

Transforming Your Manufacturing Organization Into a Learning Organization

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Many experts believe the only sustainable advantage an organization will have in the future is its ability to learn faster than its competitors. This competitive advantage can be achieved by transforming the organization into a learning organization. This article describes the basic elements of a learning organization and how to transform an organization to focus on learning. The article also describes methods for evaluating the training and learning that occurs within the organization to ensure that training dollars are wisely spent. Finally, the article describes what individuals can do to focus on their own learning and personal development within an organization.

THE OPPORTUNITY

It's not altruism, goodwill, or kindness that transforms a manufacturing organization into a learning organization. Its bottom line results - **Manufacturing firms that implement training programs increase productivity by an average of 17 percent.** (1)

In the twenty-first century, the only sustainable competitive advantage will be an organization's ability to learn faster than its competitors. A study by the Washington, D.C., Brookings Institution revealed that 60 percent of an organization's competitive advantage is derived from internal advancements in knowledge, innovation, and learning.(2) If your organization is going to thrive in the 21st century, it must transform from a manufacturing organization into a learning organization.

Unfortunately, few manufacturers emphasize knowledge, innovation, or learning. Employers spend one-ninth as much on formal training as they do on durable equipment purchases. (3) The average number of training days per manufacturing employee is a mere three. (3) In 1995, the United States spent less than 2 percent of its total payroll wages on training expenditures. (3) The average employer is just not interested in developing a competitive advantage through corporate learning.

However, organizations that do place a high value on organizational learning have achieved dramatic results. Laser Drive, Inc., a Pittsburgh-based manufacturer, used

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learning organization techniques to achieve a market share of 70 percent. Motorola, whom, Fortune characterized as the "gold standard of corporate training," estimates that for every dollar spent on problem solving and statistical process control training, thirty dollars are returned to the corporation. (4) **Several companies have reported a training return on investment of more than 1,000 percent.** (5)

More manufacturing firms need to be aware of the tremendous potential of focusing on learning and training within their organizations. Fortunately, there are clearly defined steps to becoming a profitable and productive learning organization. The first is to understand the definition of a learning organization.

WHAT IS A LEARNING ORGANIZATION?

A learning organization is a group of people who have woven a continuous, enhanced capacity to learn into the corporate culture, an organization in which learning processes are analyzed, monitored, developed, and aligned with competitive goals. A learning organization generates knowledge and learning faster than competitors and turns that learning into a strategic advantage to outmarket, outmanage, and outsell competition.

A learning organization moves beyond simple employee training into organizational problem solving, innovation, and learning. For instance, in a learning organization, when a product is bad, instead of just scrapping it, the employees find the cause of the problem and develop solutions to prevent it from happening again. In a learning organization, the focus is on a company's only appreciating asset-its people.

THE FIVE DISCIPLINES

The idea of building a flexible, profitable learning organization appeals to CEOs, corporate presidents, and other executives seeking an advantage in today's competitive environment. Interest in developing learning organizations has propelled the book, *The Fifth Discipline: The Art and Practice of the Learning Organization*, into a national best seller. The book was written by Peter Senge, director of the Center for Organizational Learning at MIT's Sloan School of Management. The Fifth Discipline outlines five areas, or disciplines, necessary for an organization to be classified as a learning organization: personal mastery, mental models, shared vision, team learning, and systems thinking.'

The first discipline involves an individual's ability to know what he or she wants and to work toward that goal. In a learning organization, creating an environment in which members can develop themselves toward the goals and purposes they choose encourages personal mastery.

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Mental models, the second discipline, are an organization's and individual's internal picture of the world—a paradigm. Paradigms must be constantly evaluated, analyzed, and clarified to ensure they are as accurate as possible. Too many organizations get caught in an old paradigm and cannot react quickly enough to a changing market.

Shared vision is building a sense of commitment in an organization by developing shared images of the future. This includes developing the principles and guiding practices used to reach the goal. In many organizations the mission or vision statement is often a tangible symbol of the shared vision. Team learning is geared toward developing collective thinking skills. These skills enable members of a group to reliably develop intelligence and abilities greater than the sum of the individual members' talents.

Systems thinking is a way of thinking about and understanding the forces and interrelationships that shape the behavior of systems. This discipline helps organizations see how to change the systems more effectively and to act more in tune with the larger processes of the natural and economic world.

While the five disciplines are vital, they do not in themselves provide much guidance on how to begin the journey of building a learning organization. To implement these five disciplines, an organization must commit resources to learning, establish a learning infrastructure, institutionalize learning, appoint a corporate learning officer, and conduct extensive soft-skills training.

Once those items are in place, the organization must implement an evaluation program to measure the effectiveness of the training. A good evaluation program ensures that the training within the organization is effective and positively impacting the bottom line. The final step is for an organization to openly encourage employees to pursue personal growth and development.

THE TRANSFORMATION

What is the first step to becoming a learning organization? Ask Tom Peters. In his 1987 book *Thriving on Chaos*, Peters urges American managers to "consider doubling or tripling your training budget in course of the next 24 to 36 months." He goes on to say "less serious consideration means a failure to come to grips with both the nature of the problem and the magnitude of the opportunity"⁽⁴⁾ However, simply conducting thousands of hours of highly expensive training will not produce a learning organization. The entire company must institutionalize learning and hold it up as a corporate priority.

Does anyone in your organization have the word "learning" in his or her job description? Is "learning" in your corporate mission statement? Every recruiting effort, new hire, succession plan, incentive dollar, and promotion must involve recognition and appreciation of learning. A learning urgency must "ooze" from the organization.

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For example, your CEO or president must conduct as well as attend training classes. Your CEO doesn't have the time? Roger Enrico, CEO of a \$30 billion company with more than 300,000 employees, spends more than 100 days a year conducting workshops for senior executives. (7) If the CEO of Pepsi can do it, your CEO can do it.

A dramatic step toward becoming a learning organization is to appoint a chief training officer (CTO) or a chief learning officer (CLO). Many organizations claim to value human resources, but how many have a human resources representative involved in discussions about research and development commercialization, new product development, the strategic vision of the company, or increasing shareholder value?

The job of the CTO is to monitor internal training practices, position training to support the strategic direction of the company, participate in succession planning, develop a learning infrastructure, and champion organizational learning and employee growth and development. The corporate asset of "employees" must be planned and monitored with as much care and attention as the purchase of major capital equipment.

The CTO needs to establish a corporate wide training curriculum tied directly to corporate goals and objectives. The learning infrastructure developed by the CTO should consist of several interrelated systems encouraging learning and providing information on an as-needed basis. Many high-tech and low-tech tools are available for building a learning infrastructure.

Intranets are excellent high-tech tools for providing a common location for learning materials. An intranet can serve as a collective corporate memory, capturing and distributing policies, procedures, and centralized training. A collective corporate memory helps your organization to avoid relearning the same information over and over again. These electronic networks can distribute computer-based training and provide a central exchange and discussion of ideas, competitor actions, and new product launches.

Low-tech solutions include a corporate lending library holding trade journals, competitive information, audio taped seminars, and an old-fashioned pushpin bulletin board. Brownbag lunchtime training sessions serve as excellent forums for the exchange of knowledge and information.

In learning organizations, much of the training focuses on soft-skills as opposed to hard-skills. Hard-skills or technical skills such as computer usage or machine operation are important but do not provide a sustainable competitive advantage. **Hard-skills become obsolete and are typically not transferable from one situation or project to another. Training in problem solving, decision making, leadership, and needs analysis provide skills useful in a variety of circumstances and are easily transferable.** Non-learning organizations spend all their time and money on hard-skills training and ignore the more important soft-skills.

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For example, choosing a new enterprise resource planning (ERP) system is a half million dollar decision impacting the entire company for the next five to ten years, yet few selection committees receive any training in team building, decision making, needs assessment, or any other soft skills. Prior to making this huge decision, the selection committee should be trained how to analyze corporate needs, how to work together, and how to make a group decision. In a typical organization, the selection committee never receives this type of training-that's a little scary.

But the really scary part is that once this untrained selection committee chooses the ERP system, they will implement it with little or no soft-skills training. Not only will soft-skills training improve and simplify the ERP implementation but, once learned, soft-skills are transferable to other corporate improvement projects. Make an organizational or a departmental commitment to soft-skills training today.

While it is important that organizations institutionalize learning, appoint a CTO and allocate the proper funds for learning, it is equally important that training positively impact the bottom line. Training's impact on the bottom line can be determined by continually monitoring and improving the training through an established evaluation program.

FOUR LEVELS OF TRAINING EVALUATION

The most common evaluation method of training programs was presented in 1959 by Donald L. Kirkpatrick, then a professor at the University of Wisconsin. (8) He developed a four-level classification scheme for the proper evaluation of training programs. The Kirkpatrick levels are an excellent framework for the CTO or an interested manager to continually and effectively monitor the training within an organization. If measurements aren't taken at each level, it's difficult to attribute any improvements to training.

Level 1 evaluations are conducted by handing out questionnaires at the end of the training session. Was the presenter knowledgeable? Did the presenter carry himself well? Were the ideas clearly presented? Some training professionals sneer at these "smile sheets." These professionals insist that end-of-course evaluations only measure the entertainment value of a course and not its quality. Not entirely true-what is actually measured is initial customer satisfaction. And initial customer satisfaction is an important measurement. The only time Level 1 evaluations become "sneerworthy" is when they are used as the only evaluation of training.

A Level 2 evaluation tests participant learning. At this level, the evaluation can involve anything from a pencil-and-paper test to a full-fledged skill demonstration. The idea is to see if the participant can pass a test demonstrating what he or she learned. If you have ever taken a final examination for a class, you've been through a Level 2 evaluation. The APICS CIRM and CPIM exams are examples of Level 2 evaluations.

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The Level 3 evaluation checks to see if the skills taught in the training class are actually being used on the job. Is the employee exhibiting behaviors that were discussed and learned in the classroom? Did behavior change as a result of training? A Level 3 evaluation can be conducted by observing an employee on the job or by interviewing the employee's supervisor or customers and asking them if they noticed a difference.

The Level 4 evaluation attempts to measure the bottom line result of training. Did the training positively affect the company? Are trained workers producing more subassemblies per hour, with fewer defects, than untrained workers? Have sales increased because the salespeople are using the new closing techniques taught to them in a training class? A Level 4 evaluation compares the monetary benefits of the training with the costs. This level of evaluation is difficult to obtain but must be measured to ensure that the company is not wasting its training dollars.

Two common formulas for calculating return on investment are a benefit/cost ratio and Return on Investment (ROI). To find the benefit/cost ratio, you divide the total dollar value of the benefits by the cost as shown in the following formula:

$$\text{Benefit/Cost Ratio} = (\text{Total Dollar Value of Benefits}) / (\text{Cost of Training})$$

ROI is determined by subtracting the costs from the total dollar value of the benefits to produce the dollar value of the net benefits, which are then divided by the costs and then multiplied by 100 to develop a percentage:

$$\text{Costs of Training} - \text{Total Dollar Benefits} = \text{Dollar Value of Net Benefits}$$

$$\text{Dollar Value of Net Benefits} \times 100 = \text{ROI Costs of Training}$$

For example, a training program at Magnavox produced benefits of \$321,600 with a cost of \$38,233. (9) The benefit/cost ratio is 8.4. For every dollar invested, \$8.40 in benefits are returned.

The net benefits are $\$321,600 - \$38,233 = \$283,367$. ROI is $\$283,367$. Using the ROI formula, for every dollar invested in the training, there was a return of \$7.40 in net benefits.

Identifying the costs of training is easy: course development expenses, material expenses, instructor salary, and course fees. Quantifying the dollar value of the benefits is more difficult.

There are four areas that can be quantified in terms of accessing the benefits of training: time savings, increased productivity, improved quality, and better employee performance. The quantification of these items is contained in Table 1.

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Conducting a four-level evaluation of the corporation's training programs will ensure that training is contributing to the competitive position of the company. Conducting evaluations will focus the offerings of the training department and help shape the learning infrastructure of the organization. It is the job of every person within the organization to help ensure that a training evaluation program is in place and that the training is positively affecting the bottom line.

Table 1. Quantifying the benefits of training.

Time Savings	
• Shorter lead time to reach proficiency	(hours saved × dollars per hour)
• Less time required to perform an operation	(hours saved × dollars per hour)
• Less supervision required	(supervisory hours saved × supervisory pay per hour)
• Better management of time	(hours freed × dollars per hour × opportunity cost of freed hours)
Increased Productivity	
• Faster work rate	(dollar value of additional units, sales etc.)
• Time saved by not waiting for help	(hours saved × dollars per hour + hours of helpers time saved × dollars per hour)
• Decreased downtime	(dollar value of reduced nonproductive time) Improved Quality
• Less scrap produced	(dollar value of scrap × decreased scrap level)
• Fewer rejects	(dollar value of reject × decreased reject level)
• Improved market share	(percent increase in market share × dollar value of increase)
Better Personnel Performance	
• Less absenteeism/tardiness	(hours of increased production × dollars per hour)
• Reduced grievances, claims, accidents	(dollars saved on paperwork, actions, medical claims, and lost time)
• Avoiding the need to hire new employees	(salary and benefits savings)

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ENCOURAGING PERSONAL GROWTH

Unfortunately, most organizations do not conduct the four levels of training evaluation or even seem to value learning. Typically when personal growth and an increase in the training budget are mentioned in most organizations, the old "what if we train our people and they leave?" question arises. It's a silly question. **Participation in employer-sponsored training actually reduces the likelihood of an employee leaving. (3) At a truck leasing firm, turnover was reduced by more than 6 percent as a result of employee training. (10)** Only stagnant organizations should worry about employees leaving after being trained.

Growing organizations ask a far more important question, "What if we don't train our people and they stay?" Without training, employees don't even know what they don't know. Do you use any Microsoft products? If you do, what percentage of the product do you use? Most people admit to using less than 70 percent. Even more disturbing is that most people don't even know all of the features available. Training, if nothing else, exposes employees to previously unknown possibilities.

The futurist Daniel Burrus stated at the 1996 APICS conference that no consumer ever asked for a self-cleaning oven. Why? Do people like to clean ovens? No. It's because they didn't know a self-cleaning oven was possible. Organizations can't expect employees to remain competitive, cut costs, and improve productivity if they don't know what's possible. The reason training is so important is because it provides organizations and individuals with a "taste" of the possible.

If your organization is not a learning organization then you must take the learning initiative yourself. How do you do this? By becoming a knowledge broker. Carnegie Mellon University conducted a study to find out why some employees of Bell Labs (now known as Lucent Technologies) were "stars" while others were just good, solid middle performers. (10) Obviously, IQ did not separate stars from middle performers because a high IQ is simply a point of entry for a position with Bell Labs.

The researchers found that star performers were members of an informal knowledge network in which ideas and information were bartered for more ideas and information. The star performers indicated that to be accepted into the knowledge network, an individual first had to become knowledgeable in a particular area and then freely share that knowledge. In other words, star performers are a kind of knowledge broker, exchanging ideas with colleagues in exchange for more ideas and more knowledge.

Star performers within an organization build their own informal learning network. You can start to build this network by subscribing to industry magazines and sharing what you learn with others. You don't have time to read more magazines? No problem. Do not read the entire magazine. Simply scan the advertisements and the table of contents every

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month. Nothing tells you more about the state of an industry than vendor advertisements. You will learn new industry buzzwords, new industry techniques, and pick up on future trends.

Now that you are a knowledge broker, photocopy articles of interest and pass them onto colleagues. Even if you don't have time to read the article, place a note on the article with a message "Hey, thought this looked like something you'd be interested in. I haven't had time to read it because I wanted to get it to you as soon as possible. Let me know if it was helpful." This technique will help you to gain access to the star performer network.

Knowledge brokers take time to share their knowledge with others. They present at APICS meetings, write articles for the local APICS newsletter, teach CPIM and CIRM classes, and become known as an expert in a particular area. Knowledge brokers spend time every day on personal growth.

CONCLUSION

An organization can transform itself into a learning organization by first understanding the tremendous competitive advantage that can be gained by the transformation. Once the advantage is realized, the organization must appoint a CTO and empower him or her to develop a corporate learning infrastructure. The next step is to conduct evaluations of all the organizational training to ensure that corporate goals are being met.

However, above all else, a learning organization must encourage individual learning and development. Even though CEOs, presidents, and corporate managers are all interested in large scale corporate learning, there is no corporate learning without individual learners. Grand, expensive programs are not necessary for the learning organization transformation to begin or to be sustained. Simple, incremental steps toward organizational learning will succeed in helping you and your organization learn faster than competitors and transform your manufacturing organization into a learning organization.

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