

# How Self-Directed, High-Performance Teams Saved an Organization

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## **Abstract**

This article discusses the success of the United States Army Tank-Automotive Research, Development and Engineering Center (TARDEC) in implementing a self-directed, high-performance team structure. The magnitude of this success recently earned TARDEC the most prestigious recognition possible, the Presidential Award for Quality.

TARDEC is the nation's laboratory for advanced automotive technology. Its mission is to maintain global technological superiority in military ground vehicles and to advance the role of science in the broader national interest. TARDEC is located at the Detroit Arsenal, in the heart of America's automotive industry. It is a subsidiary of the United States Army Tank-automotive and Armaments Command, under the leadership of Brigadier General Edward L. Andrews. In comparison with Fortune 500 companies of the private sector, TARDEC's parent command would fall within the top one hundred, and would be ranked as the fourth largest domestic automotive manufacturer.

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# How Self-Directed, High-Performance Teams Saved an Organization

*"TARDEC is an entrepreneurial leader in the transformation of government. Their success has helped us to maintain global technological superiority in military ground vehicles and to advance the role of science in the national interest. The application of quality principles has created a high performance and customer-driven organization, which will stand as a standard of excellence. In the midst of this historic transformation of the Federal Government, organizations like TARDEC deserve much praise and recognition for their success."*

*President Bill Clinton*

On August 2, 1995, Vice President Al Gore presented to the United States Army Tank-Automotive Research, Development and Engineering Center the Presidential Award for Quality. Only three other organizations have ever received this award. It recognizes TARDEC as the government's leader in the quality transformation process. How TARDEC became such a leader is the subject of this article.

TARDEC had not always been a recognized leader. In 1989, it nearly ceased to exist. The research community had ranked TARDEC the worst laboratory in the Army. The Defense Science Board had actually recommended that the place be closed. At that time, TARDEC was run down and depressing. Little had been invested in the facilities since they were first built in the 1950s. There wasn't even air conditioning.

The facilities were only symptoms of much worse neglect. TARDEC had no clear mission, no clear vision, and no focus on its customers. Although some employees understood their customer's needs and expectations, most did not even know that they had a customer.

At the eleventh hour, the Army sent two new leaders to Detroit, Dr. Kenneth Oscar and Richard Minnis. Their mission was simply stated: change TARDEC or close it. Ironically, TARDEC might have closed, had not Ken and Dick realized right away that they could not change it. The effort was too much for just two people to accomplish. Only the combined efforts of every employee, with their experience and knowledge, could affect the changes necessary. From the beginning, employee involvement was the instrument to TARDEC's success.

It would be nice to say that when the Quality Journey began at TARDEC in 1989, we outlined a transition to the self-directed team structure that has made us so successful. That simply is not the case. No one at TARDEC envisioned the present structure back then. Therefore, it is important to first review the keys that allowed TARDEC to succeed in evolving to self-directed teams. After that, we will discuss the actual teaming evolution that TARDEC went through. Finally, we will discuss the present form of self-directed teams and some of the dramatic results that the Quality Journey has produced at TARDEC.

## The Keys to Change

TARDEC calls its Total Quality Management program the Quality Journey. When the journey began in 1989, no one sat down and said, "We are going to create an organization of self-directed, high-performance teams, and these are the incremental steps we will take to get

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there." The leadership did not focus on the product of the reinvention, i.e. the structure of the organization, rather they focused on the process. Their objective was to create an environment in which the employees themselves could reinvent the organization. Dozens of books discuss removing barriers and encouraging success; however, the challenge was to get beyond the hype and buzz words and really change. At TARDEC, we focused on three keys: leadership, strategy, and development.

## **Leadership**

Leadership was the first key to success at TARDEC. The Quality Journey began with the arrival of the aforementioned leaders. Their leadership created an environment for reinvention through commitment, vision, and the positive involvement of the union.

Commitment of the leadership was the very first step of the Quality Journey. With demonstrated leadership commitment, total quality was no longer just another department like quality assurance and customer service. Nor was it simply lip service to a management fad. TQM with leadership commitment was a real change in how things were done. The following story illustrates this point.

When Ken first arrived, he took the unusual step of asking TARDEC employees to pinpoint the ills of the laboratory through one-on-one interviews, surveys, and town-hall meetings. This was the first time that TARDEC employees had ever been able to provide their valuable insight into how the organization was being run. Ken asked the employees what their number one concern was, and the overwhelming answer was "quality of life," especially the lack of air conditioning. Many times during the summer months, the laboratory actually had to close because of the oppressive heat. Ken made the employees' top priority his top priority. He personally secured exceptions to federal rules and regulations and pushed the initiative through. The investment returned \$1 million in lost work hours, but more than that, it demonstrated the commitment of the leadership to change.

The arrival of air conditioning made employees realize that TARDEC could change. The question then became, change to what? If what TARDEC was in 1989 was wrong, what was right? To answer this question, the leaders (union included) and employees benchmarked world class organizations, such as Milliken, Motorola, and Texas Instruments. They analyzed the National Security Plan and the Army Vision. They continued to survey the employees. They talked with their customers and suppliers. After they had done all this, they met in an intensive three day session and crafted a new vision for TARDEC: *To become the recognized world leader in military ground vehicle technology.*

The union leaders were indispensable at the three day session that produced the TARDEC vision. From the beginning of the Quality Journey, union leaders helped in crafting our new organization. They openly communicated to union membership how the new environment would affect them and reiterated TARDEC leadership's commitment and sincerity toward changing TARDEC. This greatly accelerated our transformation process.

As TARDEC moved toward its current configuration of management, the union was instrumental in flattening the organization. They created job descriptions that would enable engineers, scientists, and support staff to move freely throughout the laboratory. It was also the union leaders that changed the job descriptions of the former managers so that their pay-grade level was not tied to span of control.

As the process accelerated, the employees accepted change more readily. Through leadership commitment, they realized TARDEC could change. By the vision statement, they understood that the change at TARDEC was directed toward nothing less than world class status. Through the commitment of union leadership, they realized that they themselves were the agents of change. Soon employees were no longer called employees. They were *associates*.

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## **Strategy**

As we have already emphasized, the success at TARDEC was achieved because the leadership focused on an effective process of reinvention and not the product of reinvention. The same was true for strategy. Leaders focused on the business planning process, not the business plan itself. TARDEC was the first Army laboratory to publish an annual corporate strategic business plan, and each year the process has improved. In 1995, the Federal Quality Institute recognized TARDEC's business plan as a role model for federal organizations.

The business planning process began back in 1989. For the first time in memory, senior leadership, middle-managers, union representatives, suppliers, and customers all met together in an off-site working group. At these sessions, people met face to face and confronted the challenges of the laboratory as a whole. The results were sometimes shocking.

During one of the first sessions, a TARDEC manager complained that a colonel, serving as program leader for a tactical fighting vehicle, had contracted with TRW for the same engineering services that the manager's division provided in house. The session moderator asked the manager if he met with the colonel to discuss this. The manager replied that he had not. The moderator asked the manager if he had even called the colonel. Again, he had not. Had he sent a letter to the colonel? No, he had not. Then, to the shock of the moderator and the embarrassment of the manager, the colonel stood up in the session and introduced himself. It took sessions like these to face our internal and external customers and face what had to be changed.

Although TARDEC's business planning process has continuously evolved and improved from that initial session in 1989, this first step has remained. During the last quarter of each fiscal year, TARDEC's executive committee meets off-site in an intense, three day quality assessment session to evaluate TARDEC's progress. They review customer feedback reports, evaluate supplier performance, and judge the internal climate through the use of an internal quality and productivity self-assessment. At the end of this session, the committee issues the TARDEC annual report card.

Within the next 30 days, TARDEC's quality council convenes at a strategic quality planning conference. The council is made up of TARDEC leadership, union, team leaders, suppliers, and customers. At this venue, the council updates the strategy based on the current economic and political climate, input from the associates and customers, and the updated Army Science and Technology Master Plan.

The strategy contains a vision, mission statement, guiding principles, and strategic goals. Each executive committee member is responsible for one or more of the ten strategic goals:

1. Empower and develop our people
2. Provide resources
3. Forge dynamic partnerships with our community
4. Tell the story
5. Achieve total Army quality
6. Accelerate automotive research and development
7. Create new vehicle systems
8. Modernize existing vehicle systems
9. Enhance quality in the acquisition process, and
10. Put customer service first.

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<sup>1</sup> In the current configuration, TARDEC is lead by an executive committee of seven members: the CEO/president and the executive vice presidents for Operations, Research, Development, Engineering, Virtual Prototyping, and Technology Transfer.

Each strategic goal has objectives. There are 110 objectives in all. Each of our 83 teams crafts their individual business strategies around these objectives. For instance, under goal 6 *Accelerate automotive research and development* is the objective to *Demonstrate leap-ahead tank-automotive technology, double tank speed, increase survivability, and halve the weight.* The Future Demonstration Tank Team developed their business strategy around this particular objective. With their plan, they designed and built a prototype in 18 months using our virtual prototyping process. In supercomputer simulation, this prototype has already reduced the weight from 60 to 40 tons, increased the top speed from 60 to 75 miles per hour, and achieved survivability projections.

With the business plan, each team understands its relationship to the other 82 teams. The business plan provides each associate the global view that only senior leaders had before. This global view allows associates to change quickly and aggressively when opportunity arises without higher approval and with the full knowledge that their efforts will move TARDEC closer to its vision.

## ***Development***

The third key to TARDEC's Quality Journey was personal development. TARDEC leaders realized that as drastic changes occurred, many associates would require new skills and knowledge. If leadership could not predict the changes necessary for an organization, they certainly could not predict the changes necessary for 1,240 associates. The associates would need blanket authority in their personal development. In order to reinvent its organization, TARDEC first needed to reinvent personal development.

TARDEC developed its dynamic educational and training strategy in response to its guiding principles and strategic goals. One guiding principle affirms that *People are our most important resource.* One supporting strategic goal is to *Empower and develop our people.* Thus was born TARDEC University. TARDEC University is a first-of-its-kind, virtual university that provides progressive, just-in-time training, continuous professional education, and career counseling for all TARDEC associates.

There are six objectives to TARDEC University. The first, is to *Tailor long-term developmental programs for each career field.* In 1988, TARDEC had only ten associates enrolled in graduate programs. Today, that has been expanded to 60, with eleven in doctoral programs. There are twenty scientists and engineers in developmental assignments with General Motors, other sectors of the Department of Defense, and with our allies — England, France, Israel, and Germany. TARDEC University also offers advanced scientific and engineering degrees in cooperation with the National Technological University, Michigan Technological University, the University of Michigan and Wayne State University.

The second objective is to *Build strong career ladders for all our people.* We have developed an approach that will give all associates a chance to move into expanded career fields. To do this, TARDEC developed four schools within TARDEC University: Engineering and Science, Acquisition, Industrial Technology, and Business Administration. Historically, in the government, if one started in a particular position, one was destined to spend a career there. This was especially true for associates in non-degree positions such as secretaries. Now, an associate in a secretarial career or any other non-degree career can enroll in any one of these schools and start earning credits toward any degree. This will enable that associate to elevate into another career field. We currently have ten secretaries going through this process and 110 associates working toward degrees in other programs.

The Third objective is to *Maximize rotational assignments to foster associate development.* We have 65 associates rotating through different assignments within TARDEC, "shadowing" the executive leaders, and working directly for our customers.

The fourth objective is to *Mentor and counsel to maximize career opportunities for all.* Every new science and engineering recruit is assigned a volunteer mentor, based on that individual's career objectives.

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The fifth objective of TARDEC University is to provide *Total Quality Partnership and Team Building training*. This training focuses on melding the individuals into our teaming culture. All TARDEC associates have been through this training program and we are now concentrating on training our former managers to become coaches and facilitators through this system.

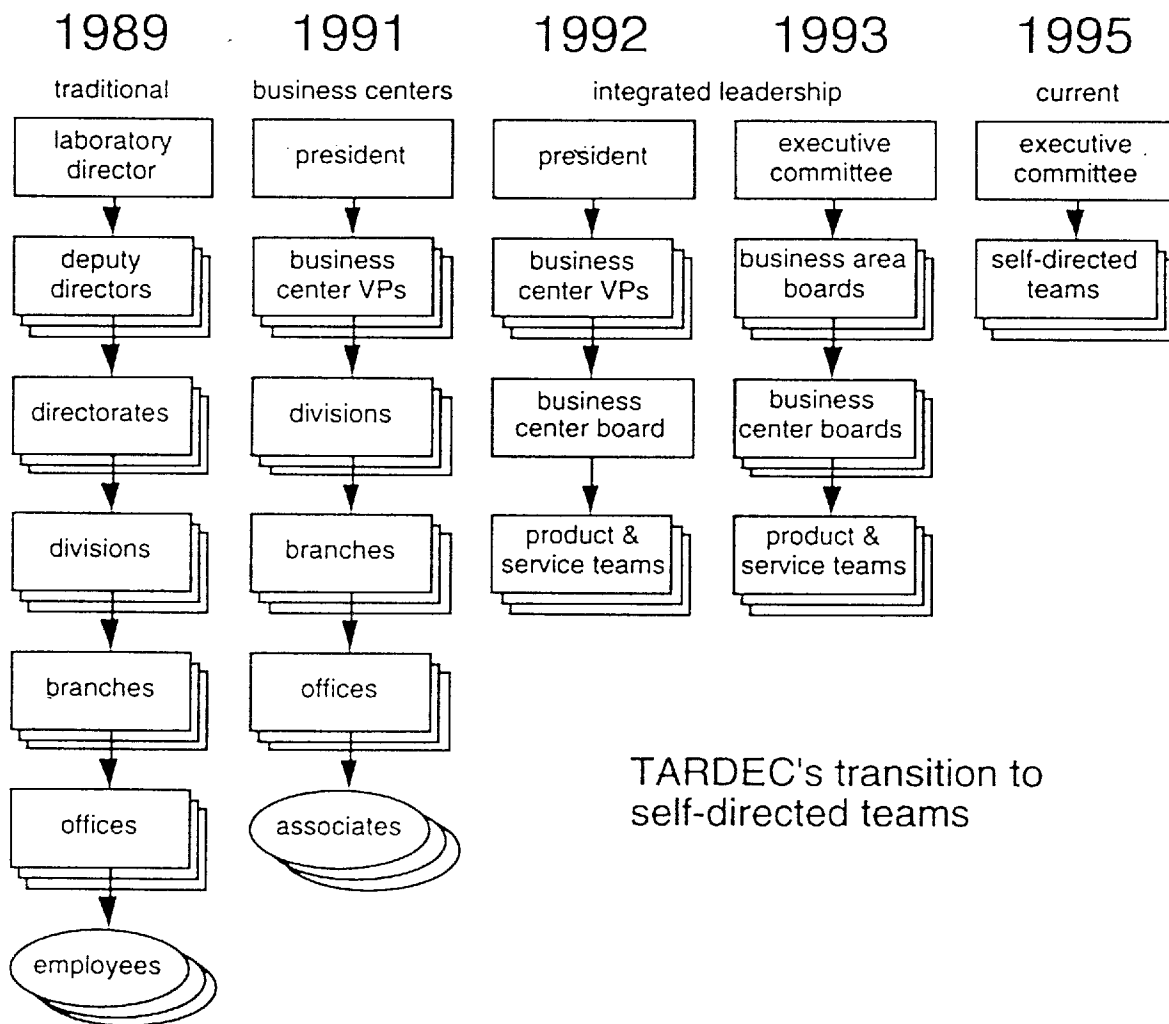
This ingredient of our TARDEC Quality Journey was instrumental in changing the perceptions and attitudes of managers and associates. The culmination of TARDEC University's training and educational opportunities is to prepare the individuals of TARDEC to become recognized world leaders in their respective fields.

## Evolving to Teams

TARDEC experienced three stages in developing teams:

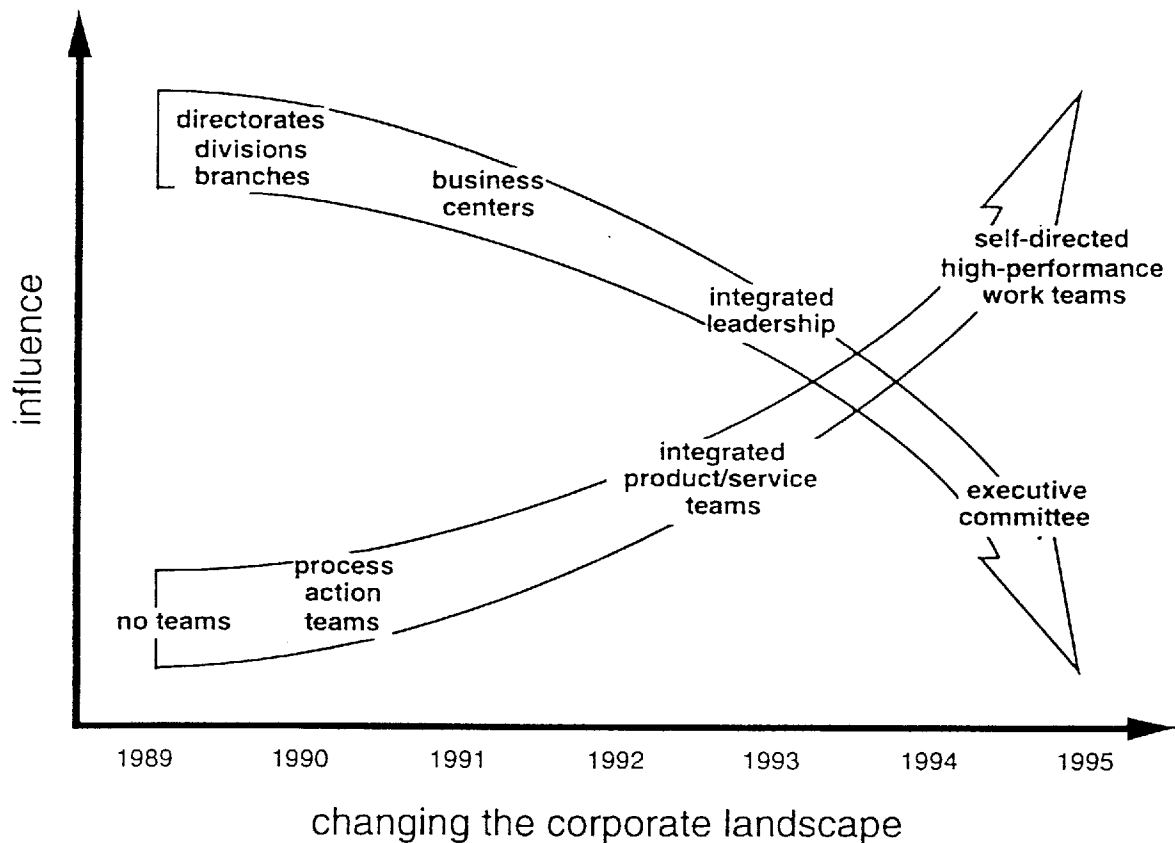
- Stage 1. Process action teams;
- Stage 2. Service and product teams; and
- Stage 3. High-performance, self-directed work teams.

Each step took us closer to our present state as our organization and people evolved.



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### ***Stage one: process action teams***

When TARDEC started the evolution towards the teaming concept, we first developed process action teams. These teams were developed to change a specific process or to solve specific problems. The associates that were selected or volunteered on these initial teams were brought together for a three day training session before they commenced with the project at hand. This training entailed Success Style Profile training so each member of the team could improve their interaction with other members. Training also included learning to use the Joiner Team Handbook.

However, once out in the process or problem solving stage, the teams floundered for a long time to come up with a solution. At first, we thought they were experiencing a learning curve, and that the next wave of teams would progress much faster as they learned from these initial teams. As we discovered, the reason the teams had not succeeded was because the process or problem was not specific enough. With later teams, we crafted the problems in more specific terms, and gave the teams shorter time frames in which to complete their objectives.

Even though these initial teams were a struggle to get off the ground, we learned very valuable lessons. We found that creating more specific objectives for these teams would lead to greater success. We improved the training to make it more beneficial to the teams. Most importantly, our associates learned how to work together as teams. We were worried that, because of the initial failure of teams, it would be hard to get other associates to form new teams. We found, however, that the initial team members were effectively recruiting other associates on their own by simply boasting about their empowerment.

During this process action team stage of team development, TARDEC kept the traditional governmental structure of directorates, divisions, and branches. We found change was slow and difficult as long as we remained in the traditional organizational structure. So, in 1991,

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TARDEC developed **Business Center Organizations**. Each of the directors of TARDEC's nine directorates became independent business center managers. They were empowered to control their budgets, resources, personnel, and futures. To emphasize a business mentality, each director became a vice president and Dr. Oscar became president. Each center developed its own business plans that followed the guidance of the TARDEC Strategic Plan. This new organizational concept forced our managers to run their organizations like a business, where they were forced to go out and find new business opportunities and listen to the customers more closely. This was quite effective in teaching our managers a new management paradigm, but it led to a lot of internal competition as some of the business centers fought for the same customers.

### ***Stage two: service and product teams***

To bring about greater impact in our services and products, TARDEC leaders pushed the organization into a higher level of teaming. In 1992, the teaming evolution continued with service and product teams. These teams were aligned and focused on the final goal of providing a service or a product to the customer.

In order to facilitate this new level of teaming, TARDEC leaders had to install a new organizational concept. The next evolution in leadership was the **Integrated Leadership** concept. This concept was first tested in the Vetronics Business Center. The former director (now vice president), former deputy director, and former division and branch chiefs formed a board. The associates were divided up into several product and service teams. The individual division and branch managers no longer controlled a group of subordinates, but rather oversaw the workings of all the teams of the business center. The job of the board was to set direction for the business center, control team budgets and personnel, and to coach, facilitate, and mentor the teams. The business center vice president's new role was to develop the future direction of that business center and to secure new business.

After we matured this concept in the Vetronics Business Center, we rolled it out TARDEC-wide. TARDEC's nine business centers were grouped into the five business areas: Research, Development, Engineering, Operations, and Technology Transfer. Each of the five business areas had an executive vice president who headed up a board comprised of business center vice presidents. For instance, the Research Board consisted of the Executive Vice President for Research, the Vice President of Mobility, the Vice President of Survivability, and the Vice President of Vetronics. This board worked together to meld TARDEC's research efforts. This setup created a direct link from the top down to the teams, with the business center vice president being the link between the two.

At this time, every team reported to one of the nine business center boards. Teams only controlled project schedules and some budget and personnel actions, while the boards oversaw the global budgets, schedules, and personnel of each team. Infrastructure support, such as accounting, personnel, procurement and legal, came from outside suppliers.

TARDEC was progressing toward autonomous teams. The teams, their suppliers, and their customers were working closer together, reducing service times and lead times. Our associates were learning to run their teams as businesses, just as our managers had learned in the prior year.

### ***Stage three: high-performance, self-directed work teams***

In early 1994, when Mr. Wayne Wheelock succeeded Ken Oscar as TARDEC's president and CEO, the rapid pace of advancing technology, the disappearance of boundaries between markets, and altered expectations of customers presented dramatic new challenges to TARDEC. Wayne knew that only a dramatic transformation could keep up with these dramatic challenges.

He flattened the organization through straightlining. All TARDEC associates are now on one master list, thereby elevating the control of all personnel assets to the executive committee

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