generations of computers were enormous. Their user interfaces were hideously complex and they were awesomely expensive, available to only the largest institutions. The central computer—with its professional priesthood, who alone understood its arcane mysteries—needed to be shared to be cost effective, so it sprouted dependent appendages, numbingly similar dumb terminals. The whole system collapsed when the mainframe went down behind air-conditioned glass walls set on raised floors.

Next came the chip. It leaked from the lab in the 1970s to the marketplace before anyone really knew what was happening. Instantly, a revolution from below erupted with hobbyist kits like the Altair, gathered speed with the Apple II, and, finally exploded with the IBM PC.

Personal computers liberated the information revolution from mainframe domination. PCs are an agent of personal empowerment at the technological heart of the age. You and your computer are independent members with autonomous capabilities, archetype nodes in social/technology networks.

PCs linked into networks almost immediately. Networks have developed from a fringe curiosity to the central architecture of computing in no more than a decade. PCs, linked into local area networks (LANs) and wide area networks (WANs), as well as directly to the global Internet, reflect the robustness of the network design. If the broader networks go down, the local clusters still function. If local nets go down, PCs and other devices continue to function and perform work.

A 1985 publication by Digital Equipment Corporation, then the world's leader in developing networking technology, provided this definition, still representative of this techno-genre:

> *"A network comprises two or more intelligent devices linked in order to exchange information and share resources.*

Here we see three essential elements of the Five Teamnet Principles—nodes, links, and purpose. The nodes are the independent

**SOCIAL-TECHNICAL NETWORKS**

| ORGANIZATION | | TECHNOLOGY |
|---|---|---|
| Business goals & strategies | PURPOSES | Applications & solutions |
| Independent individuals or groups | NODES | Independent intelligent devices |
| Communications & relationships | LINKS | Physical network of connections |
| Members who coordinate | LEADERS | Servers and managers |
| Levels of work & organization | LEVELS | Levels of hardware & software |

intelligent devices, the members. They are linked physically to serve purposes, the "in order to" of exchanging information and sharing resources. Networks come to life for a purpose, the business needs that specific applications meet.

Technology networks also reflect the last two of the five teamnet principles. Some nodes in technology networks serve as leaders— "servers," as they literally are known—which contain shared information, such as databases, and perform routing functions, such as delivering e-mail. Ironically, mainframes now have a renewed role in computer life as "servers" rather than "masters." Technology networks also make use of experts and administrators whose jobs are to maintain and protect the infrastructure, develop its capabilities, and resolve conflicts.

Levels appear throughout computer technology—hardware, software, and wiring schemes alike. At the user interface, hierarchical menus offer people the means to interact with a "machine" made of chips constructed from ephemeral Boolean logic gates—sets within sets within sets.

## MAKING YOUR ASSESSMENT

Should your organization be using networks? Size and scope, the environmental pace of change, and social-technical infrastructures all shape the answer to that question.

We wish we had a formula to combine these factors and come up with definitive answers. We have no formula, but we can suggest some general rules of thumb for making quick assessments. Approximations, however, can be dangerous if used without experience and local knowledge. With that in mind, we also offer an approach for making a more detailed assessment in each of the three areas.

*? Networks are called for when the size is very large or when the scope is large and the size is small.*

Very large organizations, like multinational corporations, governments in alliance, and grass-roots movements, form networks because traditional hierarchy-bureaucracy simply cannot cope with the sheer magnitude of change. The issue for most organizations, however, is one of size relative to scope, which is determined by the purpose. In short, *we need networks when we want to do more than we can do alone, achieving results across boundaries in circumstances we can influence but cannot control.*

Evaluate the strategic advantages by exploring the levels that the organization touches for a more detailed assessment of size and scope. The Hierarchy Ruler helps you lay out your specific topography of size and scope, giving you a natural language for describing the complexity of your business.

*? The faster the pace of change in the environment, the more organizations need organic forms—teamnets.*

Broadly speaking, faster change correlates with more organic organization. However, teamnets are not always the answer to speed. Certain situations cry out for hierarchy. Place your environmental speed "gauge" alongside your type assessment. Now use the two gauges at different levels within your organization. By color-coding your results, you have a vivid display of your organization's speed and type at many different levels.

*? Draw a picture showing who you work with or how you do your work. Are there many circles and connecting lines? If so, you have opportunities for a natural network.*

Many organizations are natural networks or have become so through redesign. Both business process reengineering and quality initiatives often reorganize work into more horizontal, cross-boundary designs. A physically distributed business invites and requires distributed management techniques, as does a networked core technology.

To make a more detailed assessment of the network potential at the juncture of your organization and technology, apply the Five Teamnet Principles to both. To determine the areas of maximum strategic advantage, match the startup and launch results outlined in chapter *5* with a technology network assessment using the five-principle model. Then develop a change strategy that allows the organization to gain maximum productive advantage from the technology. Or draft a new

technology plan that supports a work process that maximizes organizational advantage.

In the next chapter, as we take a ride on the Internet, we explore further the conjunction of people and technology and the power it releases.

## SECTION IV

# EXPANDING LINKS

Links, the focus of the next two chapters, are the signature characteristic of networks. Connections always have been important to organizations, but comparatively speaking, until recently, people have had limited links. In the past, the physical connections among people were relatively scarce and costly. To maintain control and enhance efficiency, hierarchy and bureaucracy minimize connections.

Links are not *new* in networks, but their variety and intensity are new, as is their use as a dominant design principle. New media that instantly circumnavigate our small planet bring with them geographically distributed organizations, virtual teams—and overloaded people.

"Only Connect," chapter 7, explores further the link between technology and people—from physical connections to interactions to

relationships. We begin with the Internet, a phenomenon of the Age of the Network, both technical and social. Then we profile a new leadership role forming in cyberspace to help turn connections into relationships, one personified by Lisa Kimball, a skilled "networker." This coordinator role, however, generally appears in social networks of all kinds, which the extraordinary Elizabeth Meyer Lorentz classically exemplifies.

In "Social Capital," chapter 8, we go deeper—to the realms of trust, reciprocity, and communities, where people connect tightly. More remarkable is the glint of gold hidden in a thicket of relationships. Starting with an example 800 years in the making, today reflected in such areas as Silicon Valley and within organizations such as Eastman Chemical Company, we show the astonishing economic value of links.