

Barriers and Gateways

to Workforce Productivity

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Executive Summary

U.S. manufacturers have made tremendous productivity gains during the past decade. Automation, process redesign, flexible manufacturing systems, and improved production planning are but a few of the technological strategies used to boost productivity. Great strides have been made, but only within the high-performance manufacturing organizations where human assets are used to create a competitive advantage. This study of 60 high-performance manufacturing organizations explores some of the barriers to workforce productivity and describes the key human resource practices used to create lasting productivity improvement.

Productivity is the watchword of manufacturing success. It is both an end and a means to manufacturing financial performance, and it is the variable that most manufacturers must continuously pursue.

During the last 10 years many manufacturers have made great strides in the productivity arena by leveraging a host of systems and technology enhancement strategies aimed at cutting costs and increasing outputs. These efforts have focused primarily on improving and enhancing the organization's production systems and have included such practices as the use of automation and robotics, cellular manufacturing designs, integrated product design/assembly practices, process reengineering, and improved production planning and information control systems.

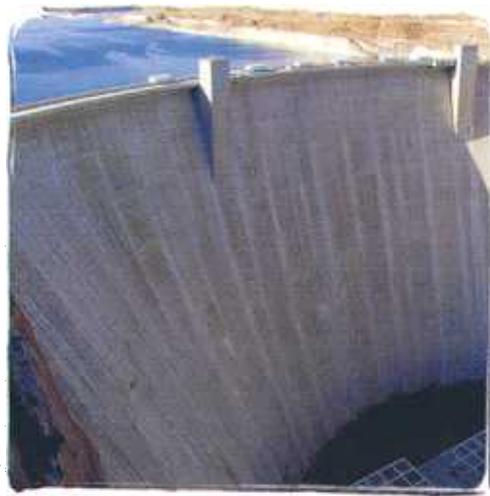
At the same time, manufacturers such as Motorola, Steel Case, Ford Motor Co., Cummings Engine, and Honda of North America, among others, have placed an equal emphasis on developing more effective management systems and human resource practices to support long-term productivity improvements. There is growing evidence that substantial organizational benefits can be gained when manufacturers employ a properly trained, motivated, informed, and supported workforce.

Despite some attention paid to the "human side of enterprise," many industrial organizations place an extreme emphasis on more technological and systems strategies for productivity improvement and fail to fully consider and develop a comprehensive strategy for workforce productivity enhancement. While significant productivity enhancement can be achieved using reengineering, systems

redesign, and technology upgrades, this comment by a plant manager is very telling: “In the end your long-term productivity improvements come from your people.”

Ironically, most manufacturers face numerous human resource challenges that might make this comment appear to be counter-intuitive. An aging workforce, a declining labor supply, a lack of qualified workers, and rising wage and benefit costs are real threats to workforce productivity. The key focus of this article is to discuss what can be done to overcome these challenges so that manufacturers can increase workforce productivity.

More specifically we explore the barriers manufacturers face that prevent workforce productivity and what progressive manufacturers are doing to improve workforce productivity. To this end, we report on a research study undertaken to explore both of these issues from the perspective of seasoned manufacturing managers and to learn the workforce challenges they face. We are also most interested in what their organizations are doing to best leverage the potential of their workforce. Thus, we present the results of a study on the barriers and gateways to workforce productivity in high-performance manufacturing organizations.



Barriers and gateways

To explore the barriers and gateways to workforce productivity, we conducted an in-depth study of 60 different U.S. manufacturing plants. These organizations operate in a number of industries, including steel, automotive, plastic, glass, office furniture, and electronics. They employ a variety of process, batch, and assembly-line technologies. Workforces in these organizations range from 150 to 3,000 employees, with the average facility employing more than 400 people. Thirty-two firms are unionized, and 28 are nonunionized.

To be included in the study, organizations had to meet two primary selection criteria: they had to be achieving profitability goals, and their organizational trends had to be on the upswing. Structured interviews were conducted with 306 top, middle, and first-line manufacturing managers. In these interviews managers were asked two critical questions:

• What *factors* prevent your workforce from becoming more productive?

• In what specific *practices* is your organization currently engaged to make your workforce more productive?

Responses among managers at each facility were compared to identify the key barriers and practices. The responses from all 60 facilities were then content analyzed and tabulated. Table 1 lists the top 15 barriers to workforce productivity as described by managers. Table 2 contains the top 15 practices described as critical to workforce productivity improvement.

Table 1. Primary barriers to workforce productivity

Barriers cited	Percentage of respondents*
1. Ineffective production technology equipment	68%
2. Lack of workforce training/ongoing development	63%
3. Poor operational planning	56%
4. Communication breakdowns	51%
5. Workforce resistance to change	43%
6. Ineffective supervision/management	42%
7. Lack of teamwork/cooperation	39%
8. Persistent operating/quality problems	38%
9. Unclear performance standards	36%
10. Lack of workforce understanding of customer and business issues	35%
11. Ineffective selection/person-job fit decisions	32%
12. Unmotivated workforce	30%
13. Labor-management tension/mistrust	29%
14. Poor performance feedback systems	27%
15. Lack of incentives	

* 306 managers

Workforce productivity barriers

In exploring the primary barriers that modern manufacturers face in making their workforces more productive, three primary themes emerged rather naturally from these interviews. It has been said that performance is always a function of ability times motivation times support, and managers in this study identified barriers to workforce productivity in each of these categories, with the greatest number of factors falling under the issue of “support.” A review of Table 1 identifies the most frequently mentioned factors that prevent workforce productivity in the eyes of managers in this study.

Primary barriers to workforce productivity in the “ability” category included a lack of workforce training and ongoing development, a lack of workforce understanding of customer and business issues, and ineffective staffing and placement decisions. Without properly trained and knowledgeable workers, productivity improvement is difficult at best. The primary barriers to workforce productivity in the “motiva-

Managers in this study stated that they had some control and considerable influence over the majority of the barriers that they claimed limit workforce productivity improvement!

tion” category included workers who are resistant to change, a lack of workforce motivation, and a lack of incentives for workers to become more productive.

The primary “support” barriers to productivity included issues that might be classified as both a lack of technical and managerial support. In the “technical support” area, workforce productivity is difficult to improve when production technologies and equipment are ineffective and/or outdated, poor operational planning exists, persistent operational and quality problems are not addressed and rectified, and performance feedback systems are ineffective. Managers in this study were quick to point out that without a sound technical manufacturing system, workforce productivity is immediately called into question.

In addition, ineffective managerial support can quickly create barriers to workforce productivity. These barriers include communication breakdowns, ineffective supervision and management, lack of teamwork and cooperation, unclear performance standards, labor-management tension and mistrust, and inappropriate staffing levels (both under- and overstaffing). What is noteworthy about these interview findings is that managers in this study stated that they had some control and considerable influence over the majority of the barriers that they claimed limit workforce productivity improvement!

Workforce productivity gateways

Before we discuss the gateways to workforce improvement, several observations are in order. First, no single organization was engaged in *all* of the practices identified, although there was a strong consensus about their usefulness (as indicated by the relatively high frequencies across organizations).

Second, managers of few organizations were willing to claim that they had mastered any of these specific practices; they said they were all initiatives that represented “works in progress.”

Third, managers described an ongoing struggle to institutionalize these practices to make them part of their facilities’ operating culture, rather than allowing these efforts to be viewed as “just another program” or “fad of the month.”

Finally, the most successful practices had a common underlying theme: the organization had to be very focused and disciplined in implementing and maintaining these improvement efforts. Table 2 contains a summary of the key findings in the following discussion.

- *Gateway #1*—Systematically share operating data with your workforce. The most popular gateway for enhancing productivity, according to the managers in our study, was the practice of sharing operating data with the workforce on an ongoing basis. Operating data typically shared with workers included production quantities, quality levels, and productivity results. These kinds of data directly affected organizational sales, customer feedback, overall operating results, and even profits. Information was most frequently shared using preshift meetings, posting on bulletin boards (in some cases, electronic bulletin boards), and in company newsletters or handouts.

- *Gateway #2*—Use employee problem-solving teams. Manufacturers in this study used employee problem-solving teams (departmental quality circles, cross-functional/departmental problem-solving teams, and various forms of task forces) with varying levels of sophistication and perceived success.

These teams were typically “on the clock” with rare exceptions. The problems they frequently addressed included productivity, quality concerns, ergonomics, training, material handling, customer complaints, scheduling, and overall performance “barrier busting.” While some managers complained that problem-solving teams were at times “overused,” the consensus was that *effective* problem-solving teams get results.

Table 2. Gateways to workforce productivity

Key practices cited	Percentage of respondents*
1. Systematic sharing of operating data with workforce	87%
2. Employee problem-solving teams	85%
3. Increased customer contact/focus/feedback	82%
4. Employee empowerment/job redesign	78%
5. Ongoing management development efforts	65%
6. Continuous training/cross-training practices	63%
7. Work teams	62%
8. Ongoing measurement/feedback mechanism	60%
9. Progressive/value-added supervision	58%
10. Aligned action with meaningful metrics	50%
11. Developing an effective management team	40%
12. Upgrading human resource management practices	33%
13. Increasing staff-line cooperation/cohesiveness	30%
14. Labor-management cooperative programs	28%
15. Incentive systems	27%

* 60 organizations. If a majority of managers from a particular organization cited a key practice, then that organization was included in the percentage.

- *Gateway #3*—Increase customer contact/focus/feedback. Organizations reported an assortment of practices designed to get their workforce “close to the customer.” Customer contact included customers visiting facilities, workers visiting customers, greater sales force presence on the production floor, and direct contact between customers and production floor workers via phone, fax, and e-mail. Organizations attempted to create greater customer focus by heavy exposure to company sales personnel using clearly developed, customer-driven production plans and specifications, and by placing a heavy emphasis on customer expectations for products.

In addition, customer feedback was frequently provided to workers at various facilities via positive letters, customer complaints, and results of customer satisfaction surveys. It was not uncommon to see production workers having the capability and authority to communicate directly with their customers without working through traditional organizational hierarchies.

- *Gateway #4*—Empower your employees and redesign jobs. These manufacturing plants empowered employees to be more involved with the planning, scheduling, and controlling of the decision-making processes in their operations. This effort to empower employees frequently manifested itself in job redesign that moved away from the traditional practice of the specialization of labor. Workers were typically involved in more tasks, as well as being allowed to make decisions and be involved in activities that were traditionally under the purview of management. In some organizations empowerment was an evolutionary process taking place over time.

In other organizations it occurred as a complete work redesign or process reengineering effort. Clearly, workers are being granted greater autonomy, authority, responsibility, and variety in the duties they perform in their operations to enhance productivity.

- *Gateway #5*—Make ongoing management development a priority. Organizations in this study realized the necessity of effective and enlightened leadership. Yet they often struggled to move away from the traditional authority-based approach to plant management. To this end, these organizations were making a concerted effort to upgrade and retool existing management talent using many approaches, despite encountering some resistance to change.

Management development areas included such topics as coaching, effective communication, conflict resolution, team building, process mapping, technical manufacturing issues, leadership, human resource management issues, work methods, computer training, and stress management.

Management training classes were frequently provided in-house, although managers were also supported and reimbursed if they chose to get additional training outside the organization. Management cross-training activities across departments and special assignments were common.

Mentoring programs were also in place at several plants. Formal performance appraisals and corresponding discussions of management development were widespread, although with varying degrees of success.

In addition, many facilities had book, journal, and video libraries to provide managers with a reference source for ideas on current and progressive management practices.

- *Gateway #6*—Practice continuous training/cross-training. Workforce training among these organizations received a substantial amount of attention for being a primary vehicle to enhance workforce performance. These organizations often developed a systems approach to their training needs to ensure quality. Training was conducted in several forms covering a wide range of both technical and nontechnical topics.

Issues such as employee orientation, statistical process control, proper work methods, problem-solving skills, telephone use and etiquette, computer training, machine maintenance, safety training, team leader training, health, and stress management represent a small portion of the instruction these organizations provided.

Both on-the-job and classroom training were frequently employed to instruct workers. In addition, cross-training among workers seems to be a growing organizational practice. Mentoring and coaching programs were frequently in place to provide workers with reinforcement of desired training behaviors and to encourage application of knowledge. In the unionized facilities, labor representatives frequently had considerable input into the organization's training practices and procedures. In summary, most of these organizations made worker training and education an ongoing priority.

- *Gateway #7*—Use work teams appropriately. More than half of the manufacturing plants in this study were using some form of autonomous or self-directed work teams. Teams were frequently traditional work groups or departments whose duties had been restructured so they were not dependent on the control of an immediate supervisor. Work teams were used in production processes, warehousing operations, maintenance and custodial departments, and front office operations.

We found that work teams were often structured around specific organizational processes and/or products, and workers were set up to operate with minimal management direction and control. These groups pursued specific goals, operated in highly interdependent environments, had clearly defined roles, and usually operated with a peer serving as a team leader. Several organizations had their entire operations structured around teams, while others used them more sparingly based on a particular organizational need or opportunity.

- *Gateway #8*—Develop and provide ongoing measurement and feedback. A notable characteristic of a significant number of these plants was the practice of measuring critical performance variables on an ongoing basis and feeding

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this information back to the workforce in understandable terms. As one manager stated, “You get what you measure, so you better measure the right things and get that feedback into the hands of your workforce. . . . We try hard to provide ongoing measurement and feedback not to beat our people, but so they can know how they are doing and they can respond appropriately.”

While 87 percent of these plants shared organizational operating data with their workforces, 62 percent of these plants used continuous measurement and feedback devices to increase worker productivity. Traditionally, manufacturing measurements have focused only on production and output (in some cases to an extreme).

Progressive manufacturing organizations continually measured and monitored a variety of critical performance indicators that went well beyond simple output numbers. These included quality levels, lead time performance, inventory levels, productivity, and cost, among others. This information was then provided to both workers and managers as ongoing feedback on their performance against organizational goals and standards.

• *Gateway #9*—Create progressive, value-added supervision. We found that the role of supervision in these manufacturing facilities had evolved from the traditional role (as controller and disciplinarian) to one that more effectively supported employee empowerment, the use of teams, and labor-management cooperative efforts.

The organizations in our study described supervisory roles that placed a high value on planning, troubleshooting, scheduling, coaching, training, process improvement, problem solving, and creating teamwork. Overall, these organizations realized that the quality of their operations depended on the ability of their front-line managers to balance operating and technical concerns with the effective management of the human side of the operations.

• *Gateway #10*—Align workforce behaviors with meaningful metrics. Managers in this study repeatedly spoke of the necessity of having *everyone* in the organization effectively performing needed duties and pursuing meaningful outcomes

and goals. For this “focused behavior” to take place, managers agreed that processes must be understood by everyone, jobs need to be clearly defined, goals and metrics need to be both meaningful and achievable, and workers must be “aligned” with the current demands of the operation.

This process of alignment required intensive, ongoing communication between the front office and factory floor, labor and management, managers with each other, and among departments and shifts. People at all levels of these organizations were encouraged to focus on achieving goals that increased efficiency, enhanced quality, controlled costs, encouraged workers’ attendance and, ultimately, better served the customer.

• *Gateway #11*—Develop an effective management team. One of the challenges faced by all of these organizations was developing and maintaining teamwork among plant management. While the problem was discussed in nearly every facility, only 40 percent of these operations identified current activities aimed at building management cohesiveness.

Managers agreed that without teamwork in the management ranks, a host of problems emerge, including “communication breakdowns,” “unhealthy competition,” “personal agendas and politics,” “conflict between shifts and departments,” and “turfsmanship,” among others. The plant manager’s leadership style (and mode of operation), as well as the facilities’ operating structures, were frequently identified as being critical factors influencing the level of teamwork among management personnel.

Practices identified for achieving management teamwork included the following: an emphasis on common goals, weekly staff meetings, management retreats, regular team-building sessions, management problem-solving teams, performance reviews that made management teamwork a priority, 360-degree and peer performance reviews, and regular, informal meetings away from the plant (usually at a local restaurant or watering hole).

The absence of management teamwork was most notable between line and staff departments and across shifts. Managers made it clear that without focused efforts to encourage cooperation, “teamwork in the management ranks does not just happen.” Without management teamwork, workers can easily become cynical and less than receptive to any organizational improvement efforts.

• *Gateway #12*—Upgrade current human resource management (HRM) practices. While representatives from many of the organizations in this study discussed the importance of effective human resource management practices, only one-third identified specific, coordinated, programmatic efforts to upgrade and improve their operation’s HRM function. These initiatives frequently focused on developing more effective recruiting and selection procedures to secure what was perceived to be a dwindling pool of high-quality workers.

At the same time, such issues as effective employee orientation, benefits education, worker's compensation reduction programs, improved performance appraisals, employee safety, and employee assistance programs were all mentioned as HRM initiatives that could enhance workforce stability and productivity. Procedures designed to make it easier to pick up paychecks, file medical insurance claims, schedule vacations, and complete tuition assistance reimbursement forms were just a few examples of "user-friendly" HRM efforts. Responsibility for spearheading these improvement initiatives was frequently the domain of the HRM function, but many organizations were making effective HRM practices the responsibility of all plant management personnel.

- *Gateway #13*—Increase staff-line cooperation and cohesiveness. As many of the organizations in this study immersed themselves in process redesign, reengineering, total quality management, and continuous improvement efforts, a "gap" frequently emerged between staff and line departments. This gap was described as a "canyon between the sales and operations people," "a wall between inventory and production," or "a universe between maintenance and everybody else." What is surprising is that only 30 percent of these organizations identified specific efforts to close these gaps, although attempts at developing an effective management team would likely help in closing many of these staff-line operations gaps as well.

Vehicles often mentioned by the managers in our study included regular staff-line alignment meetings, the use of matrix or team structures to place staff and line personnel in the same operating unit, cross-training, feedback surveys designed to assess the degree to which staff and line departments were working together, cross-functional problem-solving teams, job alignment activities to establish procedures to make staff and line jobs more compatible, and removing competing goals and missions.

Managers frequently stated that the tensions between staff and line functions are regularly created and driven by corporate policies, structures, and practices that are controlled at headquarters. Corporate personnel must be willing to listen to the needs of plant operations if many of these gaps are to be closed.

- *Gateway #14*—Establish labor-management cooperative programs. Half of the unionized facilities (17 of 34) in this study had initiated labor-management cooperative programs. While significant differences did not emerge in terms of the way unionized and nonunionized facilities attempted to make their workforces more productive, union contracts frequently created an additional communication barrier that had to be addressed.

In addition to employee problem-solving teams and work teams, a number of facilities had created formal labor-management councils to discuss how to improve and bolster workplace cooperation without undermining the sovereignty

of the labor contracts. These groups addressed better means of labor-management cooperation, common areas of concern, organizational viability, industry competitiveness, training issues, and improving disciplinary procedures. Their purpose was to reduce the wall that existed between labor and management in many of these organizations.

These efforts were considered critical to opening up the communications and trust necessary to sustaining other productivity and performance-enhancing initiatives. It also provided an arena for labor and management to come together to discuss progressive performance issues, *not* contractual issues, which is in accordance with the National Labor Relations Board's most recent rulings of limits for these groups.

- *Gateway #15*—Provide effective organizational incentive systems. Among the important, yet less-mentioned, initiatives for enhancing workforce productivity was the practice of organizational incentive systems. A number of organizations used a variety of incentive systems to shape workforce behavior and to reinforce performance improvement efforts. To reward *long-term* performance, organizations used financial incentives, including gain sharing, profit sharing, shift production bonuses, safety and attendance awards, and prizes (e.g., gift certificates, movie tickets, clothing, and appliances), along with other sophisticated reward systems.

In other cases, company programs that had taken on a life of their own or were created at a local level were used as motivational tools by plant management to reward *short-term* performance (movie tickets, pizza for a high-performing shift, T-shirts for a productive period, etc.). Overall, these systems were established to reinforce desired behavior and performance at both the individual and organizational levels and were believed to correlate strongly with improved performance and productivity.

Lessons learned

While there are numerous barriers to workforce productivity, there are many more gateways and opportunities to improve the ability, motivation, and performance of manufacturing employees. Traditionally, when a manufacturing organization wanted to improve performance it purchased new technology, redesigned systems, and/or simply told the workers to work harder. To achieve a sustained competitive advantage modern organizations must use a more comprehensive and enlightened approach that attempts to leverage both technology and the workforce in tandem.

Modern manufacturing managers have a variety of human performance-enhancing tools that can be used to increase workforce productivity, as illustrated by the organizations in this study. Workforce improvement strategies must include sound production systems and must focus on the ability times motivation times support equation. Five important lessons emerged from the interviews we conducted, in addition to

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several key questions that deserve some thought by the progressive manufacturing professional.

• *Lesson 1*—Manufacturing technology is necessary, but insufficient, without workforce commitment to performance. Progressive manufacturing organizations work diligently to maintain their technical competitive advantage. Without up-to-date technology, long-term success and survival in the manufacturing sector are questionable. However, these high-performing organizations realize that technology alone will not allow them to sustain this competitive advantage without a skilled, motivated, and committed management team and workforce.

The practices identified in this research were undertaken to “institutionalize as a way of organizational life” an operating culture that would sustain productivity improvement efforts over the long haul. These organizations experienced an ongoing struggle to maintain the effectiveness of these practices and to prevent them from becoming “fads” and the “flavor of the week”—efforts that are common in most organizations. Even the best operating systems will never achieve optimal performance without workforce involvement.

Key question: What is your organization currently doing to enhance both technology and workforce commitment to performance?

• *Lesson 2*—Organizations must enhance workforce ability to improve productivity. In this study organizations enhanced the workforce ability component by using effective selection and orientation procedures, conducting ongoing training, and attempting to align workers with jobs. Technology without a talented workforce is an opportunity that has not been utilized enough. Without a focused effort to enhance the talents of a changing workforce using rapidly advancing technologies, long-term performance will suffer.

Key question: What is your organization currently doing to enhance the abilities and talents of your workforce?

• *Lesson 3*—Organizations must enhance workforce moti-

vation to improve productivity. To enhance workforce motivation, these organizations attempted to create a customer satisfaction mind set among their workers, provide operational data to workers to create trust and ownership, empower workers to allow greater autonomy and control, design jobs that were more stimulating; provided specific performance metrics and targets; maintained ongoing measurement and feedback systems to shape workforce behavior; and attempted to use incentive systems to motivate their workers.

Technology without a motivated workforce is a lost opportunity. Workforce motivation is not a given, and high-performance organizations take a multifaceted and proactive approach to increasing workforce motivation. It is critical to remember that the majority of motivational tools identified in this study are nonfinancial in nature, so organizations claiming to have “limited financial resources” can still provide incentives and rewards for improved and sustained productivity.

Key question: What is your organization currently doing to create and sustain an environment that encourages worker motivation?

• *Lesson 4*—Organizations must enhance workforce support to improve productivity. In the support component, progressive organizations created ongoing problem-solving teams; provided effective supervision and coaching; fostered management, workforce, and staff teamwork and cooperation; and employed a host of effective human resource practices.

Technology without effective support breeds workforce frustration, alienation, and withdrawal. Without technology, ability, motivation, and support any organization is destined to fail. In essence, the support activities of managers are crucial to the success of even the most well-trained and motivated workforce. If managers are not perceived to be credible and supportive of their employees, any and all of the practices identified in our study could easily be destined to breed cynicism, frustration, and even a loss of productivity.

Key question: What is your organization currently doing to provide ongoing support for your workforce?

• *Lesson 5*—Workforce productivity practices take time, focus, and discipline to implement. The final lesson to learn from this study is really a double-edged sword. Although the productivity practices described here will increase the performance of your organization, they are not quick fixes, and they require time, focus, and discipline to achieve maximum and sustained results. The burden of their development and support falls squarely on the shoulders of management at all levels.

Changing the culture from a primarily technological focus to one that recognizes that human assets are just as valuable as technological ones is often a Herculean task. However, managers in this study agree that if the right organizational culture is built, employees will respond to it in time.

Key question: What is your organization currently doing to create a culture that brings out the best in both managers and their subordinates?

Soul searching

Prudent manufacturing managers and executives would be well served to assess the degree to which they are effectively employing a workforce productivity enhancement strategy employing all three components of the manufacturing performance equation (ability times motivation times support). The most important soul searching you can do, however, is to ask yourself how you view your workforce—as a “cost” or as a “partner.”

If you can refocus your own appraisal of your employees as human assets, you will soon see that—unlike the technological capital in your organization—the human capital has unlimited capabilities for productivity and performance enhancement and improvement. One vice president of operations put it very well: “The real key to workforce productivity is not the workforce; it is us [management] and the partnership culture we build into our plants.” So take down the barriers and open up the gateways for your manufacturing partners. They won’t disappoint you. ■

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