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Collaboration, Teams, and the Group IQ

None of us are as smart as all of us.

—Japanese proverb

It was a seminal moment in the early history of Silicon Valley. At a 1982 meeting of the Silicon Valley Computer Club, with hundreds of engineers packing the room, a writer for the *San Jose Mercury* asked the assembly, "How many of you plan to start your own companies?"

Two out of three hands shot up.¹

Since then thousands of companies, including Silicon Graphics, Oracle, and Cisco Systems, have popped up. The common theme of all these enterprises is the conviction that a great idea or innovative technology can make a difference. But there is something else that's needed if a great idea is to become the seed of a great business: collaboration.

The quest for superb teams represents a modern grail of sorts for business. "In the world today there's plenty of technology, plenty of entrepreneurs, plenty of money, plenty of venture capital. What's in short supply is great teams." So says John Doerr, a legendary Silicon Valley venture capitalist who has backed industry-changing start-ups from Lotus and Compaq to Genentech and Netscape.²

Doerr's company, Kleiner Perkins Caulfield and Byers, gets twenty-five hundred business plans each year from hopeful entrepreneurs. Of these, they pick about a hundred to consider seriously, and they invest in about twenty-five. Says Doerr, "A team thinks it's selling us on the technology and the product or service. But actually we're thinking about *them*—the team mem-

bers. We want to understand who they are, how they will work together." During his meetings with prospective start-ups, he probes the group's dynamic: how they might manage themselves, agree on priorities, measure whether they're doing their jobs well, handle someone who isn't working out. "I'm checking their instincts, their navigation system, their values."

Crucial to such a team is the right mix of intelligence and expertise—or what Doerr calls "really smart people"—and (though he doesn't use the phrase) emotional intelligence. Doerr cautions the two must be balanced—not all brilliance and experience, nor just drive, energy, and passion. "Getting that mix right is the difference between ventures that achieve greatness and start-ups that are merely successful, or worse."

Survival of the Social

Humans are the primordial team players: Our uniquely complex social relationships have been a crucial survival advantage. Our extraordinarily sophisticated talent for cooperation culminates in the modern organization.

Some evolutionary thinkers see the key moment for the emergence of interpersonal skills as the point when our ancestors moved from treetops to life on the broad savannas—when social coordination in hunting and gathering paid huge dividends. Learning the essential skills for survival meant children needed "schooling" in that critical period, up to age fifteen or so, during which the human brain becomes anatomically mature. Cooperation provided this advantage, and with it came a complex social system—and a new challenge to human intelligence.³

This view of the crucial role of cooperation in evolution is part of a radical rethinking of just what the famous phrase "survival of the fittest" means.⁴ In the late nineteenth century social Darwinists seized on that phrase to argue that "fitness" meant the strong and ruthless would inevitably triumph over the weak. They used that as a rationale to celebrate unbridled competition and to ignore the plight of the poor and disenfranchised.

Today that idea has been overturned in evolutionary theory by the simple insight that evolutionary fitness is measured not by toughness, but by reproductive success: how many of one's children survive to pass on one's genes to future generations. That genetic legacy is the true sense of "survival" in evolution.

From that perspective, the *group* working together—foraging for food,

nurturing children, fending off predators—has been the key to human survival, not the ruthlessness of lone rogues. And, indeed, Darwin himself first proposed that human groups whose members were ready to work together for the common good survived better and had more offspring than those whose members were self-serving, or those who were not part of any group at all.

Even today the benefits of a close-knit band are evident in the few remaining human groups that subsist as hunters and gatherers, the mode of living throughout the millions of years during which our brain took on its present architecture. In such groups, one of the main determinants of children's health is whether they have a living grandmother or other elderly relative who can supplement the mother and father's efforts to garner food.⁵

One modern legacy of this past is the radar for friendliness and cooperation most of us have; people gravitate to those who show signs of these qualities. We also have a strong early-warning system that alerts us to someone who may be selfish or untrustworthy. An experiment at Cornell University had groups of strangers mix and meet for thirty minutes and then rate each other on how selfish or cooperative the others were. Those ratings held up when compared with how the people actually performed in a game where they could choose selfish or cooperative strategies for winning. Likewise, people are drawn to others who are as cooperative and friendly as they are; groups made up of cooperative strangers are as altruistic and helpful to each other as are members of the same family.⁶

Socializing Shapes the Brain

One great anatomical legacy of the human need to band together is the neocortex, the brain's topmost layers, which gives us the capacity to think.

The adaptive challenges that matter most to the survival of a species are what lead to evolutionary changes in that species. Operating in a coordinated band—whether it be a working corporate team or a roving group of protohumans—demands a high level of social intelligence, skill in reading and handling relationships. If the more socially intelligent have the greatest number of surviving offspring—and therefore are the most “fit”—then nature would select for changes in the human brain that better handle the complexities of living in groups.⁷ In evolution, as today, group members had to balance the advantages of cooperation in fending off enemies, hunting and

foraging, and caring for children with the disadvantages of competition within the group for food, mates, or other limited resources, particularly in times of scarcity. Add to that having to compute hierarchies of dominance, social and kinship obligations, and quid pro quo exchanges, and the result was a staggeringly large amount of social data to track and use well.

Therein lies the evolutionary pressure to develop a “thinking brain” with the capacity to make all these social connections instantly. In the animal kingdom, only mammals have a neocortex at all. Among primates (including us humans), the ratio of neocortex to total brain volume increases in direct proportion to the size of the group typical of that species.⁸ For early humans, that group could number in the dozens or hundreds (and in today's organizational life it can be in the thousands).

In this view, social intelligence made its appearance well before the emergence of rational thought; the abstract thinking abilities of the human species piggybacked later onto a neocortex that had initially expanded to deal with the immediate interpersonal world.⁹ The neocortex, however, evolved from more ancient structures in the emotional brain, like the amygdala, and so is heavily laced with circuitry for emotion.

The neocortex, with its sophisticated understanding of group dynamics, must interpret its data in attunement with emotional signals. Indeed, every mental act of recognition (“That's a chair”) has embedded within it an emotional reaction (“... and I don't like it”).

This same brain circuitry lets us know immediately, for instance, whom among those standing near us in an elevator we should greet and whom not (“The boss looks like she's in a bad mood today—I think I won't bother her”). And it forges every detail of the cooperative working relationships that are the key to survival in today's organizations.

Even as we pass the driest information back and forth, our neural monitors for emotional nuance are reading innumerable tacit cues—tone of voice, choice of words, subtleties of posture, gesture, timing—for the textured messages that give that information its emotional context. These emotional signals have the power to keep the conversation—or the group—on track or not. Smooth coordination depends on this emotional channel as much as on the explicit, rational content of what is said and done.

The Art of Collaboration

John Seely Brown, chief scientist at Xerox Corporation and a cognitive theorist himself, points out that the crucial nature of social coordination is perhaps nowhere more evident than in today's scientific enterprises, where cutting-edge knowledge grows through orchestrated, collaborative efforts.

Brown explains, "Many theorists think of learning from a purely cognitive viewpoint, but if you ask successful people to reflect on how they learned what they currently know, they'll tell you: 'We learned most all we know from and with each other.' That takes social intelligence, not just cognitive ability. Many people have trouble because they don't understand how you become part of a human situation, part of a relationship. It's easy to focus on cognitive ability and ignore social intelligence. But it's when you bring those together that you can create magic."

At Xerox Corporation's legendary Silicon Valley R&D facility, which Brown directs, he tells me, "Everything is done collaboratively, like everywhere in today's high-tech world. There are no lone geniuses anywhere. Even Thomas Edison was a brilliant knowledge manager. We traffic in human capital; ideas don't come from a lone head, but from collaboration in a deep sense."

Social intelligence matters immensely for success in a world where work—especially research and development—is done in teams. "One of the most important skills in management is the ability to read the human context, to be aware of what's in play," says Brown. "Power in management is the ability to make things happen. But how do you let the world do some of the work for you? It takes what amounts to organizational judo—being able to read the situation, the human currents, and move accordingly. The more we operate in less controlled environments, the more we need to be able to read human energies."

Brown continues, "There are some people who are blind to the dynamics of a group. I'll walk out of a meeting with one researcher, and he won't have a clue about what went on, while another researcher will have read the dynamics in the room perfectly: knowing when to step in, how to put things, what matters. That person can carry ideas beyond work out into the world."

The art of "making an impact through people," Brown adds, "is the ability to pull people together, to attract colleagues to the work, to create the critical mass for research. Then, once you've done that, there's the next question: How do you engage the rest of the corporation? And then, how do you get the message out and convert the rest of the world? To communicate is

not just a matter of pushing information at another person. It's creating an experience, to engage their gut—and that's an emotional skill."

Team Advantage: The Group Mind

In today's workplace, this is a fundamental fact: Each of us has only a part of the information or expertise we need to get our jobs done. Robert Kelley, of Carnegie-Mellon University, has been asking people working at a wide variety of companies the same question for many years: What percentage of the knowledge you need to do your job is stored in your own mind?

In 1986 the answer was typically about 75 percent. But by 1997 the percentage had slid to between 15 and 20 percent.¹⁰ This no doubt reflects the explosive growth of information. More knowledge has been generated in the twentieth century, it is said, than in all of history before, and the rate of increase continues to accelerate as we enter the twenty-first.

Given this fact, the network or team of people to whom we can reach out for information and expertise is increasingly vital. We've come to depend on the group mind as never before.

"My intelligence does not stop at my skin" is how Howard Gardner, the influential Harvard theorist, puts it. Rather, he points out, it encompasses his tools, such as his computer and its databases, and, just as important, "my network of associates—office mates, professional colleagues, others whom I can phone or to whom I can dispatch electronic messages."¹¹

There's no doubt the group mind can be far more intelligent than the individual; the scientific data on this point is overwhelming. In one experiment, students studied and worked in groups while taking a college course. For their final exam, they first took a portion of the exam individually. Then, after they turned in their answer sheets, they were given an additional set of questions to answer as a group.

Results from hundreds of groups showed that 97 percent of the time the group scores were higher than those of the best individuals.¹² This same effect has been found over and over again, even for extremely short-lived groups, ones that were formed solely for the purposes of an experiment. When teams of strangers listen to a narrative about the ups and downs of someone's career, the more people on the team, the better their collective memory: Three people did better than two, four better than three, and so on.¹³

"As a math major, I believed that the whole is equal to the sum of its parts—until I worked with teams," Chuck Noll, the legendary former coach

of the Pittsburgh Steelers, told me. "Then when I became a coach I saw the whole is never the sum of its parts—it's greater or lesser, depending on how well the individuals work together."

Lubricating the mechanisms of the group mind so that it can think and act brilliantly demands emotional intelligence. Superb intellect and technical talents alone do not make people great team members.

That was shown in a compelling series of experiments at a business school at Cambridge University. Researchers there put together 120 simulated management teams to make decisions for a mock business. Some of the teams were composed entirely of people who were highly intelligent. But despite this obvious advantage, the high-IQ teams performed worse than other teams whose members were not all so brilliant.¹⁴ And observation of the teams in action tells why: High-IQ members spent too much of their time in competitive debate, and the debating became an unending session of academic showmanship.

Another weakness of the high-IQ teams was that all the members opted for the same kind of task: applying their critical abilities to the intellectually intriguing parts of the job at hand, engaging in analysis and counteranalysis. No one got around to other necessary parts of the job: planning, collecting and exchanging practical information, keeping track of what had been learned, coordinating a plan of action. Everyone was so busy trying to be the intellectual star that the team flopped.

The Group IQ

They're lost on a desert, the sun beating down mercilessly, mirages shimmering, not a recognizable landmark in sight. Their water is running low, and they have no compass or map. Their only hope is to set out in search of rescue—but their supplies are too heavy. They have to choose what to take and what to leave in order to survive.

It's a life-and-death scenario, but not life-threatening—it's a simulation used to test the teamwork skills of participants. The scenario allows each person to be rated on his or her individual choices, and for those choices to be compared to those made by the group as a whole.

The conclusion, from hundreds and hundreds of trials, is that groups fall into one of three performance levels. At the worst, frictions within the group make it fail as a team, with performance that is *poorer* than the average individual score. When the team works reasonably well, the group score will

be greater than the *average* individual score. But when the team has real synergy, its score far exceeds even the *best* individual score.

For example, in terms of technical expertise and experience, the members of the management team at the auto division of one of Europe's largest automakers outmatched those on the equivalent team in the truck division. Yet the management group for the truck division operated better as a team.

"It made no sense when you looked at the profiles and backgrounds of the individuals in the truck division—you'd think they would be mediocre compared to that other team," the management consultant who worked with the teams told me. "Yet when they operated as a unit, they were superb."

What makes a team perform better than the best person on it? That question is key. Outstanding team performance raises the "group IQ"—the sum total of the best talents of each member on a team, contributed to their fullest.¹⁵ When teams operate at their best, the results can be more than simply additive—they can be *multiplicative*, with the best talents of one person catalyzing the best of another and another, to produce results far beyond what any one person might have done. The explanation of this aspect of team performance lies in the members' *relationships*—in the chemistry between members.

In a classic study of group IQ by Wendy Williams and Robert Sternberg at Yale, the interpersonal skills and compatibility of the group members emerged as key to their performance (a result found time and again).¹⁶ Williams and Sternberg found that those who were socially inept, out of tune with others' feelings, were a drag on the whole effort—especially if they lacked the ability to resolve differences or communicate effectively. Having at least one high-IQ member was essential for good performance but not sufficient; the group had to click in other ways, too. Another potential liability was the "eager beaver," a member who was too controlling or domineering to allow the full contribution of the others.

Motivation mattered greatly. If members cared and were committed to the goals, they tried harder and so did better. All in all, the *social* effectiveness of the group predicted how well it would do, more than did the individual IQs of its members. The conclusion: Groups perform better when they foster a state of internal harmony. Such groups leverage the full talent of their members.

A study of sixty work teams in a large American financial services company found that many elements mattered to some extent for the teams' effectiveness. But the single dimension that mattered most was the human element—how members interacted with each other and those the team connected with.¹⁷

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Several competencies of star performers are rooted in the basic human talents for social coordination:

- *Building bonds*: Nurturing instrumental relationships
- *Collaboration and cooperation*: Working with others toward shared goals
- *Team capabilities*: Creating synergy in working toward group goals

■ BUILDING BONDS ■

Nurturing Instrumental Relationships

People with this competence

- Cultivate and maintain extensive informal networks
- Seek out relationships that are mutually beneficial
- Build rapport and keep others in the loop
- Make and maintain personal friendships among work associates

Jeffrey Katzenberg is furiously making connections. Three headset-wearing secretaries function as his antennae, probing and searching the entertainment industry for his next point of contact—incessantly ringing people to arrange times, calling back to reschedule or with a reminder of the upcoming call—all so that Katzenberg can be continuously on the phone during any and all free moments, reaching out to the hundreds of people he stays in touch with as a matter of routine.¹⁸

Katzenberg, one of the three founders of the Hollywood creative company Dreamworks SKG, is a networker without equal. The motive for his manic flurries of calls is, mainly, just to stay in touch—not explicitly to “do

business.” But his telephone routine primes these relationships, keeping them fresh, so that when the business need comes along, he can call on them seamlessly: make a proposal, pin down a deal.

In the entertainment industry, relationships are the key to doing business, because the projects—a film, a TV series, an interactive CD-ROM—are all short-term, goal-focused, and time-limited. They require knitting together an instant organization, a pseudofamily of director, producers, actors, and production people, all of whom dissolve back at the end into a loose network of potential players. Katzenberg keeps a weblike thread of connection out to everyone so that he can reel them in as needed.

This talent for connecting epitomizes stars in almost every kind of job. For instance, studies of outstanding performers in fields like engineering, computer science, biotechnology, and other “knowledge work” fields find the building and maintenance of networks crucial for success.¹⁹ Even in fields like technology, the networks are linked the old-fashioned way, face-to-face and by phone, as well as through e-mail.

But what cements a connection is not physical proximity (though it helps) so much as *psychological* proximity. The people we get along with, trust, feel simpatico with, are the strongest links in our networks.

The networks of top performers are not random; they are carefully chosen, with each person being included because of a particular expertise or excellence. These networks traffic expertise and information back and forth in an artful, ongoing give-and-take. Each member of a network represents an immediately available extension of knowledge or expertise, accessible with a single phone call.

People who work a network well also have an immense time advantage over those who have to use broader, more general sources of information to find answers. One estimate indicates that for every hour a star puts into seeking answers through a network, an average person spends three to five hours gathering the same information.²⁰

The Art of Networking

Weblike connectivity is the secret of success in many industries where people spend less of their careers in a single organization and more in short-lived, high-intensity relationships. Entertainment is certainly one such field. But this pattern, some predict, will come to typify many or most fields in the years to come. In such a fluid reality, where virtual organizations form

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to do projects, then dissolve once the project is complete, the key to success is not whom you have worked *for* but whom you have worked *with*—and whom you are still in touch with.

The electronics industry offers a case study in the crucial role of human networks in entrepreneurship. One estimate of the growth in value of the personal computer industry from 1981 to 1990 puts it going from virtually nothing to nearly \$100 billion—an immense accumulation of wealth spurred by the alliances forged between enterprising technical wizards and equally enterprising venture capitalists.²¹ Two thirds of high-tech firms were backed by venture capitalists, a breed of investors that has had a symbiotic relationship with America's high-tech industry since its earliest days, long before banks, let alone financial markets, would invest a penny.

Venture capitalists in Silicon Valley do far more than just spot a promising idea and put money into the start-up—they stay involved with the company they invest in. Their involvement typically includes giving the fledgling company access to the people they know in management, finance, and the high-tech industry itself, and even helping recruit key talent.

For example, just about all of the start-ups funded by the venture capital firm of Kleiner Perkins Caulfield and Byers were sent to them by someone they knew and trusted. John Doerr, a lead partner at the firm, talks about this rich web of relationships this way: "Think of Silicon Valley as an effective system for getting people, projects, and capital together." Such a system of connections can spawn vast wealth—and the absence of such a system can take a dire toll, especially during hard times.

Social Networks, Personal Capital

It was the 1980s on Wall Street, when just about anything went. He was only twenty-four, yet he managed a \$3 billion money market fund, and his earnings were spectacular. But his investments were almost entirely in junk bonds, and the fund lost virtually all its value in the crash of October 1987. He lost his job.

"That was when he learned relationships are everything in business," his wife tells me. "There was no one there to protect him. He had gotten so cocky and full of himself, he hadn't bothered to cultivate the kind of friendships that might have led someone to say, 'Let's keep him.' Then, when he tried to look for a new job, he didn't know anyone who would help him find something at another company."

After six months—and five hundred fruitless phone calls—he finally landed another, far less prestigious job, from which he began to work his way up the ladder again. But his basic attitude has changed.

"Now he's the president of his local professional society, and he knows all the other key people in the business," his wife says. "The question we ask ourselves is, If he lost his job tomorrow, how many phone calls would it take for him to get a new job? Today it would take just one."

Networks of personal contacts are a kind of personal capital. Doing well in our jobs depends to a greater or lesser extent on the work of a web of others. As one executive put it, while it may *seem* that he has control over how well he does his job, "in reality, in addition to my direct subordinates, there are hundreds of people whom I have no direct control over but who can affect the performance of my job. At least two dozen of these people are crucial."²²

One of the virtues of building relationships is the reservoir of goodwill and trust that arises. Highly effective managers are adept at cultivating such relationships, whereas less effective managers generally fail to do so.²³ This is particularly crucial for advancement from the lower rungs of an organization to the higher levels; these human links are the routes through which people come to be known for their abilities.

These networks may be quite distinct from the web of friendships we cultivate primarily for pleasure. Relationship building has a motive; these are friendships with a purpose. People skilled at networking often mix their private life and their work life, so that many or most of their personal friendships are made through work, though it takes clarity and discipline to keep work and private agendas from becoming entangled.

People who are shy, introverted, or reclusive are, of course, poor at cultivating such relationships. And people who merely accept the invitations they are extended but make none themselves or restrict their conversation to work matters do little to enlarge their web of relationships.

Another common failing is that people are too protective of their own work time and agendas, turning down requests to help or to work cooperatively; the result is often resentment and a stunted network. But people who can't say no whenever anyone makes a request of them are in danger of taking on so much that their own work suffers. Outstanding performers are able to balance their own critical work with carefully chosen favors, building accounts of goodwill with people who may become crucial resources down the line.²⁴

Rapport building is central to developing strong, useful relationships. Rapport hinges on empathy and typically emerges naturally in the course of

casual conversation about family, sports, children, and the stuff of life. Finally, the building of a close work friendship means establishing an alliance, a relationship that can be counted on. Those highly adept at relationship building, like Katzenberg or Doerr, can call on an extensive—and ever-expanding—network of friends.

Bring In the Relationship Managers

Marks & Spencer, the huge British retail chain, gives an unusual gift to its regular suppliers: a special key card that lets them into the chain's head offices anytime. Although they still have to make appointments, the key card makes them feel like members of the Marks & Spencer family.

That is exactly the point. The key card is part of an intentional effort by Marks & Spencer to nurture a relationship of trust and cooperation with its suppliers. That effort also includes trips with suppliers to trade shows and to other countries to visit sources of raw materials. The goal: to strengthen mutual understanding, as well as to spot new possibilities for products they can develop jointly.

The Marks & Spencer program exemplifies a trend among suppliers and retailers to build collaborative relationships, rather than simply playing one potential partner against another. That cooperative strategy has tangible payoffs: An analysis of 218 retailers carrying the products of a replacement auto parts manufacturer showed those retailers who trusted the manufacturer, compared to those who distrusted it, were 22 percent less likely to have alternative sources of supply, and to have 78 percent higher sales of the products.²⁵

While links between such large organizations may seem abstract, they boil down to the day-to-day connections of sales reps, account managers, product managers, and the like. These people-to-people coalitions across companies have concrete benefits for both sides: They can share mutually important proprietary information and allocate people and resources to customize business. Those from one company can sometimes act as de facto consultants for another. For example, a sales team from Kraft Foods took it on itself to do a six-month study of a retailer's dairy case. The Kraft team then came up with recommendations for reorganizing shelf space and stocking new items that reflect recent buying trends. The result: Sales for the retailer—and of Kraft products to that retailer—increased by about 22 percent.²⁶

Another example: Procter & Gamble used to pay its sales managers on the basis of the total amount of inventory they got retailers to take, even if that inventory ended up back in the warehouse. But that meant P&G salespeople were rewarded for a strategy that, in the end, hurt retailers and eroded business relationships. Now P&G has shifted its policy to compensate its salespeople for maximizing *both* P&G's results and those of the stores that sell its products.

Since a company-to-company relationship is nothing more than the ties between the people from each, the interpersonal chemistry is crucial. For that reason, Sherwin-Williams, the paint manufacturer, actually invites managers from Sears, Roebuck, one of its main retailers, to help choose the representatives who will handle the Sears account.

As Nirmalya Kumar, writing about this approach in the *Harvard Business Review*, put it, "The trust game has implications for the type of people that a company recruits to work with [its] partners. . . . Traditional manufacturers, salespeople, and retail buyers have had a volume or price focus. They need to be replaced by *relationship managers* with appropriate bedside manners."²⁷

■ COLLABORATION AND COOPERATION ■

Working with Others Toward Shared Goals

People with this competence

- Balance a focus on task with attention to relationships
- Collaborate, sharing plans, information, and resources
- Promote a friendly, cooperative climate
- Spot and nurture opportunities for collaboration

Intel, the hugely successful computer processor manufacturer, had a paradoxical problem: Its success was, in a sense, killing it. An extremely task-focused organization, the company's concentration on product development,

staying ahead of the curve in creating new technologies, and improving turn-around for new product introduction paid off in huge market share and profit. Yet for too many people, it just wasn't fun anymore.

That, at any rate, is how a consultant to a division at Intel, who was called in for some advice, put it to me.

"They wanted a workshop on how to attend to the relationship side of their business, because it was becoming increasingly unenjoyable," the consultant told me. "At the personal level they liked each other, but they were so intensely task-oriented, their working relationships were suffering. They needed to let supervisors know it's not enough just to get the job done if you destroy the relationships within the working group. They needed management to appreciate that neglecting the soft side has hard consequences."

This interpersonal crisis at Intel points to the value of a collaborative, cooperative spirit. Groups that have fun together—who enjoy being in each other's company, who can joke together and share good times—have the emotional capital not just to excel in good times, but to get through hard times as well. Groups who do not share this emotional bond are more likely to become paralyzed or dysfunctional or to disintegrate under pressure.

Even those who subscribe to the tough-minded business-is-war ideology and see no point in cultivating a humane tone may do well to ponder the immense effort put into cultivating esprit de corps at the platoon level in armies. The sophisticated understanding of what makes a unit work well under extraordinary pressures has always been that emotional bonds are crucial to morale, effectiveness, and the unit's very survival.

The Organizational Marriage

Everyone knew the meeting was a personal disaster for Al, a fledgling vice president at a large urban medical center. To be sure, all agreed the meeting was for a good purpose: to create a vision and strategy for a failing community program Al had been brought in to run. But Al sabotaged both himself and the meeting. As he admitted afterward, "I got my behind kicked."

Al's first mistake was calling the meeting of the hospital's already over-scheduled senior management group on too short notice, selecting a day when he knew the VP of the nursing unit—someone with a crucial contribution—was usually out of the hospital. The consultant to the management team also couldn't make it. Al's second mistake was failing to offer a pre-meeting briefing or preparation of any kind—he was winging it, even though

this was his debut as a new vice president. His third and perhaps biggest mistake was to rebuff an offer from Sarah, his boss and the president of the medical center, to help design a meeting that would be lively and more effective.

As the meeting unfolded it was painfully evident to everyone that Al was unprepared and flustered, and those who came felt the session was a waste of their time. Sarah felt Al's disastrous performance reflected poorly on her judgment in bringing him into the job.

What went so wrong?

James Krantz, a professor at the Yale School of Organization and Management, who observed Al and Sarah on the job, says the failed meeting was yet another symptom of something deeply amiss in their working relationship.²⁴ With surprising rapidity, they had settled into a pattern that brought out the worst in each other. Privately, Al admitted to feeling that Sarah was overbearing and hypercritical of him, chronically dissatisfied with whatever he did; Sarah said Al seemed passive, inept, and sullen with her. At the emotional level, the two of them acted and looked like a couple trapped in a miserable marriage—except that this was work, not private life.

But, Krantz observes, it could happen anywhere—and with alarming ease. Any superior and subordinate can slip into a destructive emotional dynamic, because each needs the other in order to succeed. A subordinate can make a boss seem effective—or pathetic—to the boss's own boss, since the superior is accountable for how well the subordinate does. And, of course, the subordinate depends on the superior for promotions, raises, and simply keeping a job—all of which makes the subordinate emotionally vulnerable to the boss.

Therein lies the blessing or the curse. This interdependence ties a subordinate and superior together in a way that can become highly charged. If both do well emotionally—if they form a relationship of trust and rapport, understanding and inspired effort—their performance will shine. But if things go emotionally awry, the relationship can become a nightmare and their performance a series of minor and major disasters.

The Vertical Couple

The power of a subordinate to make a boss look good to *her* boss is, potentially, tremendous. But for Sarah, Al had become a magnet for some of her deepest anxieties about her own performance. She was embarrassed by the failure of the program Al had been brought in to run—she felt it re-

flected poorly on her own abilities as president and threatened her professional reputation. She now doubted Al's ability to save the unit—and thus her reputation—and so was angry about his performance.

Al, for his part, had been perfectly capable at his previous job, but the promotion to vice president left him unsure of himself. He feared the others on the management team would see him as incompetent; at his worst moments, he felt like an impostor. And, to make everything worse, Al sensed Sarah's lack of confidence in him, which only compounded his anxieties and his ineptitude.

Each secretly felt the other was the cause of their problems: Al saw Sarah as undermining his confidence by being overly controlling as well as doubting his competence. Sarah, for her part, had started to see Al (just as he feared) as lacking both the confidence and competence to do the job she needed him to do, and so she felt obliged to be responsible, even aggressive, for both of them. The result was a downward spiral in which Al became more passive, unsure, and inept, and Sarah micromanaged, becoming more critical and controlling, finally trying to do Al's job for him.

Krantz invokes a ponderous term for this dynamic between Sarah and Al: "projective identification." Each of them projected onto the other their worst fears and doubts in an emotional self-fulfilling prophecy.²⁹ Any close working relationship can take on such hidden undertones, though the one between a boss and subordinate is most prone to such emotional sabotage.

These unconscious agreements serve a rather sinister psychological function: They keep people from facing or even recognizing problems, bad news, or conflicts. If a boss can blame some defect of his own—and the resulting problems in the organization—on a subordinate, then he never needs to face the real source of trouble: himself. One symptom of this kind of projection—"the problem is with him, not me"—is a boss who can never find or name a replacement, even as retirement looms. No one is good enough; every candidate has fatal flaws.

Kiss Up, Kick Down

Sycophancy by subordinates, and a corresponding arrogance in the superior, is another all-too-common symptom of projection. The subordinates see the boss as having special power or ability; the boss buys into the projections and his sense of himself becomes inflated to the point where he feels the rules of decency no longer apply.

This pattern seems particularly common in some cultures. I'm told by Deepak Sethi, an expert in executive education, that in India, his country of origin, the rule is "Kiss up and kick down." As Sethi says, "There's a lack of empathy downward in most old-style Indian companies. You see it in bosses who are openly angry at people. There's no stigma to it; it's completely acceptable to yell at your subordinates there."

A major reason subordinates put up with it, Sethi says, is that so many Indian companies are privately held by powerful families, and there are many more highly qualified people than there are good jobs available. "So even if you're a professional manager, you're at the mercy of the owners."

An understandable result of the kiss-up-kick-down relationship is a large pool of resentment "that's never expressed upward, but passed on downward, in a chain of angry rudeness." This leads workers to sabotage the company's success in passive ways, like not getting things done on time—which, of course, makes the boss yell at everyone all over again.

That bitter cycle echoes the stalemate between Sarah and Al: Sarah felt she couldn't trust Al to do his job well enough, so she kept pushing him to do tasks while hovering over him, expecting the worst. This, in turn, made Al feel demeaned—and undermined his abilities.

The saga of Sarah and Al, fortunately, had a happy resolution. Sarah was acutely aware that something was off track in her relationship with Al, if only because it stood in such stark contrast to the effective ties she had to everyone else on the management team. Once the diagnosis was made, Sarah was able to stop micromanaging and show Al that she had some faith in his capabilities. She also clarified his responsibilities. No longer shadowed by the fear that she saw him as unfit for his job, Al was now able to take initiative and show his competence.

Their story is one with wide implications. Virtually everyone who has a superior is part of at least one vertical "couple"; every boss forms such a bond with each subordinate. Such vertical couples are a basic unit of organizational life, something akin to human molecules that interact to form the latticework of relationship that *is* the organization. And while vertical couples have all the emotional overlay that power and compliance bring to a relationship, peer couples—our relationships with coworkers—have a parallel emotional component, something akin to the pleasures, jealousies, and rivalries of siblings.

If there is anywhere emotional intelligence needs to enter an organization, it is at this most basic level. Building collaborative and fruitful relationships begins with the couples we are a part of at work. Bringing emotional

intelligence to a working relationship can pitch it toward the evolving, creative, mutually engaging end of the continuum; failing to do so heightens the risk of a downward drift toward rigidity, stalemate, and failure.

■ TEAM CAPABILITIES ■

Creating Group Synergy in Pursuing Collective Goals

People with this competence

- Model team qualities like respect, helpfulness, and cooperation
- Draw all members into active and enthusiastic participation
- Build team identity, esprit de corps, and commitment
- Protect the group and its reputation; share credit

Teamwork is of utmost importance to companies like Owens-Corning, a building materials manufacturer, which found itself with about two hundred incompatible software systems, each tailored to a specific task like tracking shingle counts or invoices for insulation. To help their salespeople sell the company's whole line, rather than just insulation or roofing, Owens-Corning needed a single, unified software system.

So Michael Radcliff, their chief information officer, turned to SAP, a German industrial-applications software company, which installed a system at Owens-Corning that connects all the information in the entire operation. When a sales rep sends in an order, the system automatically allocates the raw materials for its manufacture, schedules its production and delivery, and takes care of billing—all with a single data entry.

But there's a risk—the SAP system is notoriously complex, and a small glitch can create company-wide chaos. Owens-Corning—and all SAP's other manufacturing customers worldwide—need to trust that they can rely on SAP to keep them running.³⁰

"Before," an SAP account rep tells me, "I sometimes would have a hard time getting people from other divisions within our company to help me

with a one-two punch—to come together with a unified solution for a customer's problem. After all, if our software goes down, they can't get their product out the door; they need to be assured they can count on us." Hence the formation of teamSAP, the shorthand term for the teams of SAP employees available to all their customers at all times.

Similar teams seem to be everywhere in business these days—management teams, task forces, quality circles, learning groups, self-managed work teams, and so on. And then there are the instant, ad hoc teams called into being over the course of a meeting, or as a short-lived virtual group working together on a one-time project. While people at work have always helped each other out and coordinated their efforts, the ascendance of work teams in large organizations puts a new premium on team skills.

About half the Fortune 1,000 companies in a General Accounting Office survey said they were using self-managed work teams, and expected to expand their use in coming years.³¹ The advantages begin at the personal level—people feel the combination of cooperation and increased autonomy offered by a self-managed work team offers more enjoyment and fulfillment. When teams work well, turnover and absenteeism decline, while productivity tends to rise.³²

Perhaps the most compelling strength of teams for business is their pure economic potential. Just as individuals who are superior performers can add tremendous financial value, so it is with teams. The top work teams at a polyester fiber plant achieved an astonishing productivity advantage when compared to teams doing the exact same work. Each of the top ten teams produced 30 percent more fiber per year—in total, about seven million pounds more.³³ At a market price of \$1.40 per pound, that meant an economic value added of \$9.8 million!

As analyst Lyle Spencer Jr. told me, "There's a huge leverage from better working teams. When you look at the economic value added, it's out of all proportion to the salaries of team members. Data like this give the lie to people who dismiss these competencies or things like team building as 'touchy-feely'—the benefits are quite real."

Spencer adds, benefits from high-performing teams at the top offer even greater payoffs. "At the highest levels, the scope of thinking is bigger—people are projecting five and ten years out—and the economic advantages of a high-performance executive team for a company can be vast."

Strong groups are essential in a climate of corporate upheaval. I visited AT&T in 1996, shortly after it had announced its intention to split into three separate companies and lay off forty thousand employees. An executive in a division that is now part of Lucent Technologies told me: "The pain is not

being felt everywhere. In a lot of the tech units where people work in tight teams, and where they find great meaning in what they do together, they're fairly impervious to the turmoil."

He added, "Whenever there's a strong self-managed team, with clarity about its mission, high standards for its product, and a clear sense of how to do its work, you just don't see fears and uncertainty the way you do in other parts of the organization. Members put their trust in their teammates, not just in the organization or its leaders."

The Team Achievement Drive

A friend who manages a team of software engineers in Silicon Valley tells me, "With a single phone call, any of the people I work with could get a job across town for twenty thousand dollars more a year. But they don't."

Why?

"I keep it fun."

The ability to make everyone on a team love what they are doing together is at the heart of team building and team leadership. Studies of the highest-performing self-managing work groups find that a critical mass of their members love working in a group. This "team achievement" outlook is a combination of a shared competitive drive, strong social bonds, and confidence in each other's abilities. Taken together, these elements add up to what Spencer summarizes as "fast, focused, friendly, self-confident, fun teams."³⁴

People on such teams tend to share a common motivational pattern. They are competitive and evenhanded in matching members to the best role for their talents. They have a strong affiliative need—they like people for their own sake—which makes them more harmonious, better able to handle conflicts and offer mutual support. And rather than seeking power that is purely self-interested, they wield power in the best interests of the group—they share a commitment to the group goal.

These are the kind of teams, Spencer notes, that are increasingly widespread in entrepreneurial high-tech organizations, where quick product development is vital to meeting the competitive pressure of an industry in which the shelf life of a product line is measured in weeks and months.

Just twenty years ago team skills were only threshold abilities, not a trait that defined outstanding leaders. In the 1990s, though, team skills are a defining quality of star performers. At IBM, 80 percent of the time a person's strength as a team leader predicts "whether someone is a top performer

or just average," Mary Fontaine, of Hay/McBer, told me. "These are people who can create compelling visions, conceptualize their business in an exciting way, articulate it simply and emphatically," and so inspire others with enthusiasm in their work together.

In a study by the Center for Creative Leadership of top American and European executives whose careers derailed, the *inability* to build and lead a team was one of the most common reasons for failure.³⁵ Team skills, which had been of little consequence in a similar study in the early 1980s, had emerged as a key mark of leadership ten years later. By the 1990s, teamwork became the most frequently valued managerial competence in studies of organizations around the world.³⁶

"The number one challenge for leadership here is getting the heads of our units to play together, to collaborate," an executive at a Fortune 500 company tells me. That is the great challenge at any level, in any organization. Team abilities come into play anytime people work together toward a common goal, whether in an informal group of three or in an entire corporate division. The demand for team skills will only grow in the coming years, as work revolves more and more around ad hoc groups and virtual organizations, around spontaneous teams that arise and dissolve as the need for them comes and goes—and as tasks become so complex that no one person has all the skills needed to accomplish them.

The Value of Star Teams

As with individuals, so with groups: Emotional intelligence is key to excellence. Of course intellect and expertise matter—but what sets star teams apart has much to do with their emotional competence. Studies at companies like GE, Abbott Laboratories, and Hoechst-Celanese asked: What competencies distinguish highly effective teams from mediocre ones?³⁷

To find that answer, Vanessa Drukat, now a professor at the Weatherhead School of Management at Case Western Reserve University, analyzed 150 self-managed teams at a huge American polyester fiber plant run by Hoechst-Celanese, the German chemical company (and where Spencer's data also came from). On the basis of objective performance data, she compared the ten most outstanding teams with average ones doing the same jobs.

These emotional competencies emerged as distinguishing capabilities of the ten star teams:³⁸

- Empathy, or interpersonal understanding
- Cooperation and a unified effort
- Open communication, setting explicit norms and expectations, and confronting underperforming team members
- A drive to improve, so that the team paid attention to performance feedback and sought to learn to do better
- Self-awareness, in the form of evaluating their strengths and weaknesses as a team
- Initiative and taking a proactive stance toward solving problems
- Self-confidence as a team
- Flexibility in how they went about their collective tasks
- Organizational awareness, in terms of both assessing the need of other key groups in the company and being resourceful in using what the organization had to offer
- Building bonds to other teams

A case in point for how such competencies let teams work better can be seen in a study of strategic decision making in forty-eight top management teams at food-processing companies across the United States. CEOs were asked to identify the most recent strategic decision their company had made. Researchers then contacted the members of the management team who had been involved in that decision.³⁹

Making team decisions presents a paradox: On one hand, the wisdom holds that the more freewheeling and intense the debate, the better the final decision; on the other hand, open conflict can corrode the ability of a team to work together.

Research on decision making in management teams shows that having people who possess the three qualities of high cognitive capabilities, diverse perspectives, and expertise leads to higher-quality decision making. But intellect and expertise are not enough; members also have to mix in a healthy interaction, one that furthers rigorous, open debate and critical examination of people's assumptions.

Achieving this level of openness can be a delicate, emotionally loaded matter. Too easy a consensus risks a low-quality decision, while too much contention results in a lack of unity and resolve. What allows a management

team to argue heatedly but end up with a strong consensus? The presence of emotional intelligence.

And what makes a group go off track, with healthy debate devolving into open war? When disagreement is couched as personal attack, or when debate is in the service of political gamesmanship, or when a dispute triggers acrimony in a group member.

The central finding: If arguments become emotionally loaded, the quality of decisions suffers. As one consultant told me, "The image of the well-coordinated management team is a myth when amygdala hijacks, conflicts, and other undealt-with emotional static interfere with their abilities to plan, decide, and learn together." On the other hand, debate free of bad feelings—carried out in a positive spirit of mutual inquiry, with everyone feeling the process is fair and open, and holding a shared concern for the organization rather than their narrow self-interest—led to the best decisions.

In sum, there is a middle way: Teams can use intellectual battle to upgrade the quality of decisions, provided they keep debates free of the emotionality that might alienate or sabotage commitment to the decision by some team members. The key lies in emotional competencies such as self-awareness, empathy, and communication—that is, in how well team members argue.

The Glue People

The ability to keep a group working well together is a valuable talent in itself. Every high-functioning group almost certainly has at least one member with this talent. The greater the complexity of the group's task, the more crucial such people are to its success. This is most evident in science and technology, where the mission is to discover or create. Take neuroscience: "Biomedical research is increasingly interdisciplinary and high-tech; no one can know everything," says Dr. Jerome Engel, a neurobiologist and professor of neurology who directs the Seizure Disorder Center at UCLA. "It's all research teams now. People who are great motivators and collaborators, who are gifted in making a medical project work, are the glue that holds it all together. The future of research depends on having people like that on your team."

Yet, at least in the academic world, these skills are sadly undervalued. "When people come up for tenure review, the value of their contribution to the group gets no consideration," Dr. Engel adds. "These good collaborators

tend to publish with other people, usually their supervisor, and tenure committees blindly assume it's the superior's work—though these people are key. It's a disaster. I find myself fighting for the reviewers to understand that the collaboration is in itself a skill worth keeping someone for—it's essential to biomedical research. But academics from disciplines like math and history, where research is a solitary pursuit, don't understand."

The result: "There's a counterreaction among younger researchers, who are sometimes afraid to collaborate because of this—which can mean they go off alone and do trivial or unimportant research," says Dr. Engel. "It's creating an atmosphere of paranoia, an unwillingness to share data or work together, that's undermining a scientific generation's ability to collaborate."

Where academia has been slow to recognize the value of a talent for cooperation and teamwork, business has not. Richard Price, a psychologist at the Institute for Social Research at the University of Michigan, calls these superbly nurturing types who are the cornerstone of strong work teams "health-engendering people," or HEPs. "They're crucial to a team," says Price. "It doesn't mean everyone has to be a social-emotional leader, but if one HEP is there, the team will work ten times better."

One legendary team, the engineering group at Data General whose efforts were memorialized in the best-selling book *The Soul of a New Machine*, had two HEPs on board.⁴⁰ The team's second in command, Carl Alsing, was everyone's confidant and emotional support. Alsing, who had planned to be a psychotherapist before heading into electronic engineering, became a group sounding board; everyone felt comfortable talking to him.

The second team nurturer was Rosemarie Seale, their secretary, who acted as a kind of den mother, seeing that everyone's material needs were taken care of and handling the minor crises of the day like a paycheck gone astray, or making sure people joining the team were shown around.⁴¹ While such secretarial tasks may seem routine and mundane, they are crucial because they let people at work feel protected, supported, and cared for—and this, some say, is why secretaries or their equivalent will always be invaluable, despite technologies that would seem to render them obsolete.

The Competent Team Leader

An American pharmaceutical firm had an expensive problem: Once a new drug was identified and patented, testing and development took an investment of around \$100 million and up to thirteen years to get the FDA ap-

proval that allowed marketing. Because the patent on a new drug's basic chemical compound lasts just seventeen years, that gave the company about a four-year window to recoup its investment and turn a profit before the drug became available as a generic.

A task force looking into the dilemma recommended a new structure: project teams focused on specific drugs, headed by project leaders reporting directly to the head of R&D—leaders who would be trained in the team leadership competencies. Such leaders could both be product champions within the company and bring entrepreneurial energy, enthusiasm, and collaboration to the team itself.

When these teams were compared three years later to others where the leaders had no such training, they not only had higher morale and esprit de corps, but had cut product development time by 30 percent, thereby doubling the time the company would have the drug exclusively.⁴²

The designated leader is something like a parent in a family. Like a parent, leaders have to be sure that their actions are perceived by everyone on the team as fair, and, like a parent, a good team leader will look out for the team members, defending them—for example, when their reputation comes under attack—in the organization at large and providing for them by getting the practical support they need, in budgets, personnel, or time.

The best team leaders are able to get everyone to buy into a common sense of mission, goals, and agenda. The ability to articulate a compelling vision that serves as the guiding force for the group may be the single most important contribution of a good team leader. A charismatic leader can hold a team on course when all else fails.

Apart from molding the crucial emotional tone of a team, the leader provides coordination, which is the secret of cooperation and consensus. When people were put together in a leaderless group and told to work on solving a tough problem together, the more effective teams were those that spontaneously developed a structure where one person orchestrated their efforts, so they could solve a tough problem as efficiently as possible. Groups that operated in a leaderless mode, with everyone communicating with everyone else willy-nilly, were less effective.⁴³

But strong team leaders do not act as the group's "brains," or autonomous decision makers, so much as consensus builders. When team leaders express their own opinion too early in a decision-making discussion, the group generates fewer ideas, and so makes poorer decisions. But when team leaders hold back, acting mainly as facilitators of the group's process without imposing their views, not expressing them until toward the end of a discussion, the outcome is a better decision.⁴⁴

In this sense, team leaders lead best when they lead least. This is especially true for self-managed work teams, where the supervisors of the teams are not team members and the teams can perform autonomously.

In a study of self-managing customer service teams at a major American telephone company, the teams faltered when the supervisors gave suggestions and even "encouraging" advice.⁴⁶ The "advice" seems to have been read by the team in two ways: either as a demoralizing message that they were doing poorly and so needed extra help, or as meddling that got in the way of the team doing its best work.

The dynamic was very different in customer service teams that were self-managing but directly run by a supervisor. In these more traditional teams the supervisors' feedback had a positive effect on performance. The difference in the impact of supervisory control seems to revolve around the team's charter. When a team has a mandate to run itself, a supervisor, no matter how well-intentioned, may undermine team performance.⁴⁶ So when it comes to self-managed teams, the best leadership seems to be little or no leadership at all.

The Team and Organizational Politics

They've got these separate silos of authority and creativity, but no one talks across the boundaries," a consultant called in by one of America's largest food manufacturers tells me. "People who handle one brand won't cooperate with people who manage another, let alone try to innovate new products or marketing approaches together. But to stay competitive, they've got to create teams that transcend these boundaries."

Organizations of all kinds have come to the realization that the success of the whole demands that talents be orchestrated in teams that cut across traditional boundaries. This can be seen in ad hoc project teams and teams for planning, improving processes, developing products, and troubleshooting. All such teams are unified around a focused task, with members coming from discrete parts of the organization.

Such cross-functional teams are a special case, a kind of pseudo-team that brings together a mix of people who have their feet in two camps: their home base within the organization and their common meeting point as a team. Because they represent diverse parts of the organization, they have the potential for wider impact and coordination than would a team that is parti-

tioned off. As these teams work together for the larger good of the organization, each member remains beholden to a constituency back home.

But overallegiance to the home base can have disastrous effects for the team. At an American automaker, for example, a cross-functional steering committee working on a new prototype held a meeting to work out their mutual electrical needs. The car's electrical power serves twenty different subsystems, including stereo, dashboard, headlights, and engine. The prototype for each of these subsystems, in turn, was being developed by a separate team, and when they met, they found that their combined solutions would consume 125 percent of the electrical power available. And since many members of the steering team were sent to the meeting with instructions from their own bosses to make *no* compromises, the meeting was a disaster.⁴⁷

How can teams like this do their work effectively? An analysis of forty-three such teams at a global automaker—the same study that tracked the electrical power meeting—suggests several answers. The first lies in the organizational context, in which resources and power are given to the team itself and its members are rewarded based on the team's performance.

Another solution lies in raising the collective level of emotional intelligence. This might include delegating someone as a "process leader," who can track whether the group's work exemplifies collaboration, mutual respect, openness to diverse perspectives, listening, empathy, and the other hallmarks that raise a group's IQ. If the team process is on track, then members should feel the work is exciting, challenging, and important. Lacking these emotional intelligence team basics, the alternative is, as one member of a dysfunctional cross-functional team put it, "a fiasco."

The Team as Hero

The world's attention was captured for several weeks in 1997 by the spectacle of Sojourner, the spunky rover that sputtered along the rock-strewn landscape of Mars.

The television coverage of the tiny rover pluckily threading its way through Mars's jagged terrain like the Little Engine That Could was drama enough. But the real miracle was the remarkable team effort behind getting Sojourner there at all.

The project as originally conceived by NASA was a full-scale explo-

ration of Mars. It suffered a near-fatal setback in 1992, when Congress froze funding, leaving barely enough to build a tiny, scaled-down demo model that had been planned only as a preliminary step in the larger plan.

So the project members were faced with converting what was to have been a nonworking scale model into a fully operational, miniaturized version of the probe.

Anthony Spear, the director of the Pathfinder project that delivered Sojourner, let Donna Shirley, the program manager, model a team on "Skunkworks," the name of the famed R&D team at Lockheed that sequestered itself and produced a stream of pioneering aviation prototypes, from America's first supersonic jet fighter to the Stealth bomber.

Shirley assembled a small, sleek team that would accomplish only the work necessary for the mission. Spear made the team even more efficient by doing away with layers of bureaucracy that had typified past NASA space projects. With the Pathfinder, one group would do everything, from design to operation.

The team shared the whole task, often in creative problem-solving sessions that wore on into the night. These were open forums, where everyone, no matter their ostensible rank, was given an equal hearing.

Though the challenge was daunting, the spirit was playful. Al Sacks, data systems manager, recalls someone asking for more money—yet again. So Sacks pulled a rubber dart gun from under the table and shot his teammate. "This was serious business," says Sacks, "but we turned it into fun."

The team had to be nimble; new challenges and surprises were constant. For instance, as Sojourner was being loaded into the Pathfinder spacecraft that would carry it to Mars, the engineers noticed—during a televised news conference, no less—that the large metal folding petals designed to protect the rover once on Mars were not shutting all the way. They were horrified.

Sending the press home, the team scrambled frantically to find the problem and solve it. Since they had never before put the whole rover together, they had not considered the possibility that the latches that closed the petals would sag under the weight of all the parts.

So team members pulled parts off an engineering model, made slight modifications, hand-carried them from their facility in California to the launch site at Cape Canaveral, and replaced them. It worked.

The team worked around the clock for six months before the launch. What kept everyone on track despite the grueling pace was the grandeur of their goal. Said Bridget Landry, deputy uplink systems engineer, "The idea that what we're building and testing right now will be used when we land on Mars was really exciting. I tried to think of that when the fourth revision in

the last hour for the same sequence came in!" Yet, she added, "There are few jobs that are all glamour and no dirt; the good ones, like mine, are those where the glamour, excitement, and emotional rewards make up for the scut work."

That scut work produced a marvel. The six-wheeled rover had a surprisingly modest brain: While the best Pentium computers have more than five million transistors, there are under seven thousand in the rover's.

And when Sojourner was finally launched, the project was not only a spectacular success, it was also \$7,000 under budget. The team had invented at least twenty-five new devices or processes and had produced a spacecraft in one fourth the usual time. While the Mars Observer, lost in 1991 before reaching the planet, cost \$1 billion, Sojourner was successful and came in at a quarter of that cost.

As one team member says, "It was like we caught fire—nothing could stop us." The Sojourner team was in flow.

Group Flow

When I've asked seasoned executives and managers what it's like when teams they've been on or run have caught fire and outdone themselves—and achieved flow—the same characteristics come up time and again.⁴⁸

■ *A daunting challenge or a noble mission.* "One of the reasons group goals often fail is they're too materialistic," a vice president of space launch systems at Lockheed Martin told me. "I look for superordinancy—goals big enough that the whole group can get behind them." Such work has compelling meaning and motivation; working toward something monumental deserves everyone's best effort.

The late Nobel Prize-winning physicist Richard Feynman remembered how differently people worked on the Manhattan Project before and after they knew what their effort was for. Originally strict security meant the whole team was kept in the dark, so they often worked slowly, and not always very well.

Then Feynman convinced Robert Oppenheimer to tell the team of technicians what they were actually working on—it was during the darkest days of World War II, and their project was a

weapon that might stop the Axis enemy, who were at the time ascendant. From that point on, Feynman recalled, "*Complete transformation. They began to invent ways of doing it better. . .*"¹⁴⁹ He calculated that their work went ten times as fast after they understood the goal.

- *Intense group loyalty.* "When extraordinary teams talk about what made them so successful, you often hear them say it's because they really love and care about each other," says Daniel Kim, cofounder of MIT's Center for Organizational Learning, and now with Pegasus Communications. "If people were honest about what makes great teams in an organization, they'd say part of it is the emotional connections that allow both openness and caring."

- *Diverse range of talents.* The stronger the array of capabilities a team brings to its task, the more flexible it can be in meeting changing demands. Diversity begins with technical demands, but extends also to emotional competence—including a "glue person."

- *Trust and selfless collaboration.* People in successful teams feel they can count on each other. When Bob Taylor assembled the team at Xerox PARC that developed the prototype of the user-friendly computer (eventually the basis for the first Apple computer when Xerox failed to follow through), he looked for people who could work collaboratively, and encouraged everyone to help out with other people's work. "You could spend forty percent of your time working as 'hands' on somebody else's project," recalls Alan Kay, one of the first computer scientists asked to join.

- *Focus and passion.* The demands of meeting a great goal inherently provide focus; the rest of life can seem not just mundane, but trivial by comparison. For the duration, the details of life are on hold. Focus can be sharpened by creating a working space for the group, separate from the rest of the organization, both in function and in place. The Manhattan Project was carried on at top-secret sites accessible only to project members; the Skunkworks at Lockheed was in a windowless, signless building that was off-limits to everyone else at the company.

- *Work that is intrinsically fun and rewarding.* Such intense focus is in itself a kind of high. Members work less for external perks like money, promotion, or prestige than for the inner rewards of

the work itself. Whether that thrill comes from the drive to achieve or a need to make an impact, there is an intense emotional payoff from outdoing all others as part of a group. As a member of the Data General software team put it, "There's a big high in here somewhere for me that I don't fully understand. . . . The reason I work is to win."¹⁵⁰

The Team as Learning Lab: The Five Secrets

Burt Swersey's bright idea came to him when an article I wrote for the *New York Times* back in September 1995 caught his eye. It was about the Bell Labs study in which stars in an engineering division seemed to owe their success more to emotional intelligence skills than to technical ones, and it inspired Swersey to try something new with his engineering students at Rensselaer Polytechnic Institute.

He started his class by telling them about the Bell Labs study and what he called the "five simple secrets of success": rapport, empathy, persuasion, cooperation, and consensus building. And, he announced, instead of spending the first day of class reviewing engineering basics, they would conduct a learning lab on the five secrets.

"How would you go about establishing rapport with someone you don't know?" Swersey asked.

As the class, somewhat baffled and tentative at first, offered suggestions, Swersey listed them on the blackboard: "Introduce yourself, look at the person while you talk, ask them a question about themselves, shake hands, tell them about yourself, listen carefully . . ."

"These sound like the right answers," Swersey told them. "Now pick someone you don't know and take three minutes to establish some rapport."

The students pitched in enthusiastically; the room was filled with their chatter and banter. Swersey had a hard time getting them to stop and focus on the next "secret," the art of being empathic.

Asking them what *empathy* meant, he wrote these answers on the board: "Caring, listening, being supportive . . ." A young man wearing a baseball cap backward, his feet on the desk, muttered, "Showing you give a damn."

"That seems to capture it pretty well," said Swersey. "Now I want you to come up with something in your lives you feel you need some support for, and tell it to your partner. Partners, your job is to empathize." The buzz in the room made it clear that this was going well, too.

So Swersey upped the ante: "Now make up something that directly negatively impacts your partner. If you're the listener, no matter how hard it is to take, resist the temptation to tear the person apart—just be empathic." So the role-playing began and students spun out earnestly enacted, antagonizing tales: "I smashed your car." "I killed your goldfish." "I slept with your girlfriend."

For the empathizers, Swersey insisted they go beyond a stoic "Okay" and put themselves in the shoes of their partner, saying something like, "I feel so bad for you; you must be so upset." That led to a classwide discussion of a more realistic situation: someone on an engineering team who fails to deliver their promised part of a project on time. The students talked about taking the other person's perspective—and began to understand the importance of being supportive rather than angry.

They went on to practice persuasion and consensus building, taking three minutes to decide as a group which was the single best flavor of ice cream in the world, and why (one consensus-building answer: Neapolitan, a combination of three favorite flavors).

The results of this small social experiment?

"These sections turned out to be the best teams I've had in years of teaching Introduction to Engineering Design," says Swersey now. "They not only worked better together than any students I've had, but they produced extremely ambitious, innovative devices. I attribute a good part of their success to the time spent working on the five secrets."

Swersey's humble experiment speaks to a larger problem in organizations, particularly ones that are laden with technical experts. "When I work with companies that have to manage engineers, the main problem in team building is that as a profession, engineers don't view people skills as relevant," Daniel Kim, formerly at MIT, tells me. "Now these companies are waking up to the cost of not having emotional competence."

That awakening can be seen, too, at professional schools like the Harvard Business School and the MIT Sloan School of Management. "These days more of the curriculum is becoming team based," Kim adds. "This is in response to criticism from companies that MBAs have been trained to excel as individuals, but they need to learn how to work well in teams, too."

What many team enthusiasts fail to see is that every team itself can become a learning lab for the very capabilities people need in order to perform better as team members. "Every member of a team brings unique strengths and skills to the group, some technical, some in emotional and social capabilities," observes Kathy Kram, a director of Boston University's executive MBA program. "It's a great opportunity for mutual learning, if the team can make that learning an explicit goal or part of their contract together."

That opportunity is typically wasted, she adds, "because too often a focus on how team members relate is seen as a distraction from achieving the team's goal, instead of a way to help them work better together. But using teams for learning team skills makes great sense, especially in team-based organizations."

And that brings us to the next point: Whether through a team or on our own, each of us can strengthen and develop any of these emotional competencies—if we know how.