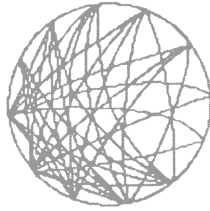

CHAPTER 5



PLACE

Home Is Where the Site Is

The last decades of the twentieth century see the “storming and norming” pains of the birth of the Network Age. Communism crumbles and market forces reign. A new economic world order prevails as nations scramble to stabilize their politics. Computers and networks fly past critical mass. Global electronic technology shifts into digital drive. Endlessly mutating bits erupt into the infinite cybercultures of the rising networked civilization.

Even before the Internet, Joshua Meyrowitz put words to what was to come in his 1985 book, *No Sense of Place*,¹ in which he says that electronic media are dissolving the historic connection between physical place and social space. In the “nowhere” of the Internet, time compresses and people behave differently. Where you are takes on new meaning—and offers new possibilities—when you can be anywhere.

Sun’s Corporate DNA

Red-hot Sun Microsystems is the poster child for the Network Age. Started by a group of college buddies, Sun has been synonymous with networking ever since it shipped its first workstation, made in 1982, with a network connection based on a universal Internet protocol.

The company begins the twenty-first century with major claims to Internet indispensability: Sun computers run four-fifths of Internet backbone traffic and more than half of Internet service providers.² Triple-digit increases in Sun's stock price followed by multiple stock splits and skyrocketing revenues with good profit margins indicate how the financial markets view Sun. The company deserves its ownership of the trademark tag line that many others paraphrase:

"The Network is the Computer™."

On the economic green of Silicon Valley that Sun calls home, there's always room for improvement.

Ten years after helping found Sun, Scott McNealy, the CEO, convenes a series of annual meetings for his senior staff. He invites speakers from the companies he most admires—Federal Express's Fred Smith in 1993, Motorola's then-CEO Gary Tooker in 1994, and Xerox's then-CEO Paul Allaire in 1995. Their talks target teamwork and customer satisfaction as major improvement areas for Sun.

Tooker's message particularly resonates with McNealy. Pointing to how teams profoundly improve quality at Motorola,³ Tooker provides McNealy with the outlines of a model that Sun will follow. If Sun can apply its extraordinary technology strength to resolving its quality issues, Tooker suggests, it will have dramatic competitive advantage in the years ahead.

As a classic lean-and-mean company, Sun always has celebrated the independence and initiative of its individual engineers. Now, going it alone seems to have run its course. "The high-flying cowboy of Sun's culture doesn't work anymore," says John McEvoy, Western Area operations manager in Sun's Enterprise Services group. "We've grown too large. One person can't make it happen."

There always have been teams at Sun. It's natural for people to come together in teams to get their work done. What was about to happen at Sun, however, is new—the deliberate use of cross-boundary teams to tackle the company's most challenging issues. It would require ingenuity, delicacy, and a particular spin that can seduce Sun's freewheeling culture.

Sun's strength is technology innovation. Jim Lynch, the company's vice president of corporate quality, points to Java, Sun's paradigm-shattering innovation that spun the web into a sea of dancing icons. Java delivers tiny chunks of "nimble, interactive"⁴ software across the Internet on an as-needed basis. Once released, Java became central to the company's offerings and the face of the Internet.⁵

"Java is not a technology idea that came about because we were improving processes," Lynch says. What became Java began in 1991 as a small off-site project whose purpose was to explore the next wave in computing. Propelled by a number of unexpected twists and turns over the next several years, the project eventually resulted in the release of Java source code on the Internet in 1995. If Sun is to deliberately create teams, it doesn't want to, cannot afford to, quell such creativity.

"It's extraordinarily complex when you're tampering constructively with a company's DNA," says Lynch, who takes on responsibility for SunTeams. "You have to be very careful."

Virtual SunTeams

Once McNealy and his staff decided to introduce teams, they moved quickly. In fall 1994, just a few months after Tooker's visit, McNealy and his staff met with leaders of Motorola's team effort. Motorola's widely admired model for teams proved particularly applicable to Sun, most especially because the two companies are in related industries. Five months later, Lynch got the go-ahead to launch SunTeams, which, since its 1995 start, has involved nearly a third of the company's workforce.

To kick things off, McNealy takes to the web waves on SWAN (Sun Wide Area Network). The company's vast computer network includes "WSUN Radio," not a traditional radio station, but rather an internal web site that transports all media—text, graphics, audio, and video. McNealy challenges people to enter a competition to solve the company's most vexing customer problems as fast as they can with small, cross-company "SunTeams." He proffers an appealing incentive: an all-expenses-paid weekend for members and significant others of the 16 finalist teams at a posh hotel in San Francisco. They'll compete for awards in the first annual "SunTeams Celebration."

McNealy succeeds in putting a Sun spin on teams—challenge, speed, and competition. Seventy-five teams sign up immediately.

To become a SunTeam, a group has to:

- Identify an important customer (whether external or internal) with a significant problem.
- Secure an executive sponsor.
- Agree to adhere to SunTeams' methodology.

By observing a common methodology, the teams work consistently, even though the content of their projects differs.

SunTeams' team architecture (its term), originally a blend of Motorola's and Xerox's team-building processes, continues to evolve, combining newer elements with even older ones. In 1999 McNealy decided to adapt Six Sigma, the breakthrough quality process made famous by its use at Motorola and GE, to Sun. Later that year, McNealy joined General Electric's board of directors coincident with that company's decision to bring e-commerce to all of its businesses. As a result, SunTeams is adapting GE's Six Sigma training approaches. In an interesting intertwining of corporate histories, GE obtained its original Six Sigma course—from Motorola, which initiated the process in 1987 and won the U.S. government's prestigious Malcolm Baldrige National Quality Award one year later.

With Six Sigma, statistically based methods are used to drive down defects in a process until the number reaches near perfection, or fewer than 3.4 imperfections per million cycles.

SunTeams is rising to the challenge. Since the late 1990s, SunTeams have solved more than a thousand significant customer-related issues, from availability (in other words, uptime) and eliminating what it calls customer "dissatisfiers" to redesigning internal processes and reporting systems. Calling SunTeams its "workhorse for addressing some of the company's key issues," the company credits the initiatives with saving millions of dollars per year.⁶

All of the teams—nearly a thousand since 1995—are virtual in some respect. Typically, team members are in different locations and time zones. In fact, they don't refer to their locations by their geographies; they call them *time zones* ("the AustralAsia time zone," for example). The teams,

usually about 10 to 15 in size, comprise specialists in areas relevant to the problem being solved. They frequently include people from outside the company—suppliers and customers are members of numerous teams.

A typical SunTeam comes about when someone proposes an idea to a few others; together, they register to become an official SunTeam, gaining resources, support, and visibility. They work together intensively for six to nine months, sometimes a year, in the context of their day jobs. It's not rare for a particular SunTeam to spawn its own children. In the story we're about to tell, a successful effort to solve a quite substantial customer problem gave birth to another, and 60 percent of the original team moved to the new one.

The Glass House Gang

Sun needed to electrify its reflexes in responding to mission-critical customer problems, the result of what Lynch calls "time compaction." No one can afford to be down anymore. Uptime for Sun's customers is the difference between being *in* business and out of it completely.

We spoke to Lynch the day after the February 2000 hacker attack on a number of the Internet's most popular commercial sites. "Yahoo didn't have a business for six hours yesterday. When we sell a mission-critical system to Fidelity for its trading floor, for example, and it goes down, that's a major hit to Fidelity's business, causing a major reduction in its revenue, impeding them and their customers from doing business. When eBay or Yahoo's systems go down, they are 'out' of business."

So the Time-Based Notification team came together and set its purpose: to create a "reliable automated customer problem escalation process" for one of Sun's critical products. In 17 months' time, the SunTeam of 25 people significantly reduced the response time to report a mission-critical problem.⁷

Before the team's work, customer problems were escalated on a case-by-case basis. A "time-based notification system" would eliminate the vagaries of handling each problem idiosyncratically.

If a major customer like eBay or Amazon goes down, Sun now escalates the problem hourly. "No one has to watch the clock," says John McEvoy, the team's leader. "It's all automated. Customers like it. Each request starts

an hourly paging process. Every 60 minutes we apply increasing levels of management and technical resources against the problem.”

McEvoy says the automated process “gets them involved as a real team effort. It eliminates one or two people on site who say, ‘Give me another 10 minutes and I’ll have the problem solved’ and then it’s another 10 minutes.”

This SunTeam brings together people from five major Sun organizations in nearly a dozen locations. They meet face-to-face three times during the year, once at the beginning to build trust and agreement on how they will work, then twice more at key review points. Subteams split off to tackle pieces of the problem.

They meet on the phone for at least an hour or two every other week. In between the conference calls, they use e-mail, one-on-one phone calls, and Show-Me, Sun’s homegrown e-whiteboard program. All of their work is posted to their common web site that serves as home base for the team as it creates its web-based tool, WebEsc (as in web escalation).

Ed Hoff, leader for the team’s follow-on effort, cites three reasons why the project works: the high trust level of team members; “significant confidence from senior management”; and the project being “driven at mid-management, which made it more grassroots.”

The project proved so successful that the team sent 26 people to its successor, the Glass House Gang. (The Glass House is how computer people refer to the high-powered computing systems so delicate that they live behind glass walls.) Their task is to extend the escalation process to the rest of Sun’s mission-critical products.

Even before the Glass House finishes its work, Sun is using virtual teams to monitor critical customer accounts.

“We design our products to be used under particular loads,” Lynch explains, “and they’re getting pinged⁸ [computer talk for being contacted] millions of times a day. Failure, regardless of the source, is usually horribly complex. No one single person at Sun knows how to solve the problem when a major account goes down. This is the ground zero example. We have to put a team of people to work on the account, drawing on services and engineers all through a sequenced escalation process.” Virtual teams lie at the heart of Sun’s success.

The era is over when customers wait several days before a senior Sun person knows about their problems. Thrice weekly, the company’s

president and chief operating officer, Ed Zander, convenes a conference call with his staff. “Scott [McNealy] joins most of the time, and we go account by account for 20 to 30 minutes, looking at our most urgent and highest-priority customer issues,” Lynch says describing how he begins his day. “We’re solving problems faster and learning where we need to make process investments. Do we intend to do this forever? No, but we’re doing this as an experiment to increase customer availability.”

This, too, is a virtual team, with people calling in from wherever they are, Lynch says. “Ed can be in Barcelona, Scott’s in New York, some are in California, and at 8 A.M. Pacific time, we all are on.” And the solution depends on virtual teams. “We have to bring headquarters and the field together to get them [customers] backup.”

Lynch picked up the idea from Cisco. Every night at 10 P.M. Pacific time except Saturday, Cisco’s CEO John Chambers receives a report on a handful of the most important problem accounts. The two companies have strong ties; their products are complementary, providing the basic infrastructure for Unix-based networking, and Cisco’s chief technology officer, Judith Estrin, sits on Sun’s board.

“We’ve clearly established culturally that proactive effective teams are far better than individual heroics, and we have the infrastructure to go with it. The challenge is to expand the footprint of teams in the midst of the incredible transition going on,” Lynch says.

Finance Net

Daniel Poon’s cell phone rings at 5 A.M. in Hong Kong, waking him up. He’s ready to talk about SunREVs, the team he leads. “The reason we were chosen to talk to you is that we’re the most virtual SunTeam.” His team has people in AustralAsia (one word at Sun), the United States, Hong Kong, Korea, Singapore, Taiwan, China, Australia, and Latin America. Therein lies the problem: Sun’s salespeople, who are very virtual (they operate in many time zones), need accurate, timely financial information.

“They ring up finance and finance says, ‘Give us a week or two weeks, we’re doing a close,’ ” Poon reports. So his team sets out to solve this and other problems, including what he describes as the “Can you just plop

this in?" problem. Many solutions get pushed down from corporate, but one size does not fit all.

So Poon and his colleagues grow the project from one that originally was managed locally in Australia, spreading it throughout Sun. The idea is to create the standard reporting system to support management throughout the company, right up and across to McNealy and his team. "That's pretty good," Poon says humbly.

A small group of about five do the conceptual design. When SunTeams anointed the local Sydney project, the team was 10 strong. Another ring of 20 became involved when management changed, followed by another 50 or so analysts, finance and sales executives, and vice presidents. In its first release the product has 300 users, a rather large virtual team of its own, along with its own user community. "I've been getting calls in the past two days about how it can be used in different contexts," Poon reports.

The project's beginning is classic Sun. It started out taking a third of Poon's time, then grew to three-quarters of his time while extending into other people's time. "It was very hard," he laments, "because it was grassroots and we didn't have the money to do it. We lived off an allowance from month to month and a programmer on a monthly basis." Then the idea of a web-enabled solution became very popular, helped by an e-mail from Scott McNealy himself. "He wrote to my boss and said, 'I don't want any more e-mail attachments. Give me a URL that I can access anytime, anywhere with reliability and accessibility. We're preaching this to our customers.'"

In short, SunREV dynamically reports the company's numbers on the web. It's the *place* where Sun's financial picture exists in the aggregate. The team worked for a year, never meeting face-to-face until six months into the project. Like other successful virtual teams, they communicate extensively via conference calls, e-mail, and shared web sites. Poon points out that his team doesn't have revenue management skills (the content of the project) but it does have information technology expertise. Trust is built on faith in one another's expertise and the benefit everyone involved can derive.

Of the 19 teams competing at the 1999 SunTeams celebration where SunREV appears, it alone receives the platinum award.

“We’ve Done Away with Paper”

Three aspects of Sun’s virtual team program merit study by other companies because they are beacons of virtual team success: sponsorship, preparation, and infrastructure.

First, Sun insists that every team have an executive sponsor.

Sun did this one right from the start, encouraging employees to introduce the idea to the senior executives, who committed from the beginning and have stayed involved. McNealy’s senior team members serve as the judges for the San Francisco finals each year, and they have adopted greater teamwork among themselves. To ensure ongoing involvement, each SunTeam has to recruit an executive sponsor whose role can be as simple as approving travel budgets, which can become an issue when people on the same team are working for different bosses.

Second, Sun prepares carefully for the SunTeam launch while leaving room for a great deal of flexibility and creativity.

Unfortunately, many companies decide to move to teams without a great deal of forethought. An edict comes down from on high to “form teams,” with no supporting guidelines or resources. Alternatively, a company launches its team initiative with so much bureaucratic baggage that the effort is stillborn before it begins.

While Sun has put some basic processes in place, teams can be creative. This means that each team is free to develop its own agenda and schedule while also holding administrative overhead to a minimum. When teams

experience unanticipated conflicts, they quickly resolve them themselves with guidance from the team sponsors.

Third, Sun has the collaborative technology infrastructure to support a large number of virtual teams.

Sun has been a boundary-crossing e-mail culture since it began in the early 1980s. An Internet original, Sun built a culture where people have long used e-mail the way other companies use the phone.

Possibly connecting the world's largest intranet in terms of numbers of web servers, SunWeb did not even exist in 1994. Virtually everything of value at Sun is on the web. At Sun, the web is the place.

Moving from Place to Place

“If you want to change an organization, the best lever is to change how it communicates,” says W. R. “Bert” Sutherland, for many years director of SunLabs, the company's research and development group. “The big change of our time is what engineers call the ‘time constant.’ You can go around the globe in a matter of a few seconds in e-mail; the postal service takes days or weeks; in the windjammer days, it took months. A phone call is instantaneous if I can get through. E-mail is fast but not instantaneous and you don't need the recipient's attention. Different communication styles lead to different organizations.”⁹

While organizations can increase their effectiveness enormously with the smart use of technology, heed what we have heard repeatedly from our on-the-ground virtual team experts: “It's 90 percent people and 10 percent technology.” Social factors above all derail the development of many virtual teams. Understanding the new social geography of media, as Sun is doing, provides a powerful advantage in constructing productive virtual work places.

Increased access to information is a primary driver of change from hierarchy-bureaucracy to networks. Virtual teams depend upon the open

exchange of information, both internally and externally. Still, there is a danger here.

Absolute openness will absolutely kill virtual teams.

As more information becomes more public, privacy becomes more precious. If all of its information and communications are public to everyone all the time, a virtual team will

- Have more difficulty creating its identity.
- Bypass critical needs for socialization.
- Remove essential supports for authority.

Issues of what is public, what is private, what is open, and what needs to be secure are central to virtual teams. In particular, these issues impact the design and development of cyberplaces, the true homes of fully realized virtual teams.

The Play Is the Thing

No Sense of Place,¹⁰ Joshua Meyrowitz's breakthrough book, explores how electronic media displace our notions of what it means to be present, thus causing dislocations in our social behavior. The essential message of the book is that electronic media are dissolving the historic connection between physical place and social place.

Meyrowitz brings together the ideas of sociologist Erving Goffman, who conceptualized how social settings influence roles, with the mind-popping work of Marshall McLuhan, who describes media as extensions of the senses. Communications technology sets the stage for a whole new roster of roles as place expands into the ether.

Goffman says each role has two sides. Using the metaphor of a play, he describes the role as presenting its public face to the audience and its private face backstage, where the actors and director develop, rehearse,

and discuss performances. Historically, belonging to a group means being able to go backstage. New people socialize into the group through their gradual introduction to the backstage. There they gain inside information. Promotion in a hierarchy means moving to ever more exclusive and private places.

Since time and place historically have been coincident, Goffman simply assumes the obvious, that groups communicate primarily face-to-face. Until now, the more subtle relationship between physical space and social effect has been obscured.

“It is not the physical setting itself that determines the nature of the interaction, but the patterns of information flow,” Meyrowitz writes. If the social setting is an information system, then new media dramatically change the roles people play in how “groupness” is achieved. He places roles in three categories essential to virtual teams:

- Identity
- Socialization
- Rank

Identity

For the team to have its own unique sense of *identity*, its physical location matters less than its “shared but secret information.” Members have access to this privileged information where and when the group gathers, providing them with a core sense of belonging. Such information separates members (“us”) from others (“them”) who do not have the same access. Backstage, the team discusses options, resolves conflicts, and makes decisions.

Suddenly, in the electronic era, people no longer must gather in physical places to “belong.” Virtual teams tend to have very porous boundaries and may have little or no backstage. As private group places become public ones, group identity, an elusive quality hard enough to establish in the virtual world, blurs.

Socialization

New people become members of a group through “controlled access to group information,” the formal and informal processes of *socialization*. Orientation and training are formal processes of socialization, while hints,

tips, and suggestions convey crucial “how it’s done” knowledge informally. People grow into groups over time. When access to a physical place governs availability of information, the whole group can watch as new members transition into full participants through their rites of passage.

Since it is physically impossible to be in two places at once in the face-to-face world, access to new places also used to mean that you had to leave old places behind. The electronic era suspends the Newtonian laws of motion. In cyberspace, people do not have to desert old places in order to access new ones. You can simultaneously be in numerous online places, joining new groups while weaning yourself from old ones.

You even can have parallel-process interactions: Attend your team’s meetings by videoconference, push mute and take a phone call, check your e-mail, and talk to someone who walks into the room. Where, exactly, are you during the meeting—or are you dipping in and out of multiple meetings simultaneously? Far fetched? How often have you checked your e-mail while on a conference call?

Meta Greenberg, an organization development professional, reports on just how far people have taken the idea of multiple presence. “I have two clients at a telecommunications company who made a tape of ‘ums and ahs,’ rustling papers in the background. Then after a few hours on a long boring con call, they started the tape, left the room, and no one realized what happened. Boring meetings will not be cured just because they’re not face-to-face. If anything, sabotage gets even more intriguing.”¹¹

As physical places give way to virtual ones, new members can instantly gain access to all of the group’s information. Not surprisingly, traditional patterns of socialization are collapsing as transition stages become more difficult to discern.

Rank

According to tradition, *authority* depends heavily on access to exclusive places that house special knowledge. Elite clubs are obvious locales that demonstrate the power that comes with place. University libraries are another; if you belong to a particular academic club, you have access to its special knowledge that can literally make you an *authority* on a subject.

Indeed, the higher the group is in the hierarchy, the more these socially remote places convey a sense of “mystery and mystification.”

Inaccessibility is a measure of status (or lack thereof). Members jealously guard backstage areas and carefully script performances.

Since the nomadic era, new media have increased the ability of leaders to segregate and isolate information systems. The consequence is that they extend their control. Here again, the electronic era is challenging these bastions of privilege. While it still may cost many thousands of dollars to join the country club, you need only pay your monthly Internet provider fee to enter into conversation with countless numbers of experts anywhere in the world.

Likewise, anyone with a connection to the net and a web browser now can visit thousands of university library home pages without ever registering for a single university course. Yet if that same person shows up at one of these libraries without an official identification card, access would likely be denied.

Another irony of the electronic era is that an anti-status symbol of the past is now an important tool to sustain authority in the future. Typing, once considered the province of the hired help, is a key skill in the electronic world. The effect of broader access to once-exclusive information has been felt nowhere more profoundly than in the upper ranks of hierarchy.

“Under Construction”

Privacy, an archaic feature of groups, remains essential for virtual teams.

Privacy complements openness as individuality complements group cooperation.

In general, virtual teams face more hurdles in establishing their identities than do colocated ones. Shared, exclusive information is one way that a team develops a strong identity. For many groups, privacy is essential. Such is the case with Buckman Labs' (see Chapter 3, “Teams”) online research and development discussion area, where patentable products are under development. Privacy is critical.

Corporate borders secure the absolute need for some information exclusivity in the competitive private enterprise system. Membership and privacy are invariably established at the enterprise level. There, an account on the corporate information system accompanies the badge with a picture for access to the physical facilities. At Buckman Laboratories, membership as an associate in practice means an account on the net and passwords to Buckman's online discussion areas. Some of the discussions are open to the entire company; others are restricted.

For decision-making and negotiating tasks, team privacy is essential. Openness to disagreements and an ability to tolerate yet manage conflict are at a premium in healthy boundary-crossing groups. Yet these qualities are even harder to foster in a fishbowl. The 10-minute video of SunTeams preparing their final presentations for the competition in San Francisco contains several amusing scenes poking fun at their need for privacy. Teams rehearse in private and present in public.

It is easy to design digital places that combine public and private areas, most simply through passwords and access lists. We have already noted that virtual team boundaries tend to be multilayered. Often they comprise a small core group, an extended team of less-directly involved members, and an even larger network of external partners and tangential people. Companies regularly configure multilevel virtual spaces, like eSun, from which all Sun information flows.

Internet sites allow public access to published information (press releases, annual reports, and the like). Internal intranet areas require authorization with access to plans and interim results. Completely private places are where teams discuss their most sensitive issues, such as new product development, budgets, and personnel.

By creating information places with graduated levels of access, virtual teams more easily and naturally stage the socialization of their members. At Buckman, for example, new associates begin by perusing the generally available information as a way to get to know the group's public persona. Soon they receive passwords that offer access to the regular inside information of the company's work. Later they are invited to join certain discussions with information that is proprietary to the group.

Executive Challenge

The social effect of increased access to information is most dramatic in the shrinkage of hierarchy. It's flattening, but it's not going away. For the most part, middle and supervisory management ranks are dwindling. Executive management is, if anything, becoming more exclusive and remote, a trend symbolized by the steep increase in CEO salaries. For all the personal aversion of many senior managers to computers (a dying generational artifact), the best and most powerful tools of digital technology have always been put at the service of executive information systems. This is not likely to change in virtual organizations.

Executives face the greatest challenge in virtual work. They above all must balance two apparently conflicting needs. On one hand, they must follow a general admonition to share information cooperatively and broadly throughout the organization. On the other hand, they have the strong requirement to protect the privacy of their own deliberations and below-the-waterline information (the disclosure of which might sink the corporate ship).

Paradoxically, at the same time hierarchical *boss-ship* is contracting, virtual teams and networks demand more *leader-ship*, not less. Many leadership roles are changing. Virtual team leaders often act more as coaches than as bosses. They are more likely to lead through influence than through coercion, and they are much more diverse in their sources of power. The behavior of protecting exclusive information from subordinates is sometimes too easily carried into executive team relationships. One unfortunate consequence of too much privacy is a corresponding diminution of cooperative pursuit of overall corporate goals by all the rest of the organization. Getting the right chemistry between public and private is hard.

Project teams are typically virtual, even if unrecognized as such. Usually they blend aspects of vertical leadership structures with horizontal patterns of expertise leadership. Teams need their own identity, socialization processes, and authority (decision-making) structures. Like vertical leaders, horizontally linked leaders of "communities of practice"¹² also need their private places. They, too, exchange peer-related information, debate standards, criticize rules, challenge ortho-

doxy, and otherwise prepare to meet their public leadership tasks. Membership in communities is usually by invitation only, based on expertise and/or roles.

Communities of practice link people with common expertise (such as technical specialties) or similar roles (such as project managers) that address the need for horizontal leadership across virtual teams.

The Future of Place

“Can we sustain growth and performance as a purely virtual network?” This is the question that Paragon Biomedical, which runs clinical trials for major pharmaceutical companies, asks Gensler, the architecture, design, and consulting firm. Paragon’s 150 people work mainly from home offices, “with state-of-the-art laptops, DSL lines at home (where available), and T1 lines into their offices,” says Loree Goffigon, vice president and director, Gensler Consulting.

Gensler responds to Paragon’s question and request for assistance with real estate designed to reinforce collaboration and connectivity. Their recommendations include building “corporate hearths” in each of Paragon’s regions, ideal settings for face-to-face interactions. Now Paragon people can meet, train, and find workspace on demand in key locations, including Irvine, California, the company’s original home.

“Philosophically, the creation of these places is about learning, access, and building community,” says Goffigon. Her firm finds itself working with “a greater number of providers, including technology consultants, ad agencies, and graphic design firms. Our work is happening much more collaboratively and across a broader spectrum of organizational areas because the questions our clients are asking are more comprehensive and systemic.”¹³

Metaphors from the physical world regularly tag the online one. People sitting at computers work on their own desktops while accessing group information on servers at sites. Desktops online may be a metaphor that in

time will seem as quaint as horseless carriages. Regardless, some sense of place—like a site—will persist in the human online experience.

Site is a crossover term. It simultaneously stands for a building (or group of them), a computer or a cluster of machines, and an ephemeral collection of bits in cyberspace, as in a web site. Physical and online sites alike range in size from small to gigantic. At the small end of the scale are physical and online rooms. At the large end of the scale are sprawling corporate campuses like Microsoft's in Redmond, Washington, and vast cyberfacilities like America Online.

The United Nations Development Programme (UNDP) is perhaps the most electronically sophisticated group at the global organization. It uses electronic networking both to carry out its mission—to build more sustainable livelihoods for all—and to encourage more direct individual and community participation worldwide in the UN.

Shortly after the Internet began its phenomenal growth following the invention of the hyperlink and browser, the UN held the Fourth World Congress on Women in Beijing in 1995. John Lawrence (at that time the principal technical adviser at UNDP) and his colleagues “worked from behind the scenes,” he says (echoing Goffman's language), to offer a global window into the event. Supported by the Education Development Center of Newton, Massachusetts,¹⁴ the group “rented an electronic virtual room where anyone could come in to discuss issues that relate directly to agendas raised.” During the summit itself, they scanned relevant documentation on to the Internet site as it became available. Annotated summaries of sessions were available during or just moments after events took place so that anyone anywhere in the world with Internet access could view and react to them.

As teams and organizations expand their presence online, they will continue to create online places that are analogous to the information resources available in physical places. Each organization that goes online invariably creates its own digital place, stocking it with information and products previously available only in physical places. Most often, this is simply a set of shared folders where documents are stored, usually organized by the content of the group's work. Group identity and process information are haphazardly organized and stored, if at all.

People create online places from the ground up. To do so, they use virtual analogs of desktops, rooms, offices, factories, malls, and communities. These and other familiar “place” metaphors serve as the building blocks for local cyberspace. We anticipate these metaphors will rapidly evolve from cartoonlike storefronts and graphical menus to increasingly sophisticated three-dimensional virtual realities that members will walk into and around. As the early computer-game-playing generations of kids grow up, they are incorporating the representational features of game technology into virtual team interfaces. Working in a virtual room is increasingly an *experience*.

Two Places

To operate effectively across boundaries, virtual teams become masters of media. They need to be media-savvy in two very important ways by creating

- *Product places* to prepare and deliver results, such as new products, decisions, reports, and plans.
- *Process places* to run their own organizations, because the actual time the team spends creating, specifying, designing, and managing itself is largely informational work.

Information Age technology products always have occupied a privileged position in the world of virtual work. They benefit from a basic axiom of going virtual.¹⁵

Digitize early and often. Start your results in digital form and keep them digital as long as possible.

The development of products in digital form offers one significant way that virtual teams can go beyond physical-place metaphors. This capability has been slowly developing for the past two decades.

Calypso

One early example of an astonishingly successful global virtual team is the Calypso Project that flourished in Digital Equipment Corporation's mid-1980s. It was in the company's heyday, when it had the world's largest internal network and was selling its popular MicroVAX computers as fast as it could produce them.¹⁶ Through a then-unique process of virtual product development, this team created a revolutionary new minicomputer design. It was so robust that it served as the basis for a major product line, the VAX 6000 series. At the same time, the Calypso team built a production capacity that saw the first machines roll out simultaneously from three plants separated by an ocean. Everything was done in record time, and the project generated \$2 billion in revenues the first year (1980 dollars!) and many billions more in the years following.

From the beginning, Calypso put its whole product design online. Thus it closed the loop on what had been a gradual transition through the 1970s in engineering and manufacturing design from analog to digital processes. The project's most intriguing technology innovation was its product database that contained everything from chip design to the metal "skins" of the machines. The product design itself was the team's "place."

Everyone on the team had access to the whole product database. At the same time, the communications system was designed to notify people only when changes were made in areas that they had previously specified as important to them. Thus, the product itself in its digital form became a highly specialized primary communications medium.

While a computer hardware design eventually must go from bits to atoms as a machine is made, software is a pure product of the digital age. Software is a truly ephemeral thing that naturally lives in virtual space. Software teams have always been at the leading edge of virtual work. Two key factors genetically code them for success. First, they have a commonly accessible online product focal point for their interdependent tasks. Second, they tend to have the necessary computer technology for communicating easily across boundaries. In our experience, the weakness of distributed software teams usually lies in their people and organizational issues, not in access to their common product or the availability of technology.

Some software efforts are not only broad in scope and complexity, but require agreements of a larger community to be useful. Such was the case with the late-1990s sudden appearance and stunningly rapid development of the open source Linux operating system. This was not the first time a community has created a product.

One early very successful Internet-based global software project was the distributed community that developed the Ada language. Military and other applications that require very fast real-time data processing for systems such as the Boeing 747 use Ada. Beginning in the mid-1970s, a core group of a half-dozen people engaged with a larger set of 100 key contributors in 20 countries. Together, they carried on a complex set of technical conversations over DARPA NET, the military forerunner to the Internet. Over the multiyear course of the project's development, the conversation volume grew to 10,000 comments.¹⁷

Using your product as the lodestone for place does not have to be big and complicated. It can be as simple as a memo or report. At the University of Texas, Kathleen Knoll and Sirkka Jarvenpaa conducted studies of virtual teams who had never met yet who were asked to produce common products. They analyzed data from 19 teams numbering from three to seven graduate students each at 13 different universities in nine countries who used only e-mail to communicate.¹⁸ The best predictor of success for these extreme teams seemed to be a decision "during or soon after brainstorming, to work from a common document summarized from everyone's comments. This process seems to help the teams collaborate."

Teams that produced common documents early in the process generally communicated more frequently. They also had more consistent and even participation, showed less conflict, and evinced more satisfaction in the project. Finally, they demonstrated a "greater sense of team," meaning that they communicated "feelings, context, sensory information, roles, and identity."

Process Rooms

"War rooms" are one device that teams use to dive deep into a project and complete it.

Imagine instead “process rooms” on the web that bring people into virtual work. Here you can grow the intelligence of the team as people collaborate over time. Process rooms are where backstage interactions can occur and where you can share private information for the team. Though public web places have dominated early online development, we expect that private places on the web that persist over time will be the dominant experience of the future.

Process rooms are for both real-time team meetings and ongoing asynchronous storage, recall, and reuse of shared information. The room grows from an empty space at the start of a team’s life to become progressively more organized and customized by the actions of the team itself as it molds the space to its particular needs. The team lives in the pulse of events that unfolds through its unique journey.

As a whole, a virtual team room provides an anchor point of reference for the workings of a coherent small group of people. It provides an inside and outside, an online social container with a boundary. While logins and passwords control the experience of access to secret information, they also provide an associated sense of security that the place is a safe space. Safe space is a very important design consideration and an underlying foundation for the establishment of trust virtually.

It is vital to create processes of orientation and training to induct people into the common place (group). Informal hints, tips, and suggestions can be found in an expanding set of online conversations. It is a major challenge for today’s time-deprived fast-cycle teams to create appropriate rites of passage.

Physical places embody the traditional means for transmitting group culture. Teams have historically spent *time* in places structured by *length*, *width*, and *depth*. Virtual teams are spending *time* in cyber-places structured by *people*, *purpose*, and *links*—the subjects of the next four chapters.