MEASURE

HP flexes its
training muscle

Project Manager's Guide
Business Planning for Competitive Advantage
The Ten-Step Approach

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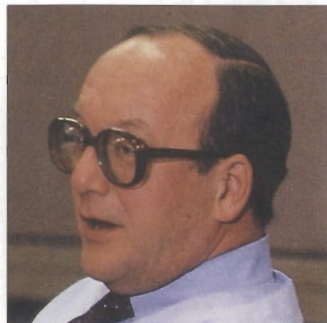Confidential
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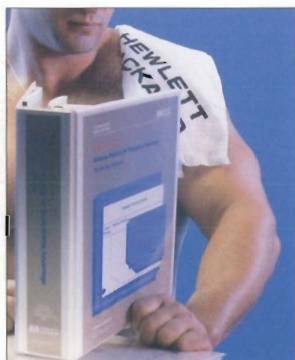
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Process of Management

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On the cover: HP is strengthening its once-fragmented training program to get a better return on its $500 million-a-year educational investment.
Photo by Tom Upton.

New muscle for HP
TRAINING

By Betty Gerard

After hours, Yvonne Peru studies in her kitchen.

When Yvonne Peru went to her 20-year high school reunion last August, she had just received her undergraduate college degree.

"I've been in school all my life," Yvonne says. Since joining HP in Colorado Springs in 1973 on the production line, she has steadily made time for university and HP courses in a life that includes a husband and two children.

She's studied at both the major Colorado universities that have local branches, doing most of her undergraduate work at the University of Denver's weekend program for women. "HP picked up the tab and that was worth a lot," she says.

As her studies became more demanding, Yvonne's job assignments kept pace. When she became a publications supervisor, she was coached by HP in management skills. After other posts, she became the manufacturing information-systems (IS) manager for Colorado Telecom Division in 1990. She's currently studying at the University of Colorado for her MBA with an emphasis on IS.

She usually studies off-hours when her children July, 13, and Ryan, 9, are asleep. Having a mom who is always a student puzzles them a bit. Laughs Yvonne, "I heard the kids asking their grandmother the other day, 'What is it about mom, anyway? Is it just that she doesn't get it?' "

The rather awesome term "lifelong learning" means that

At the European Education Center in Lyon, France, students take a break in the atrium between classes. This year, biweekly satellite broadcasts will be made to 19 sites in Europe.

people like Yvonne Peru are active partners with Hewlett-Packard in developing their own capabilities through continued learning.

How well is HP holding up its end of that partnership?

The answer is that with the best of intentions, HP has sometimes had a scattered approach to education and training (the terms are blending today). But the company's training community is getting its act together in exciting ways these days.

If you look at the money HP spends on a myriad of training activities worldwide, the sum is impressive. Each year between $150–200 million goes into developing or buying courses and delivering them internally. The cost of taking employees off the the job and their travel and living expenses while in class adds another $300 million or so. Part of that expense is supporting college work, often aimed at an advanced degree.

The question is not how much HP is spending on employee education but whether the investment has a maximum

> **"No one functional area can deliver all the training one needs."**

bottom-line return. How well does available training match the skills and knowledge needed today? Is it delivered to people in a systematic and cost-effective way? What preparation will be necessary to keep up—to excel—in the work world of the future?

The professional trainers within HP have had these concerns since 1986, when 13 independent training units formed the HP Training Council for better coordination.

They were aware that, in an Open Line survey, HP people had found training "inconsistent and fragmented." Trainers in the field were bombarded with multiple lists of class offerings and 35 different enrollment systems. Measurements of effectiveness were sparse.

Consultant Jack Bowsher, author of *Educating America,* confirmed trainers' belief that a new education strategy was required to give HP a competitive edge in the 1990s.

It was time to couple education directly with business needs. Developing employees to meet new challenges would be critical as outside hiring slowed, the workforce matured, businesses changed and ability of people became the differentiator in a world of open systems.

And people, after all, are the largest single expense factor in the company's business: 40 percent of total costs. Raising each person's productivity could have a powerful effect.

The challenge for HP, as Jack Bowsher sees it, is how to take "islands" of successful programs and the existing know-how in managing employee education and come up with a coherent companywide program. Once in place, it would be a stimulus to lifelong learning—"a nice concept that is rarely offered except in large corporations."

He cited the need for HP to identify pivotal jobs and key competencies within them, training requirements dictated by business needs at all levels, well-designed courses, new and cost-effective alternatives to the old classroom-based training, and greater professionalism of trainers.

One large step toward more coordination was taken in November 1989 when centralized training and development switched from Corporate Personnel to Business Development under Executive Vice President John Doyle. Neil Johnston became director of the renamed Corporate Education.

Since the corporate functions of Manufacturing, Engineering and Quality also report to John, the move opened the way to closer ties between four training arms.

Neil, who co-chairs the HP Training Council, is an advocate for even broader multifunctional cooperation. "No one functional area can deliver all the training that one needs," he says. The nature of work has changed, resulting in more interdependency. "The integration process we've been talking about for a long time is really essential."

At the center of this interrelated training is the individual. As Neil says, "*You are the stable island; you can go ahead with your development. If you're relying on your job, organizational structure or supervisor to stay the same, you could be disappointed.*"
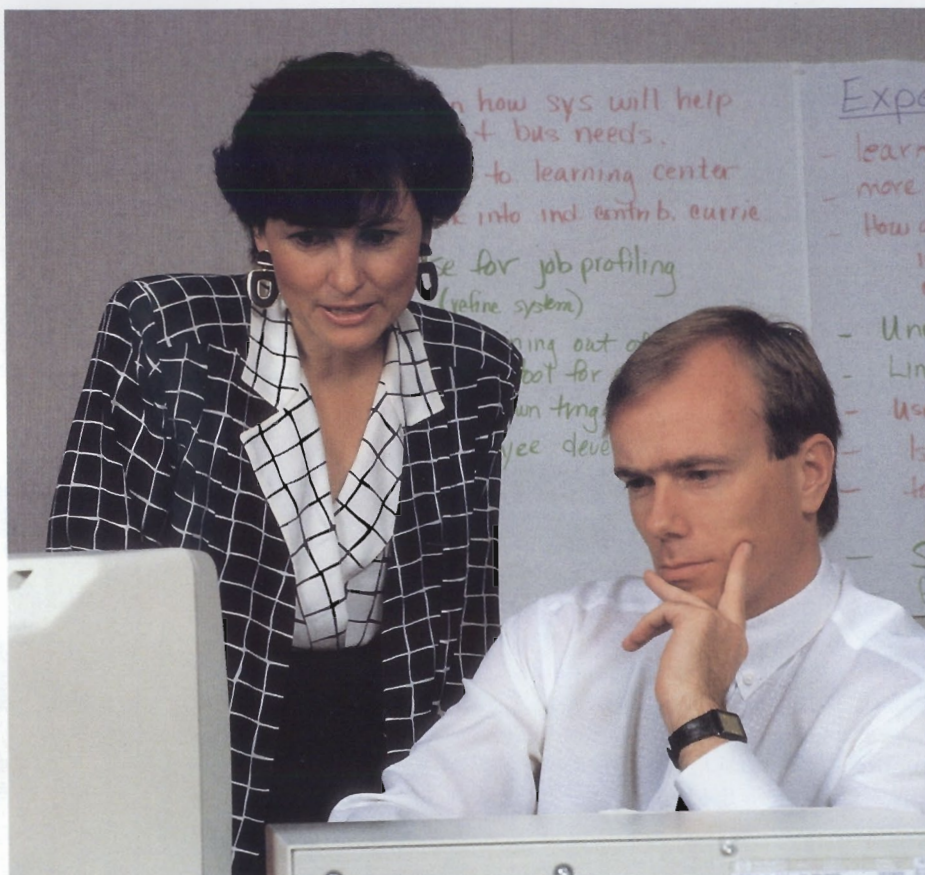
He doesn't overlook the role that a supervisor or manager should play.

"Education is more than a smorgasboard of programs picked out of a catalog," in Neil's view. Managers should guide developing a training plan, set expectations for results and see if they're achieved.

Corporate Education is starting to build a new curriculum framework for managers' own training, starting with the first-line manager. It provides a realistic outline of what must be learned in

Blanca Leiva of Corporate Education explains to David Peake, H.R. development manager for the Melbourne (Australia) sales area, how to create a job model using Vista software.

> **"Education is more than a smorgasboard of programs..."**

phases over the first few years. A similar definition of training stages for general managers is next. Embedded in both series of courses are certain "competencies" or traits needed for success.

The Horizon project helped launch an educational planning process which is competency-based. Based on interviews with top performers, 16 core-competency models have been completed, including controller and product marketing engineer. More are under way.

Supporting this process is Vista, an on-line program that will start with job profiling, assessing gaps in skills needed for a job and the relevant training resources including those available in the community.

A multifunctional team led by Mary Nur and Russell Lash has just developed an advanced training program for professional trainers. "We saw the power of getting people with different perspectives involved in the design," says Maureen Simon, manager of education resources.

Corporate Education also offers consulting in instructional design: a systematic approach to making sure training fits a particular need.

Ron Liddell of Worldwide Customer Support Operations manages its state-of-the-art, customer-support training program and is co-chair of the HP Training Council.

He sees an even greater role for training in the support area in the next 10 years. As HP moves into more relationships and support of multivendor networks, "negotiation skills, people skills and the ability to work in a work group will be value-added services that are needed" along with technical expertise.

His training operation is at the cutting edge in adopting new technologies for delivery of programs. It pioneered HP's first worldwide-supported package for computer-based training. "Our 5-year vision is to customize training around business need and get it to the individual just in time," Ron says.

Susan Burnett is product training manager for the Computer Systems Organization. She's a true believer in using faster, less expensive alternatives

to the self-contained classroom (see story on this page).

She breaks her product training into four segments: basic fundamental knowledge, basic skills, advanced skill-building and coaching by managers before and after a sale. In the first category, a switch to largely self-paced methods saved $25 million last year in the U.S. alone. "We're getting people up to speed much faster," she says.

Jeff Williams of U.S. Field Operations, Emile Van Reepinghen of European Operations and Margaret Jones of Intercontinental Operations stay in close touch about their field education and training activities.

To help factory-training developers and marketing engineers understand what it means to be in a sales rep's shoes, Jeff's organization developed a program, "Sales Rep for a Week." Designing a field-marketing guide, factory people now understand how it fits into the tight schedule of the real sales world.

In Europe, where changes in 1992 will accelerate competition, Emile has introduced several new courses to help sales reps move forcefully into account management for major accounts, key dealers and wholesalers, and value-added resellers. He took a lead in the first European

> **"People are really hungry for educational opportunity."**

Training Technology Event (ETTE) last October, which recognized education as an important competitive weapon for both nations and companies.

In Intercon, the Asia-Pacific Education Services Centre in Melbourne, Australia, addresses local training

Competing with classrooms will be new learning devices like the multimedia center shown here with Chosen Cheng and Derrick Kikuchi .

Training turns to high-tech tools

Some high-tech alternatives to the self-contained classroom:

Teleclasses are broadcast via satellite from the Interactive Technical Education Network in Cupertino, California, to other HP classrooms or learning centers. Using a keypad, students at 35 U.S. sites can flash answers back to the instructor.

Teleconferences are broadcast regularly by HP-TV in the U.S. and by the Lyon (France) European Education Center.

Two years ago South Queensferry, Scotland, pioneered computer-based training (CBT) for use by both teams and individuals.

For self-study, a student may receive a workbook, audiocasette or videocasette. Some CBT tutorials and simulation have interactive video added. Adding the same video and audio capabilities to databases

creates hypermedia.

Corporate Education's education technology group under Chosen Cheng and HP-TV are co-developing a Media Applications Project that will be a showcase for the newest learning modes.

An HP Vectra personal computer with a multimedia card allows an integrated display of audio, video, graphics or animation on a single screen. The project team is testing various configurations for a basic platform anyone can use.

Bernie Trilling of HP-TV foresees the day when an HP student can quickly jump from work on a desktop computer to watching a teleclass on a window of the screen. "You'll be able to dial up at your desk a multimedia course that includes stills and live video," he predicts.

needs. It is managed by Bruce Marsh. Last year the center shortened the eight-week Far East Sales School's basic training in Hong Kong by packaging the first week's instruction into local languages for use in the countries.

Margaret Jones and Bob Coutts, Intercon personnel programs manager, work closely together. They have developed a "one-stop delivery" model for integrated training. An education manager will be named in each country this year.

Locally, trainers may add their own courses, such as the JumpStart program developed by Canada's Professional Development Center to give newcomers the practical know-how they need, including HP Desk.

The corporate departments of Manufacturing, Engineering, Marketing, Quality, Finance and IS provide specialized courses for their functions that are often shared. For example, Corporate Marketing Education's popular "Building Market-Focused Organizations" is delivered to cross-functional business teams. Quality training has long since

"As our business has changed, people need new skills..."

spilled out of the production area and is used across the company.

In Corporate Engineering, Scott Beth has developed a modular program for "Project Management Training" in R&D that also applies to other functional areas. Local trainers can select from a sequence of 30 courses, some developed within HP and others obtained from outside vendors.

For the Massachusetts sites of the Medical Products Group, Kathy Marble has combined elements of Scott's curric-

A six-person team from a WCSO Functional Management program plan their strategy to compare how two stores in a San Jose (California) shopping mall satisfy their customers.

ulum with others from the Cupertino site and Boise, Idaho, and added such medically focused courses as physiology.

At the Boise Printer Division, R&D section manager Jim Hall has been a champion for bringing more technical education to the remote Idaho city through seminars and televised courses. He finds "people are really hungry for educational opportunity." He co-chairs a site Engineering Education Council to advise on classes of great interest.

At HP Labs Bristol, trainer Jacqui Penn finds senior management "takes training education and development as seriously as the Japanese do—it can be a real competitive advantage." Along with a full schedule of courses and off-sites, regular brown-bag luncheons feature outside speakers suggested by members of the technical staff. Foreign language instruction is popular.

Some technical problems in labs at the New Jersey Division led R&D manager Jim Gallo to propose a division-wide self-assessment of technical

strengths and weaknesses to guide training in core competencies. Employees helped shape the survey.

"As our business has changed, people need new skills and the flexibility to change with the times," Jim believes.

The need for a heightened commitment to career-long education for engineers is clear from estimates of the early obsolescence of technical skills (a half-life of 2.5 years in software engineering). "With fewer recent graduates hired from universities to replenish our technical knowledge, we must get our innovation from the people we have," says Alfred Moyé, manager of continuing education in Corporate Engineering.

Each year thousands of HP engineers take advantage of televised university courses and others in all functions, like Yvonne Peru, enroll as students on university and college campuses.

To answer the question posed by Yvonne's kids, "Continuing education and training is where it's at." ■

Lew Platt:

managing with style

By Shirley Gilbert

Lew Platt (right), who heads the new Computer Systems Organization, thrives on the rough challenges ahead.

It's certainly a small, unpretentious office for an executive vice president of a $13 billion company.

In fact, a tour through Lew Platt's cubicle in Computer Systems Organization (CSO) headquarters on the Cupertino, California, site takes about three seconds.

There's a small, orderly desk in one corner with neat piles of work-in-process; a picture of his four daughters; a Dictaphone that Lew uses to record follow-up actions after a meeting or phone call; a glass paperweight with the motto: "A commitment to pre-eminence: the Wharton School." And a small bottle of aspirin.

Over there, on a work table, are some books Lew has set aside to read. *Fumbling the Future: How Xerox Invented, Then Ignored, the First Personal Computer* seems to be waiting in line to be read first.

On top of an old cabinet is a model of a Boeing 747 jet. And here, under a small table, is an old, battered, brown briefcase that has seen better days.

Lew would like to keep his life as simple as his office. But the new leader of the CSO admits it isn't all that easy.

First, he manages a very challenging organization: one of HP's two central computer-business activities. The Computer Systems Organization has responsibility for the company's workstations, HP 3000 and 9000 multiuser systems, interfaces, system architecture, networks, engineering applications and marketing. And it employs approximately 18,000 people people worldwide.

If that isn't enough, Lew wakes up every morning ready to do business in a rough-and-tumble marketplace.

He'd be the first to admit that he's managing CSO in a very tough year; that things are changing with what seems like lightning speed in the computer business; that HP's systems segment hasn't enjoyed the best profits in the last few years; and that it's a business in which HP isn't exactly a volume leader.

You'd think that would be enough to send Lew scurrying back to bed.

But rough seas have never troubled this amateur fisherman. In fact, say the people who know him well, Lew thrives

A Spartan office and straightforward style characterize Lew, shown here with the Latin America Region's Manuel Diaz.

on just this kind of challenge.

It's typical of Lew's style, says Paul Goldman, a colleague of Lew's for more than 20 years and general manager of HP's Intensive Care Business Unit in Waltham, Massachusetts, to bring to an organization exactly what it needs. "He knew," says Paul, "that a clear purpose and direction for the organization was just the ticket. That a strong leader was what was needed. And he responded to that extremely well."

Paul is referring to Lew's December announcement of CSO's mission, objectives and strategies communicated through a teleconference from the Cupertino site.

In that broadcast, Lew set out a leaner, less complex organization and defined its direction. According to Paul, he did it "simply and provided clarity in a down-to-earth and straightforward way. That's the kind of thinking that Lew brings to an assignment."

Down-to-earth, open, solid, honest, fair but tough, a good boss, easy to talk to, articulate as hell, someone who looks you straight in the eye. These are words HP people use to describe him.

■ *Lew on CSO goals*

"In the long-term, we believe we can be a leader in the open systems, client/server environment. All our long-term efforts should focus on getting us there.

"In the short-term, we need to manage our business in what promises to be a tough 1991 marketplace. Of course, we have to improve our profitability—it's not at an acceptable level. And we must eliminate all the redundancy in the organization; we need a lot simpler organization."

Who is Lew Platt? What's his background? How does he like his new job as CSO leader? And what does he do when he isn't in his Spartan office?

Stay tuned.

Lew joined HP in 1966. He had just received an MBA from the University of Pennsylvania's Wharton Graduate School of Business in Philadelphia where he'd had the time of his life learning all about business. "I took to business like a duck to water," admits Lew.

Although he interviewed with many companies, he was most impressed with the folks he met at HP. They were informal, personable and very much in touch with people and the business.

Lew's first HP job was as a process engineer working in manufacturing in Waltham where HP's medical products business was headquartered.

Since joining the company, Lew has worked in just about every functional

area of HP. He managed departments in maintenance, R&D, marketing and manufacturing in Waltham. Although he admits he hasn't always accomplished all he's wanted to do in every job, he never met a job he didn't like. He claims he's always learned something new, something interesting and something about himself from every assignment.

In 1974, Lew became Waltham Division general manager, directing HP's patient-monitoring business during a period of great growth.

Lew recalls those busy, tumultuous years as G.M. in Waltham.

"As I look back," says Lew with a sigh, "I realize, with hindsight, how great those years were, although at the time I felt it was hard to be as successful as we wanted to be."

Growth of 20 to 30 percent, emerging as a leader in the medical field, competitors having to play catch-up: most certainly, those were the good old days, says Lew. "You never had to worry about downsizing. If you made a mistake by hiring too many people, you just waited a month or two and the business grew enough to accommodate them."

In 1980, Lew was asked to go to California to manage HP's Analytical Products Group.

It was the best of times and the worst of times for him.

Best because the assignment of managing the Analytical group was probably the most rewarding experience of Lew's career. Worst because of a personal tragedy after his move west.

He admits that managing the Analytical group was a bit scary at first. In 1982, the group had a very slow growth year due to a recession in the chemical industry. "That was a management experience I had never been through before."
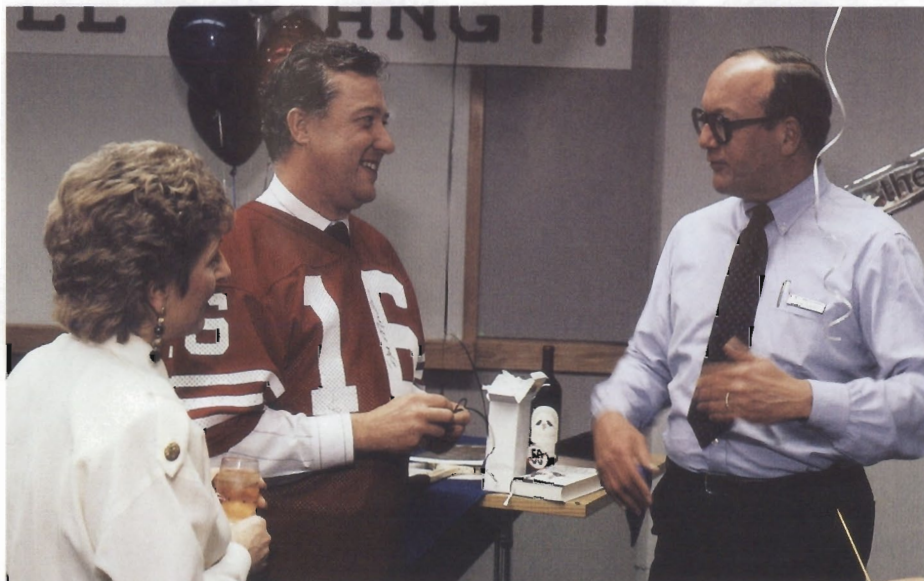
Lew, who once headed the Analytical Products Group, shares a laugh with current general manager Dieter Hoehn (center) at a surprise birthday party for Dieter.

Along with that, the 1980 employee attitude survey showed that morale was very low among Analytical employees. Lew's field organization finished last in the company in all morale categories.

Lew and a hard-driving team rolled up their sleeves and worked to turn things around. "We seemed to hit on the right

Lew on reorganizations

"I know there have been plenty of reorganizations in our systems business. A friend calls this reorganizationitis the 'org du jour.' Yes, this is another organization change, but we hope to make it last for a few years. That's a long time in our business. Almost a lifetime."

strategies," he says. "I really feel our team built the foundation for the kind of success we enjoy now in the Analytical business."

Dieter Hoehn, G.M. of the Analytical Products Group today, was part of that team. He believes that a lot of the credit for that success should go to Lew. "When Lew started managing Analytical, it was small and didn't have a wonderful image within HP. He changed that dramatically; that was reflected in the fact that Lew was the first from the group to be named a company V.P. It was recognition of the great job he had done."

Lew himself is proudest of the fact that, in the 1985 Open Line survey, Analytical sales personnel finished first among all field organizations in HP. "The fierce pride," he says, "was back. I really feel our team had made a difference."

However, that period was also a time of tragedy for Lew. Soon after he and his wife Susan and their two daughters moved to California from Massachusetts in 1980, Susan fell ill with a malignant brain tumor. She died in 1981.

Dieter remembers that difficult time in Lew's life.

"I was amazed at the strength that Lew showed," says Dieter. "He had a complex job in California, two young girls to raise by himself and, at the same time, he was doing a tremendous amount of community work. He managed to cope with all these things. He balanced his personal grief with all the demands of the outside world."

From Analytical, Lew went on to manage the Manufacturing Systems Group and then was responsible for three sectors from '85 to '90: Manufacturing, Medical and Analytical Systems; Technical Systems, and Computer Products.

Now six months into his new assignment as chief of CSO, Lew loves the pace and vitality of the systems business.

He ticks off what he likes: the direct customer contact, the fast-breaking action and the work he's done with a super team to arrive at the mission and competencies of CSO.

What he doesn't like about his new job is the other side of the coin: being too busy. With things happening at breakneck speed, Lew claims he doesn't have time for three important things in his life: walking around and talking informally to people in his organization as much as he'd like; time for deep thought or contemplation either at work
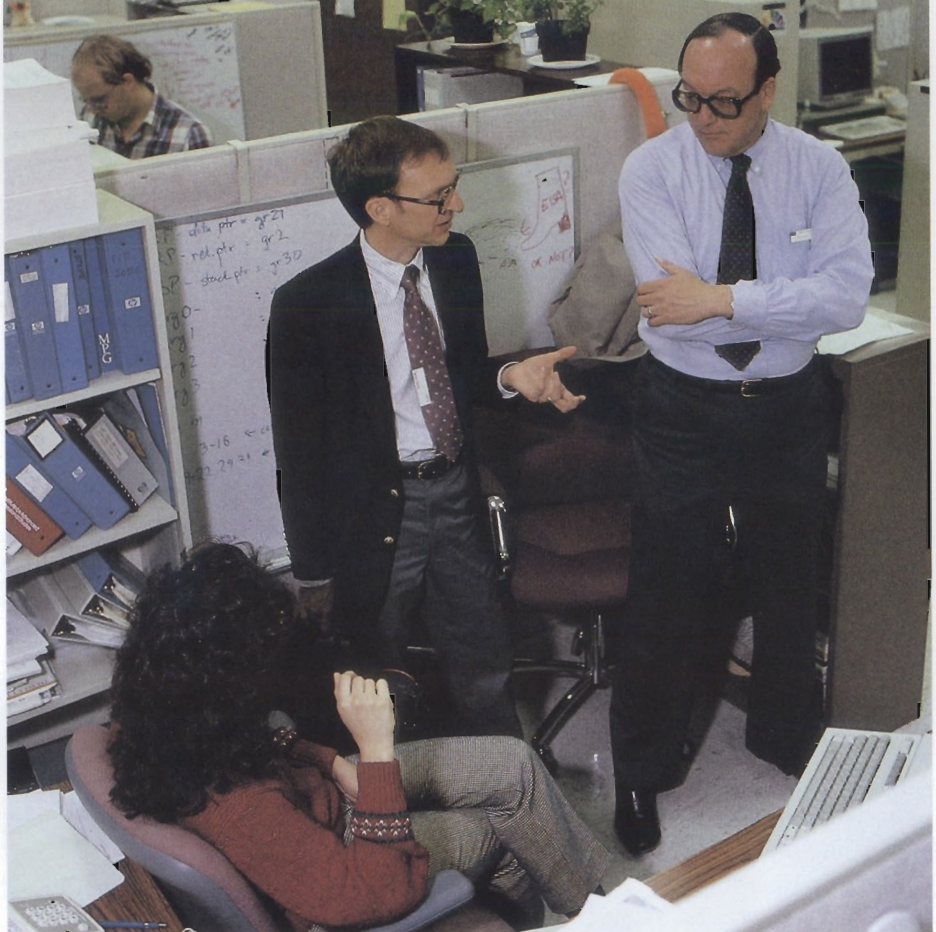
Says Lew, shown here with Denny Georg (center), PA-RISC workstation program manager, "I'd like to create the kind of feeling … that we work for the greatest company in the world."

or outside of work; and important time for the family.

Lew recently celebrated his eighth wedding anniversary. His second wife, Joan, used to work at HP in information technology. They have four daughters—

Lew on developing a systems mentality

"We know how to define, design and sell boxes. The trick today is to develop a systems mentality. It's a way of thinking that requires much more cooperation among divisions and organizations. It's much harder than developing and manufacturing boxes.

"But we need to jump to that higher level of abstraction to survive and thrive in the business."

three of them teenagers. Two are away at college and two live at home.

He has always found it hard to balance a busy career with family life. Lew enjoys the time he spends with his family and feels it's vitally important; but, like all working parents, he also keenly feels the pull of a busy job.

When he has an extra minute, Lew likes to fish, hike, work around the house—especially if it involves woodworking—and read about the history of companies.

Despite the killing pace, Lew feels it's also important to find time for community work. The YMCA recently honored him with one of its most prestigious recognitions—a Red Triangle Award—for his more than 10 years of service, six of them on the Mid-Peninsula (in Palo

Alto) YMCA board of managers and one as board chairman.

"I come from a family," explains Lew, "which feels very strongly about serving in the community. My mom worked in the PTA and my dad was active in the Boy Scouts and the Red Cross while I was growing up. I think you have to help out."

Many who don't know Lew wonder what kind of manager he is. The answer comes from those who have worked with him over the years. They say he's a manager in the traditional HP mold—in the style that founder Bill Hewlett had in mind when he articulated the HP way.

Lew isn't so sure about that. But he believes that some of the "people focus" is missing in HP today. And he worries about the fate of the philosophy that has worked so well for the company for

At home with his wife, Joan, and two of their four daughters, Lew catches up on the day's activities. Balancing his business and personal lives has always been important to him.

more than 50 years; that philosophy convinced him to join HP 25 years ago.

"In CSO, for example," says Lew, "we have all the right technical things for success. What worries me is the way people feel these days about HP. I'd like to create the kind of feeling in our organization that most of us—or those of us who have been around for 25 years like me—are used to seeing… that we work for the greatest company in the world."

Lew has pledged himself to recreate that environment in his organization. "It won't happen overnight," he says, "but it can change if managers spend more time listening and paying attention to people's needs; if we all work harder at communicating more effectively."

Of course, he adds, the business success is an important element in restor-

ing confidence. And he feels certain that, in time, both business and morale will turn around in CSO. "All the ingredients are in place to make that happen," he says. ■

(Shirley Gilbert is Cupertino site communications manager. She works two buildings away from Lew on the site. Her cubicle is cluttered, complicated and overflowing. It takes, she says with a sigh, all kinds…—Editor)

Lew's hopes and fears for CSO

"On the hope side of the ledger, we've made some good, fundamental decisions: RISC, open systems, client/ servers. We have all the right basics in place. We also have a common vision to pursue…now I'd say it's a question of execution.

"What do I fear for CSO? A major recession. That might cause us to accelerate a lot of things we're working on as fast as we can now. That would make us short-term in our approach and while that's not a disaster…it's a worry. I'm also concerned about teamwork. We need to build an organization in which all of us enjoy seeing HP win in the computer business."

A princely venture for HP NewWave

LONDON, England—HP NewWave has a new admirer: the Queen's youngest son, His Royal Highness Prince Edward.

Last summer, Prince Edward and some colleagues from his previous company decided to set up a new production company—The Theatre Division Limited—with offices in London's West End.

This was a brave move at a time when the theatre in London as a whole was going through a difficult period. Although a full member of the company, Prince Edward still maintains an active public life.

The prince had requested a demonstration of the HP NewWave office as HP was supporting the Duke of Edinburgh's Award (a scheme for young people upon which The Congressional Award is based), an organization with which he was closely associated and a Gold Award holder himself.

So when Prince Edward and his colleagues decided to install HP NewWave at The Theatre Division, he asked Paul Brady, computer-product sales representative in HP's City of London office, for assistance.

Paul reports that his job "wasn't really a full consultancy role as Prince Edward

Prince Edward applies the royal touch on the HP Vectra personal computer. The prince uses HP NewWave for The Theatre Division Limited, his London, England, production company.

designed and configured the system himself and even measured up for the network cabling."

Once the HP Vectra PCs and HP LaserJet printers were installed, Paul also helped the prince learn how to use the system.

"The prince is a quick learner," says Paul. "He loves hands-on experience, he gives careful attention to detail and he's ready to be corrected. And when it comes to sorting out computing problems in the office, he leads from the front and the eight or 10 users all go to him for support."

For Prince Edward, leading-edge information systems are a strong advan-tage in a fiercely competitive marketplace. Indeed, he's already talking to HP about getting one of the U.K.'s first installations of the recently introduced HP NewWave Mail and HP NewWave Office Fax.

Incidentally, the prince also has had HP NewWave installed in his private offices and apartment at Buckingham Palace. ∎

Diamonds in the rough

HP goes to the end of the Earth (or at least it seems that way) to help Australia's Argyle Diamond Mines.

KIMBERLEY REGION, Australia—This may not be the end of the Earth, but you can see it from here.

Tucked away on the remote Kimberley Plateau, the Argyle Diamond Mines—the world's biggest diamond producer—sparkle like a rare gem hidden in a huge mound of dirt.

This is the northernmost part of Western Australia. Kununurra, the closest town, is about 125 miles (200 kilometers) away. Most of the 600 mine employees commute from Perth—about 1,400 miles (2,200 kilometers) southwest from here. They work 14 days, then take 14 days off.

It's an extremely harsh environment: high humidity, choking dust, a high incidence of lightning. Temperatures can soar to 122 degrees Fahrenheit (50 degrees Celsius). It's not a place for faint-hearted people or equipment.

The diamond deposit was discovered in 1979. Commercial production began six years later. The mine is operated as a joint venture by CRA (Conzinc Rio Tinto of Australia), Ashton Mining and the Western Australian Diamond Trust.

By 1990, Argyle produced 33.8 million carats of diamonds per year—about one-third of the total world production.

How did Argyle go from being merely an immense deposit of carbon and graphite to one of the world's most technically advanced mines?

"We had the foresight to ensure that fully operational and fully integrated information systems were an integral part of the mine operation," says Frank Nikoletti, computing superintendent at Argyle. "Hewlett-Packard was the perfect choice because HP equipment had proven very reliable in harsh environments and HP as a company had a proven ability to service remote sites."

Argyle has a network of HP minicomputers, personal computers, workstations and peripherals at its head office in Perth, at the mine site and in sales offices in Antwerp, Belgium, and Bombay, India.

"We need to do things smarter because of the high labor rates in Australia and because our other operating costs are higher compared to our major competitors," Frank says. "HP equipment and people have demonstrated repeatedly that they were the smart solution for us."

Argyle uses a battery of HP equipment at the mine for its administration, quality assurance, computer-aided design, planning and control, plant reporting and decision support.

Crews work around the clock and throughout the year to uncover classic white, champagne and cognac-colored gems, as well as rare pink diamonds. Only about two carats of intense pinks are found among every million carats of diamonds.

Providing strong customer service sometimes means going to the end of the Earth for that customer. After all, customers—like Argyle diamonds—are one in a million. ∎

Diamonds

right

Argyle made the "perfect choice" when it purchased HP equipment, says Frank Nikoletti, Argyle's computing superintendent.

below

Workers sift through hundreds of tons of dirt and rock to recover the rare gems. Discovered in 1979, the mine is responsible for the world's largest diamond production.

left

Crews work all day long and throughout the year to produce about one-third of the world's diamonds at Argyle.

above

The mine site is home, sweet home two weeks at a time for the mine workers, about 600 of whom commute from Perth.

right

A network of roller-coaster-like tracks carries the gem-sprinkled earth to the processing area.

Making a wee bit of
HISTORY

By Jay Coleman

With the advent of Europe's single market in 1992, HP's Queensferry Microwave Operation is poised to make a name for itself.

SOUTH QUEENSFERRY, Scotland—You have to dig deep into Scottish history to understand the significance of this special place on an estuary called the Firth of Forth.

King Malcolm III, whose court was in Dunfermline, north of the river, needed a regular ferry service to travel to and from the capital city of Edinburgh—20 miles away.

During Malcolm's reign, his queen, Margaret, made a little history of her own. She brought gentility to the Scottish court and became well-known for the good works she performed in the community.

So when it came time to give the ferry location on the south shore of the Forth River a name, the local citizens honored Malcolm's beloved wife by calling their community South Queensferry. Some 900 years later, Hewlett-Packard made
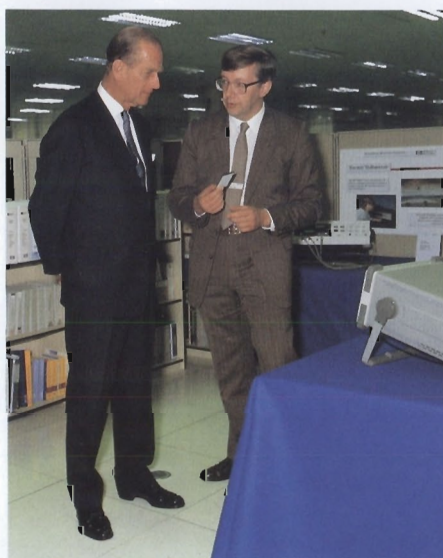
Lawrence Lowe, QMO R&D manager, describes a new product idea to Prince Phillip, the Duke of Edinburgh.

a little history of its own in 1966 when it chose South Queensferry as the site for its U.K. manufacturing operations.

Initially, what became the Queensferry Telecom Division (QTD) was the sole HP entity here. Today, the site, which celebrates its 25th anniversary in 1991, also includes the Queensferry Microwave Operation (QMO), the Scottish sales office and a printed-circuit board facility.

Since its establishment in 1984, QMO's strategic importance has continued to increase, especially with the advent of a single European market targeted for 1992.

"The European Community (EC) has the potential of being the largest market in the world in both population and sales growth, and we're well positioned to take advantage of the tremendous opportunities that 1992 presents," says Don Summers, QMO general manager.

The EC—currently comprising 12 countries—is providing considerable financial support to Eastern Europe's development. Potentially, the EC could expand to 24 countries and represent a huge single market with many opportunities for HP products. For example:

■ As East European countries replace their antiquated telephone systems, they'll move straight to cellular equipment. That presents a perfect opportunity for QMO's range of low-priced, radio-frequency (RF) test equipment.

■ Europe's leadership in next-generation digital-telephone systems such as digital cordless telephones and personal-communications networks will open more doors for HP products, including network and spectrum analyzers, and communications test systems manufactured by QMO.

QMO's primary focus is developing and manufacturing RF test equipment, mainly for mobile and cellular-radio communications systems. The operation is the European representative for four U.S.-based HP divisions: Signal

Jim Kaylor (center), QMO marketing manager, briefs a management team, including **GM Don Summers (far right)**, on **1991** seminar plans.

Analysis Division, Network Measurements Division, Stanford Park Division and Spokane Division.

QMO serves the European market by providing a strong factory presence. Representing four product lines gives QMO the advantage of having a broad product portfolio to address European applications. Five of its 18 products were developed by QMO and about one-fourth of its business comes from these and other QMO initiatives.

The 6,000-mile distance between South Queensferry and its HP division

customers in the U.S. presents a major challenge, says Lawrence Lowe, QMO R&D manager.

"Great ideas often emerge from a casual, 'coffee-pot' discussion when everyone works in the same building," Lawrence says. "But the distance which separates us from our U.S. divisions puts the onus on us to communicate carefully and constantly."

The rewards have come quickly. QMO's R&D project teams have developed five products in its first five years. The first product, the HP 8508A vector voltmeter, was developed and shipped in less than two years with support and encouragement from Hugo Vifian of

the Network Measurements Division. It replaced the HP 8405 voltmeter, which was one of HP's first solid-state products when it was introduced in 1966.

The second successful product QMO developed was the HP 8657B 2-gigahertz extension of the Spokane Division's HP 8657A signal generator.

In 1990, QMO worked with the Stanford Park Division and Loveland Instrument Division to develop the new VXI HP E1416A power meter, which was derived from the HP 437B. This was the first VXI standard interface product

developed in the Microwave and Communications Group and in Europe.

In addition to its proven—and growing—R&D capability, QMO has what Don Summers calls "probably the most sophisticated manufacturing facility in Europe." HP's European field-sales organization uses QMO extensively as a sales tool to show customers HP's instrument and computer technology working in a factory environment.

The Scottish Development Agency regards HP at South Queensferry as a jewel in the crown among its successes in attracting investments to Scotland. Representatives from international companies which are considering opening an operation in Scotland often tour HP's showplace manufacturing facility.

Another drawing card for South Queensferry is QMO's annual Partners

> **QMO has "probably the most sophisticated manufacturing facility in Europe."**

in Productivity seminar. The two-day gathering gives HP an opportunity to discuss and demonstrate its manufacturing processes to European customers, and to share best practices.

More than 70 executives from European RF and microwave-industry companies attended the 1990 event, including representatives from Siemens, Nokia, Nixdorf Computer, Thomson, AT&T, Motorola, Telettra and British Aerospace.

"The seminar has become an enormous success because it brings together many of our major customers, HP field representatives, top managers from

In addition to QMO, the South Queensferry site includes the Queensferry Telecom Division, the Scottish sales office and a printed-circuit-board facility (above).

Get to know your ISOs

In addition to its innovative manufacturing, Queensferry Microwave Operation (QMO) is among the HP leaders in the drive to institute international quality standards.

QMO, Queensferry Telecom Division and the Computer Peripherals Bristol Division are the first HP manufacturing entities to receive ISO 9002 registration. HP's U.K. Customer Engineering Organization leads the way with ISO 9001, while the Bench Repair Organization has ISO 9002.

What does it all mean? The International Standards Organization (ISO) is a group representing more than 100 countries worldwide. ISO has published a series of quality standards that can be used by all businesses—oil refineries, law firms, hotels, manufacturers, and so forth.

ISO standards measure how well companies document, follow and perform the processes they use to determine customer needs, procure materials, organize product development, manufacture and test products,

and train people to do these things.

There are three classes of ISO standards that HP customers and registration organizations can use to evaluate quality systems: ISO 9001 is aimed at custom solution suppliers, ISO 9002 at off-the-shelf product suppliers and ISO 9003 at distributors. All HP entities are assessing when it makes sense for them to become registered on ISO 9001 and ISO 9002.

The single European market in 1992 is the impetus for ISO standards.

"Customers want assurance of a predictable level of quality, and the ISO 9000 standards help ensure that consistency," says Peter Rigby, QMO quality manager.

"ISO 9000 actually is a subset of TQC (Total Quality Control), so we already had a process for measuring and improving our quality standards. But ISO 9002 highlighted some additional areas where we needed to improve. We think the exercise was very valuable," Peter adds.

our U.S. divisions and group management for face-to-face discussion on how we can all operate more cohesively and productively," says Jim Kaylor, QMO marketing manager. "Those two days really help solidify our many partnerships."

Of all of South Queensferry's contemporary visitors, none tops that of Prince Philip, the Duke of Edinburgh, who visited the site in July 1990. He toured

> ## "(The duke) really enjoyed learning about HP technology and meeting employees."

QMO's new 120,000-square-foot building, and spent considerable time in the manufacturing and R&D areas.

The duke even made an unscheduled visit to a coffee area and chatted informally for several minutes with the surprised employees.

"He really enjoyed learning about HP technology and meeting employees," Jim said. "The duke went out of his way to make everyone around him feel comfortable."

So, some 900 years after Queen Margaret made a name for herself here, South Queensferry still attracts its share of royalty and makes history.

In a region that produced such legendary authors as Robert Louis Stevenson and Sir Arthur Conan Doyle, QMO is starting to write a little history, too. ■

In July, Heriot-Watt University will honor HP retiree Finlay MacKenzie with a Doctor of Engineering degree for his sustained support for higher education.

Farewell, Finlay

Finlay MacKenzie's 25-year career at Hewlett-Packard ended with his retirement at the end of 1990, but his accomplishments are still being recognized.

In July, he will receive an honorary degree of Doctor of Engineering in the Faculty of Engineering of Heriot-Watt University in Edinburgh, Scotland.

The degree recognizes "his distinguished career in the electronics industry in the field of digital communications and his sustained support for higher education, research and training."

Finlay began with HP as project manager for the Queensferry Telecom Division's (QTD) first product—the microwave link analyzer. He also served as R&D section manager, product marketing manager and marketing manager prior to becoming QTD general manager in 1982.

Finlay was appointed to the board of directors of HP Limited, HP's U.K. subsidiary, in 1985. He remains on it.

In a ceremony at Buckingham Palace in 1986, Queen Elizabeth presented Finlay with the prestigious Commander of the Order of the British Empire award for his services to the electronic business and educational community in the U.K.

Chuck Acken, formerly with the Signal Analysis Division, assumed Finlay's responsibilities as QTD general manager and South Queensferry site manager in September 1990.

They wouldn't take "no"

Sometimes you have to fight for what you believe in. *Measure* offers a glimpse at two fighters who have made believers out of countless others.

By Melinda Sacks

Donna Yeager has a good thing going. The hot studio lights are glaring, technicians are buzzing and giant cameras are pointed at her. But Donna, the cable-television host, is cool and collected.

She smiles and chats with her guest as one assistant fastens a microphone to her dress, a second assistant touches up Donna's lipstick and a third person smoothes her hair. Being the center of attention is nothing new to Donna, who has become adept at speaking her mind and helping other people do the same.

Whether it is here in the Channel 30 TV studio at De Anza College in Cupertino, California, or in her job as a customer-service coordinator for HP in Mountain View, Donna is in control.

In January, the blonde dynamo was one of three nominees for Disabled Person of the Year Award by the Timpany Center of San Jose, a swim center for people with physical disabilities.

Her tireless community involvement, her ongoing speaking engagements and the development and hosting of the cable program *On the Move* have brought her national attention. Still, she is modest.

"Just being out in the community and being with people is my way of doing what I can," she says. "That's what the

Crew members for the award-winning *On the Move* show for cable Channel 30 help Donna Yeager (right) prepare for an interview. The crew includes Donna's parents, Don and Jeanne.

for an answer

show is all about. Yes, I'm really busy, but I love it. I run on adrenalin. That's the reason God put me on the Earth."

At 33, Donna already has done more than most people do in a lifetime. She spent the past year as a volunteer helping find a new pastor for her church. As a board member of Independence Through Athletics, she assists with the fund raising and operation of a summer camp for disabled children. Donna has been a trouble-shooter in the design and remodeling of industrial buildings to make sure they truly are accessible for people with disabilities.

Donna, who drives her electric wheelchair with her feet, regularly speaks to groups of 200 to 300 people on the rights of people with disabilities. All of those activities are in addition to producing, writing and hosting her cable TV show, and her full-time HP job.

Born a congenital quadruple amputee with short legs, Donna has had to use her feet as most people use their hands—to write, hold things and draw.

An art major in college, she has had five one-woman shows of her scratch-board work—a technique that involves scratching off a black coating on a white board to leave a drawing.

Donna attributes some of her stick-to-it-iveness to her upbringing. Her family traveled and moved extensively because Donna's father, Don Yeager, was in the military. When a Virginia high school

Donna, an HP customer-service coordinator, uses her feet to perform routine tasks.

tried to place Donna in a one-room special-education class for anyone with a disability, she objected and her parents stood by her. "My parents said, 'We think she can make it in the regular classroom,'" Donna says. Not only did she make it, she graduated to a standing ovation.

After high school, Donna promptly moved to California on her own, much to her parents' distress, she says today with a laugh. Settled into a Mountain View apartment she shares with a roommate, Donna fills her few free hours at home with Shadow—her "killer" miniature poodle—and caring for her pet birds, among other things.

And having moved to the West Coast themselves, Donna's parents help produce and direct her cable TV show, which has been recognized with numerous awards for its work in bringing the

concerns and rights of people with disabilities to television screens across the San Francisco Peninsula.

The program is produced by and for local community people with disabilities, and is aimed at promoting under-

"My friendship pool has grown by leaps and bounds."

standing, awareness and self-esteem of the physically challenged.

"It was a dream come true," Donna says about the 3-year-old show. "At times I didn't think it would come true. I had to put the whole thing together and I gave Channel 30 the proposal for seven shows we wanted to do. They just said 'You get the people, we'll train them.'"

Topics have been as diverse as a post-Loma Prieta earthquake discussion to a Christmas celebration that included singing carols. A recent trip to learn to ski on a specially designed sled at Alpine Meadows in Lake Tahoe will provide footage for another show.

Every month seems to bring Donna new adventures.

"The thing that is the most fun is meeting new, wonderful, interesting people," she says with her characteristic enthusiasm. "My friendship pool has grown by leaps and bounds."

I'd rather be good than lucky
Patty O'Sullivan beat Nike to the punch with the now-famous phrase "just do it." For Patty, the words have had special significance since childhood. And

they've been her mantra in accomplishing everything from being the first hearing-impaired member of her high school swim team to developing and holding Hewlett-Packard's first company forum for hearing-impaired and deaf employees.

"My goal is for every hearing-impaired or deaf person to really do what they want to do, not just what other people think they can do," says Patty, whose office is decorated with knickknacks and posters in her favorite color—Irish green.

"My mom used to say that life is a ladder: you fall off and you just go back and climb it again."

As an administrative systems assistant at HP Labs in Palo Alto, California, Patty is responsible for a variety of tasks, many of which require constant communication with other employees. Working at HP the last five years, she became increasingly aware of the need for hearing-impaired and deaf employees to find better ways to communicate. The idea for a forum came as a natural first step.

In January, Patty's dream of bringing employees, interpreters and facilitators together to talk about improving communication became a reality.

More than 50 HP employees, ranging from those with just a one-percent hearing loss to those totally deaf, gathered at the Stanford Park Division for the all-day forum. People came from Santa Rosa, Rohnert Park, Roseville and throughout the Bay Area. By the end of the day, Patty already was looking ahead to the next forum.

"I don't expect major changes overnight," she says. "But the ideas we picked up at the forum will be made a reality. I was really pleased that we were

"My goal is for every hearing-impaired or deaf person to really do what they want to do," says HP Labs' Patty O'Sullivan.

all able to get together and that everyone participated to the fullest," she adds. "There was no fear, no intimidation; people just let it out. They had ideas I had never dreamed of. We've all had different experiences, different jobs."

Some of the key topics discussed at the forum included how to better use HP's Telephone-Activitated Benefits System, the Employee Assistance Program and the California Relay Service—a 24-hour-a-day, 7-day-a-week service which enables Californians to communicate with hearing-impaired residents.

Concerns ranged from how hearing-impaired or deaf employees would be contacted in an emergency—since they can't be paged—to what to do if an interpreter is not available when a hearing-impaired employee wants to participate in a meeting.

"The biggest misconception is that to be able to communicate effectively you need to be yelled at," Patty says. "For some people, you have to talk low for them to hear your voice. You need to get to know the individuals to find out their needs. We're not all the same. We're not all Helen Keller."

Patty became "medically deaf" at the age of 18 months. Doctors were unable

"We're not all the same. We're not all Helen Keller."

to diagnose the reason. She reads lips and uses sign language, and can speak.

Since she was a child, Patty has been a dreamer and a doer, unwilling to accept limits that seemed to her to be unreasonable. "Sometimes I might be

Among Patty's many pursuits is Patresa's—her own candy business—which specializes in handmade chocolate truffles.

too persistent," she laughs. "If someone tells me 'no,' they'd better have a good reason. I might get on a lot of people's nerves, but I get a lot done."

A good swimmer, Patty wanted to be on her school swim team. Even though she couldn't hear the gun go off at the start of a race, she found other ways to anticipate the start, such as watching for the smoke from the starter's gun or the drop of a hand.

She had the lead role in a high school play. And today, in addition to her full-time job at HP, Patty has her own candy business—Patresa's—that operates 7 days a week. She sells the rich handmade chocolate truffles she makes at her shop, by mail and for weddings, parties and other events.

"I still have time to date and have fun," she insists. But her first priority these days is organizing another forum, continuing her work to "close caption" all

Hewlett-Packard training tapes and the HP VideoMagazine, and helping to put together another companywide survey to assess the needs of employees with disabilities.

"If someone tells me 'no,' they'd better have a good reason."

Despite all she has done, Patty admits she has trouble accepting thanks. When one of the facilitators expressed his appreciation in front of the entire hearing-impaired forum audience at the end of the day, Patty was overwhelmed.

"This is what my mother was doing while I was growing up," she says of her work. "It's what I am doing now for other people. It was a real emotional high. My motto is 'It's possible. Just do it.' " ∎

(Melinda Sacks, who worked in HP's Corporate Public Relations department from 1979 to 1980, is a Palo Alto, California-based freelance writer. This is her first story for Measure. *—Editor)*

To boldly go…

Regarding your January-February 1991 story "HP Labs: singular," the mission of the Enterprise is "to explore strange new worlds, to seek out new life and civilization, to boldly go where no one has gone before."

It is a noble goal for HP Labs to associate itself with the goal of the Enterprise. Keep up the research work.

MALCOLM CHEW
Singapore

*Non-*Star Trek *fans, please note that Malcolm has provided a portion of the verbatim quote from the TV show's opening moments—words that HP Labs Director Frank Carrubba paraphrased in* Measure. *Thanks for your letter, Malcolm. We'll use warp speed to get your* Measure *T-shirt to you.—Editor*

Here's the way to San Jose

Editor's note: Measure *has received a number of inquiries regarding a story in the January-February 1991 issue about the opening of "The Garage"—officially the Technology Center of Silicon Valley. Here is some information to fill in the gaps:*

"The Garage" is located at 145 West San Carlos Street, across from the San Jose Convention Center. It's open from 10 a.m. to 5 p.m. Tuesday through Sunday. From Highway 280 take the Guadalupe Parkway exit, turn right onto Santa Clara Street, right onto Almaden Boulevard and left onto San Carlos. From 101 take the Guadalupe Parkway exit, turn left onto Park Avenue, right onto Almaden Boulevard and left onto San Carlos. For more information, call (408) 279-7150.

Dinosaur example in bad taste

The article "No room for dinosaurs" in the January-February 1991 edition was not in good taste. Here in Bad Homburg, we are the victims of organizational change and know very well about the "positive" aspects of change without having doubtful natural-history lessons thrust upon us.

If I understand the article correctly, it says that by imposing change it is possible to rid the company of inflexible, unwanted personnel. This is surely not so.

I can easily think of five important officers who have left the company in the past year because they were not able to accept the changes forced upon them. They certainly demonstrated how to cope with change, but in no way were they being dinosaurs. Even at lower levels, the loss of experience and expertise is going to cost Hewlett-Packard dearly.

By the way, I smoke a pipe, have been with HP 17 years, am not going to buy Carol Kinsey Goman's book or subscribe to *Together* magazine. Does this mean I am a dinosaur?

RAY LAYTON
Bad Homburg, Germany

The article's purpose was to try to put 1990—a year of roller-coaster change—into context. In no way was the article intended to imply that change is a way to "rid HP of inflexible, unwanted personnel." Change isn't an elixir for problems— nor a cause of them. It's a fact of life. And success often parallels those who adapt quickly to change and use it to their advantage.—Editor

Simply the best

Your article "A pain in the…" in the September-October 1990 *Measure* was of particular interest to me because of my profession as a certified medical transcriptionist (CMT), for which I use an HP Vectra 286/12 personal computer.

I feel the article was exceptionally well done, very concise and informative. In the past several years, particularly the past year, many articles have been offered on RSI (repetitive strain injury), but I like yours the best!

I am the editor of the *Orange County Chapter Newsletter* for the American Association for Medical Transcription, and would like to reprint your article in our publication.

SHERYL D. MUSTAIN, CMT
(wife of Damon Mustain)
Yorba Linda, California

Thanks for your letter, Sheryl. We're happy to give you permission to reprint the story in your newsletter.—Editor

Please send mail

Do you have comments about something you've read in *Measure?* Send us your thoughts. If your letter is published, you'll receive a free *Measure* T-shirt (large or X-large).

Address HP Desk letters to Jay Coleman; by company to *Measure* editor, Corporate Public Relations, Building 20BR, Palo Alto. Via regular postal service the address is *Measure*, P.O. Box 10301, Palo Alto, CA 94303-0890 USA. Try to limit your letter to 150 words. We reserve the right to edit letters. Please sign your name and give your location.

President and CEO John Young discusses the importance of HP's commitment to R&D, and the rewards of those investments.

I'm writing this message after the beginning of armed conflict in the Persian Gulf. This is a troubling time, and my thoughts and prayers are with those who have family and friends in the Middle East.

When world events move so swiftly, it may be hard to think about a topic as long-term as investing in the future, but that's precisely what I'd like to do. Picking up where *Measure's* January-February lead story about HP Labs left off, I want to devote this message to a subject that's right at the heart of HP—the company's commitment to research and development and our ability to reap the rewards of our R&D investments.

I choose this topic because I believe that building for the future is a key ongoing priority—one that can easily get lost when there are so many pressures for improved financial performance.

Furthermore, innovation—making the future happen—is the lifeblood of HP. We invested $1.4 billion in R&D last year, and a look at the "vintage chart" (see page 28) shows how strongly innovation's heart is beating at HP.

As you can see, 1990 was a *very* good year for new products, and this gives us a real cushion going into 1991. It's this kind of accomplishment each year that can insulate us to a large degree from

Jordi Pujol (left), president of the Catalan government, presents John with a piece of ceremonial ribbon during the opening of HP's new Barcelona, Spain, facility.

economic swings. We can, in many ways, create our own opportunities.

We must not only develop new ideas to achieve these results, but also produce them with competitive costs and compelling quality—and do so ever more quickly. That's how we earn the profits that allow us to invest in the next round of innovation.

To underscore the growing importance of time-to-market as a competitive differentiator, three years ago I threw down a challenge—to cut in half the company's "break-even time" or "BET," as it has come to be known in acronym-happy HP. BET measures the time it takes for the positive cash flow from a new product to equal the cost of bringing it to market, as measured from the beginning of the project.

BET is an appealing metric because it takes into account the entire product-development process—the assessment of customer needs, the effectiveness of

our R&D, the speed with which we ramp up to volume manufacturing, the efficiency of our distribution efforts, the adequacy of our training program and all the related issues.

When I asked people to aim for BET/2, it wasn't without an appreciation of all the complexities involved in achieving it. I wanted to generate the same response as when I pressed for a tenfold improvement in hardware quality 10 years ago—that is, set such a dramatic goal that we couldn't achieve it without radical change.

The first step in achieving BET/2 has been to get a baseline measurement of where we currently stand. That has proven to be difficult, especially for highly complex and interdependent systems products. No small part of the challenge is that no one "owns" this

process when viewed from this broader perspective. However, we now have BET metrics for more than two-thirds of HP's product lines, thanks to the joint efforts of Corporate Engineering and our controllership community.

There's an old truth that says that when you begin to measure behavior, the behavior changes. That's been the case with BET. The metric brings business issues right into the R&D lab. After

> **...the Management Council asked for a bold plan to generate a quantum leap forward...**

using the metric, some R&D managers concluded that their proposed products would *never* reach BET, and those projects got redefined to make better business sense.

In other cases, the BET metric helped R&D managers see just how important it was for their proposed product to hit the market before the window of opportunity closed. Beyond working to get our baseline data established, we've been pursuing BET/2 on a number of fronts. In this issue I'd like to comment on just one activity—the recent decision by the Management Council to invest in a significant new initiative to improve HP's ability to develop software.

That decision came after Council members heard a troubling report last July. Results from a software quality and productivity analysis showed conclusively that HP has not been making adequate progress toward improving its

HP orders by year of product introduction

- FY 90
- FY 89
- FY 88
- FY 87
- FY 86
- FY 85
- FY 84 & prior

84 85 86 87 88 89 90
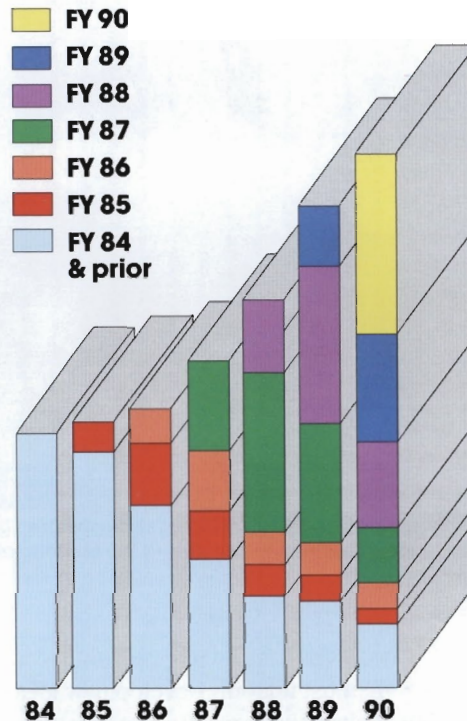
The chart shows the composition of HP's orders for each year. Products introduced in each year are represented by a different color, with 1990's products in yellow, 1989's in blue, etc. The height of the colored bars shows how well a particular year's products were received in the market.

The 1990 crop of innovations changes the familiar HP description that said half of the company's orders come from products introduced within the past three years. For fiscal 1990, it's more accurate to say that half of HP's orders were for products brought to market within the past two years. Fiscal 1990 was a "vintage" year!

(Excludes service, components and parts.)

software quality. The data were so persuasive—and software is considered such a core competency for HP—that the Management Council asked for a bold plan to generate a quantum leap forward.

A plan then was submitted that reflected the inputs and priorities of many people in HP's operating entities. The plan received funding, and the fact that it did so—in an era of expense and headcount controls—testifies to the importance of improving our software-development process.

I've come full circle in this message. I began by talking about the importance of investing in the future despite global uncertainty, and I talked about HP's

R&D investments as an example of our long-term perspective. In closing, I illustrate the importance of investing in process improvements despite HP's need to reduce its overall expense levels, with our software initiative as an example.

We will continue to make both kinds of investments to build a solid foundation for the future. We're investing today to make the future happen—quintessential HP.

Rich Nielsen and IS Director Lloyd Taylor bid ROUTS farewell.

Pulling the plug on ROUTS

When the plug on the last ROUTS machine at Corporate Offices was pulled ceremoniously on February 1, it marked the end of 20 historic years for ROUTS and its predecessor, COMSYS.

The two systems had been the workhorses of HP's first worldwide communications network, moving a total of 5,900 gigabytes during their lifetime—about 2 million pages of information.

HP factories and field offices were hooked together by a patchwork of teletype connections until COMSYS came to the rescue in 1970 to transmit orders and, later, other information. Running on HP 2100 mini-computers, it compressed data and used low-cost dial-up lines to connect sites. Its speed and economy were a crucial factor in the growth of HP.

At first, data was exchanged between Corporate and other locations on a set schedule. The addition of ROUTS in 1981 opened things up. A store-and-forward system, it allowed all sites to access data at any time.

Corporate's Rich Nielsen, the "father" of both systems, recalls the excitement of those pioneering days. "HP was the first to transmit over dial-up lines in many countries. The technology kept changing; you were always working on something new."

As traffic increased and hardware became obsolete, BatchNet (which runs on the HP 3000) began replacing ROUTS and has now taken over. But the goodbye was warm for a special part of HP's information-systems history.

Vectra training takes off

Canadian Airlines International Limited (CAIL) has purchased 81 HP Vectra RS/25C personal computers (PCs) to use in its training program to certify pilots and mechanics.

The PCs and flight-simulation software comprise computer-based training (CBT) that will replace the current audio-visual exercise portion of the pilot-certification program. Actual flight-simulator training makes up the rest of the certification process.

CAIL is the second largest air carrier in Canada and serves 150 destinations in 20 countries and five continents.

CAIL plans to use the CBT program to certify its pilots who, until now, have had to fly to remote areas for simulator training.

The CBT program will decrease the pilot-certification process by one week. Pilots will use the HP Vectra RS/25C PCs for 50 hours.
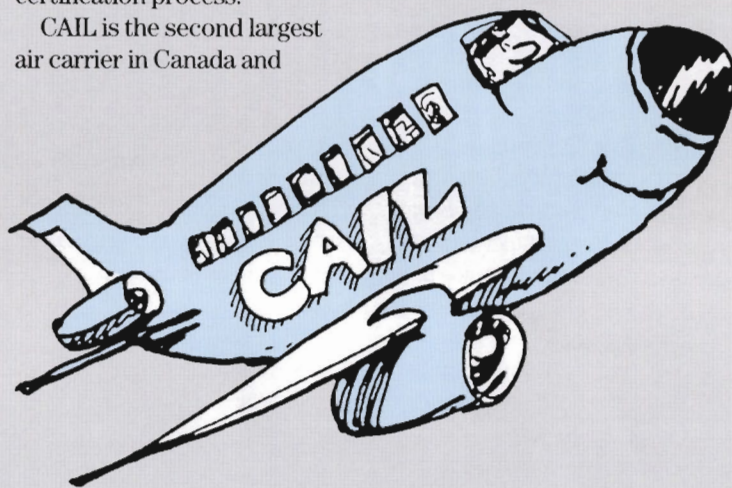
Congrats!

Malaysia team turns idea to $$$

A team of five production operators from HP Malaysia has won top honors in Singapore at the International Exposition of Quality Control Circles (IEQCC).

The IEQCC rewarded HP's team for reducing "underfill" defects in the optoelectronic-lamps area. During the encapsulation process, mold cups are filled with epoxy and then cured in an oven. Cups that are only half or three-quarters full are considered "underfill" and rejected.

Siow Hua Ho and her team discovered that strong air currents inside the curing oven caused the epoxy to shift and spill out of the mold cups. The team members recommended installing side flaps inside the oven walls to block the air currents.

The 4-year-old quality team topped teams from other companies in Japan, India, Brunei and Malaysia. HP rewarded the team with an all-expense-paid trip to Bangkok and Pattaya, Thailand.

More than half of HP Malaysia's 2,500 employees participate in quality-control circles.

NO MORE EXEC COMMITTEE

The Executive Committee created in 1974 as HP's primary policy-setting body was eliminated as a management body on November 1, 1990, as an unnecessary layer in decision-making. Necessary coordination will be provided by CEO **John Young's** management staff and a separate computer staff.

Business reviews will be done by the Management Council.

CSO, CPO MAKE CHANGES

Both the Computer Systems Organization (CSO) and Computer Products Organization (CPO) created in October 1990 have made structural changes.

CSO under Executive Vice President **Lew Platt** merged four groups into two in December. A new Networked Systems Group under V.P. **Wim Roelandts** and a new Cooperative Computing Group under V.P. **Bob Frankenberg** replace the former Computer Systems, Information Networks, Workstation and Engineering Applications groups.

The reconfiguration consolidates workstation and minicomputer activities in one group, and cooperative-computing software in another.

In CPO, three former business units have been elevated to group status. The new groups and group general managers: Printing Systems Group, **Doug Carnahan;** Ink-Jet Products Group, **Rick Belluzzo;** Mass Storage Group, **Ray Smelek.**

MORE CHART CHANGES

Within CPO Worldwide Sales and Distribution, **Don Schmickrath** has been named worldwide distribution and logistics manager. Among activities reporting to him are the Direct Marketing Division and the Personal Computer Distribution Operation, which have both transferred to CPO.

The Data and Management Systems Division (DMSD) no longer exists as an entity; its charter has moved to the Commercial Systems Division (CSY). DMSD's former employees in Cupertino, California, have joined CSY. Many DMSD people in Roseville, California, will work there for the Application Support Division, which has taken over responsibility for the MPE/V operating system and business-application development tools.

A shining Point of Light

Shortly after Pam Miller moved to Fort Collins, Colorado, in 1989, she volunteered to serve on a domestic-abuse response team that answers calls for help around the clock.

She takes a shift from 6 p.m. to 6 a.m. at least once a week, wearing a pager in order to respond immediately when victims report crimes. If she is called by police to help, she may work throughout the night to provide comfort and advice in an emergency. She also trains other volunteers.

Pam, a software engineer at the Open Systems Software Division's development lab, is so outstanding among the 80 volunteers at the Crossroads Safehouse for Battered Women and Children that she has been recognized by the White House.

On January 29 she was named the 365th "Point of Light" in a program that is a project of U.S. President George Bush to recognize volunteerism. He personally selects six honorees each week from finalists chosen out of hundreds of nominees.

Pam has received a letter from the President commending her for taking direct and meaningful action "to claim society's problems as your own."

Semiconductor

Baud rate
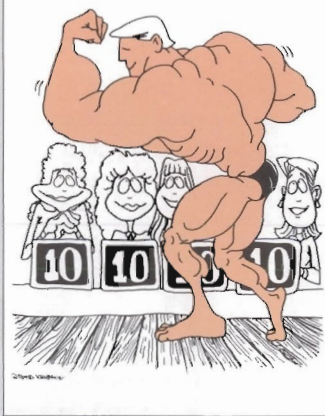
(These humorous definitions are courtesy of Rand Kruback, senior graphic designer at the Loveland (Colorado) Instrument Division.—Editor)

NEW HATS

Alex Chan, G.M. of Southeast Asia sales, has an added hat as managing director of HP Singapore ...**Rui Da Costa** to G.M. of the Latin America Region's newly formed Multi-Country Area based in Miami, Florida. **Hugo Strachan** to G.M. of HP Argentina.

Walter Stein is G.M. of the Idacom Telecom Division ...**Didier Philippe** to G.M., Sales Finance and Remarketing Operation Europe.

GETTING TOGETHER

HP has acquired the Applied Optoelectronic Technology Corporation (AOT) of Milpitas, California, which designs and makes automatic test equipment for semiconductor manufacturers. It is now the AOT Operation within the Electronic Instruments Group. Operations manager is **Bob Chen.**

NEW PRODUCTS

The Apollo Systems Division and Commercial Systems Division in December introduced five new **business-computer systems and servers** based on PA-RISC technology.

The Santa Clara Division's **HP 53310A modulation-domain analyzer** characterizes complex electronic circuits. From the same division, the **HP 5373A modulation-domain pulse analyzer** lets radar designers see characteristics of complex signals on a single display—a first.

The Optical Communication Division has developed with Philips Components a new series of **optocouplers:** two high-speed transistor-output optocouplers and a high-speed Darlington-output optocoupler.

High-speed optocouplers

The Loveland Instrument Division has added to its VXIbus product line with the **HP E1426A VXI digitizing oscillosope** and the **HP E1420A universal counter**....The first HP family of handheld, **LAN media-test products** from the Colorado Telecom Division are scanners that quickly isolate faults in the physical LAN media of most cabling systems.

Udderly amazing

You've heard of computer dating services for humans. Now, the Finnish government has developed a comparable program—for cows.

Finland's Agricultural Data Processing Centre (ADPC) in Helsinki uses an HP Vectra 486 personal computer (PC) to analyze and match genetic traits in dairy cows.

The ADPC hopes to breed an entirely new strain of cattle that produces milk significantly lower in fat and higher in protein.

The HP Vectra 486 PC serves as a host computer to manage raw data on the protein and fat yields of about 2 million Finnish dairy cows.

A special software package calculates breeding indexes based on the milk characteristics of selected cows and genetic traits of selected bulls.

ADPC can calculate a total breeding rating for each animal. The center uses the rating to select and match animals whose milk exhibits the desired protein-to-fat ratio.

"Bringing this application to a PC from the minicomputer/ mainframe puts ADPC on the leading edge of distributed computing," says Tarmo Kiuru, ADPC's managing director. "If an HP personal computer can help Finland's cows produce a higher quality of milk, think what else can be done."

No word yet on how well the cows have taken to the computer match-making service. However, that's what *Measure* calls a *personal* computer.

At least one Finnish cow seems to agree that the HP Vectra PC truly is a *personal* computer.

MOVED LATELY? CHANGE OF ADDRESS SHOULD BE REPORTED TO YOUR PERSONNEL DEPARTMENT.
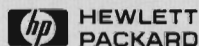
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