

INTRODUCTION

In the Quadrennial Defense Review, (QDR) there was a call for a “Revolution in Business Affairs” to enable the Department of Defense to become more effective and efficient using the lessons learned from the commercial sector of industry around the world. In a post cold war world, Congress and the general population have developed a fixed resources mentality for military spending. This system constraint requires that the DoD become more effective and efficient so that waste in the system of DoD be reduced, and the resources “saved” be used to pay for the new technology developments required for the QDR’s “Revolution in Military Affairs.”

This discussion includes those major “revolutionary” ideas which are in the process of transforming industry around the world. Together, they may constitute an operational definition of the “Revolution in Business Affairs.”

EXECUTIVE SUMMARY

In the commercial business sector, the following major ideas have fueled the majority of “revolutions,” which, in industry are also called “transformations:”

“Systems, Strategic Thinking and Leadership” (What do we exist to do and Why?)

This is the leadership process that looks at enterprises as a whole, to most effectively understand the elements of an enterprise, what each element does to further the goals of the enterprise, how the elements interact with each other, and how waste can be removed from the enterprise as a whole. The reason the enterprise exists is explored for different time frames. A vision of what the future should be like is developed and ways to create that future are developed into an action plan. In addition, the decision making process is examined to understand the effects that decisions have on the enterprise as a whole and all the elements inside it. Second, third and fourth order effects of decisions are examined and understood. Sustainable growth and development must be based on systems thinking. Dr. W. Edwards Deming led this revolution in industry. *Systems and strategic thinking and leadership improve effectiveness and efficiency and are a prerequisite, or first step to all the other revolutionary approaches.*

“Business Process Reengineering” (How do we do our work?)

Business process reengineering does not seek to make enterprises better through incremental improvements of 10 or 20 percent, but in “quantum leaps” in performance of 100% or more. It requires a thorough understanding of the methods for or removal of bureaucracy, hierarchy, and control to more effectively do the work of the enterprise. It also requires an understanding of the *core competencies* of the enterprise so as not to reduce effectiveness while costs are reduced, that is, the enterprise must be “rightsized” -- not just downsized indiscriminately. If people are eliminated, work must be eliminated, too. The knowledge contained in the processes of the enterprise and the process

interdependency in the system must be documented. The throughput of the system must be improved. Most often, there is a requirement to utilize the latest in technology, and information technology to accomplish this task. *Business process reengineering can free up moneys to use in those areas that are not currently sufficiently funded for the enterprise to accomplish its mission, such as R&D.*

“Revolution and Change Management through Learning Enterprises” (Who are the Constituents through Time?)

Stable world situations are a thing of the past. Continuous change, and even revolution, must be a way of life. How can an enterprise react, respond, and adapt to a world where everything and everyone it needs to consider, are in a state of flu? This is especially the case when the very reason the enterprise exists is continuously changing. Enterprises have learned that their greatest assets are the knowledge, attitudes and ability of their employees to accomplish the objectives of the enterprise. *Enterprises survive best by encouraging their employees to learn, grow and develop intellectually, and then, by empowering their employees to solve problems and improve their enterprises to be responsive to their constituents' needs.*

THE REVOLUTION IN BUSINESS AFFAIRS

Although the three major categories are a synthesis of the revolutions that have taken place in business over the last two decades, the following discussion outlines the major theories that were used in the synthesis.

Systems Thinking

For many years, scientists began to see a problem with the “scientific method.” Science, by definition, required the classification of knowledge based on observation and experimentation. It also required the analytical process whereby an entity was taken apart to understand the pieces, so that the whole could be understood. This was the common methodology. In the middle of the twentieth century, it became much clearer that, as Dr. Russell Ackoff, today’s leading systems theorist would say, “the whole is not the sum of its parts, but the product of its interactions.”

In business, this led to the notion that understanding and doing well in the functional elements of an enterprise was insufficient for the enterprise to prosper. In fact, until the interactions between functions, and the “cross-functional” processes were examined, the enterprise could not even be understood, let alone, improved. This is at the core of systems thinking in enterprises.

Another major element of systems theory is that a system must adapt to its environment if it is to survive. Enterprises, or social systems, are as vulnerable to “death” as biological systems if they cannot change or adapt to their environment.

Systems are defined as any entity with elements that are interdependent, and that together the elements have an open boundary. But, the system must be able to adapt to its

environment to survive. Systems can be physical, biological or social. Examples of systems are the solar system, the human body, and the Department of Defense.

Systems are a part of a larger system. For example, the Department of Defense is a “sub-system” of the Federal Government of the United States, which is a sub-system of the world community of nations.

Strategic Management and Business Policy

Strategic management and business policy is a way of thinking that applies systems theory to the management of an enterprise. It is a process for the senior leadership of an enterprise to better understand and learn together as a team in creating the future for the enterprise.

Strategic management as a process and discipline enables the answering of specific questions. What business is the enterprise in? What kind of world is the enterprise existing in? Who does the enterprise want to become in the future? Who are the constituents of the enterprise and what are their needs? How will the enterprise accomplish its objectives? And what feedback mechanisms and infrastructure are required to ensure the enterprise knows whether or not it is making progress?

The process begins with a definition of the current system; external environment, internal environment and core competencies, and constituent assessment. It then devises a vision of the future, a mission statement, a statement of beliefs and values, a set of measurable objectives, a set of strategies for accomplishing the objectives and a set of policies and macro-processes to provide guidelines for behavior. This part is typically called strategy formulation.

Strategy implementation is the classic “business plan” where programs are outlined, resources are developed and approved and procedures are written to execute the plan. And finally, feedback mechanisms are created to determine whether or not progress is being made. The infrastructure to run the enterprise is also studied to ensure its adequacy to deliver the process capability required.

Strategic Leadership

Strategic leadership is the process of leading an enterprise as a system, toward the changes it requires. As is true for most enterprises, this requires both a knowledge and understanding of leadership theory *and* systems theory.

Leadership is an issue of relationship building between people. It goes to the heart of what most “traditional” managers feel uncomfortable with, because it is a human issue. It has had a great impact on the revolutions which have occurred in business since most U.S. managers had never heard of this kind of approach. This is a revolution in industry that is not yet completed. In many enterprises, it is still just beginning, because the leadership theories require very different kinds of philosophies than U.S. managers were used to or believed in. It requires a need to embrace change, trust and empower people,

and build a team of managers who share the same vision and can inspire the people of an enterprise to excel. This revolution also requires the development of a set of “success” measures for the enterprise which go beyond Wall Street’s.

“Traditional” managers trust no one, believe that knowledge is at the top, believe people need to be managed and controlled, and that, by and large, people are interchangeable parts of a machine.

Leadership theory, in the revolution of today, is the exact opposite.

Total Quality Management (TQM) and Dr. W. Edwards Deming as Statistician and Philosopher

In 1950, at the request of General George C. Marshall, American statistician, Dr. W. Edwards Deming, came to Japan to teach the Japanese people how to improve the quality of their products and, therefore, their economy. Dr. Deming told the Japanese people that the most important system to optimize was Japan, and, that Japanese companies needed to learn to cooperate with one another. This began the philosophy that influenced the rest of his life.

As a statistician, Dr. Deming took the statistical process control concepts that he, Dr. Walter A. Shewhart and Dr. Joseph M. Juran had perfected in the United States before the war and taught them to Japanese industry.

While Dr. Deming was at work in Japan, the U.S. economy was the only strong economy in the world. U.S. corporations were not concerned with the painstaking processes and discipline that Dr. Deming was teaching. They believed it was unnecessary. After all, whatever products were produced had a market. Everything manufactured was sold because there was so much pent up demand from the war years. U.S. corporations believed their success was due to their excellence and brilliant management.

It was not.

While Dr. Deming was helping the Japanese learn the disciplines of statistical process control and systems thinking, U.S. corporations were continuing with their mass production manufacturing blitz. Disciplined thinking was not at the core of how they managed, and, by the 1960s, many engineers who were beginning to see what was occurring in Japan, began to try to help U.S. corporate leaders understand that their skills were “out of date and noncompetitive.” U.S. corporate leaders laughed. Their profits were at an all time high, and the warnings from engineers were ignored. When Japanese companies began to take market share away, corporate America remained asleep at the wheel. *Their arrogance remained the single most devastating characteristic which prevented them from accepting the truth.*

Only in the seventies and eighties, with major disruptions in their ability to compete, would America wake up. This was especially true after the PBS special, “If Japan Can, Why Can’t We?” Dr. Deming became a popular figure in U.S. industry, but, except for a

few isolated instances, the senior leaders of America would not listen well enough or long enough. Patience and discipline were not virtues of American industrial leadership. Only on the brink of bankruptcy would some corporate leaders be willing to change and many never would.

For those who understood the ramifications of the teachings of Dr. Deming, such as Donald Petersen, at Ford Motor Company, the “revolution” in U.S. business was about to begin based on all his principles. Like many of Dr. Deming’s students, Mr. Petersen knew that understanding the principles and philosophies of Dr. Deming, was at the core of using his methods, like statistical process control.

In the years prior to his death, Dr. Deming was working on what he called, the System of Profound Knowledge; the integration of four major disciplines, systems theory, the theory of knowledge, the theory of variation, and the theory of psychology. He began to learn that the true secrets of “revolutions,” what he called, “transformations” were about the changes that occur inside the minds and hearts of people. Dr. Deming came to believe that his methods, such as statistical process control were not of long-lasting use unless the human transformations of the leaders and the people of the enterprise also took place. Leaders had to first change themselves before they could expect others to change, and change is a very difficult process that is sometimes painful.

Toyota Production System at all Levels

Perhaps, the company which embraced Dr. Deming's principles most was the Toyota Motor Company. In addition to learning and executing Dr. Deming’s philosophies, Toyota implemented the discipline of his methods, especially statistical process control. Although applying statistical tools to process control was powerful, the concept of documenting processes, alone, was even more critical. For the first time, the ways in which people conducted their work was documented, and made visible. It captured the learning in the process and enabled improved deployment. This created the opportunity to develop many different ways of *improving* the processes and ultimately making them more and more efficient and effective.

At Toyota, the Toyota Production System was being developed and taught. It transformed the entire mass production system in the plants to a “lean” system by increasing efficiency and effectiveness. Ultimately, Toyota was developing the ideas of “lean” which the rest of the world would soon use as the standard against which everyone would be measured. In addition, Toyota began to apply many of the “lean” principles to other elements of their systemic business. To optimize Toyota required an optimization of the Toyota system. That system was larger than the car company, itself. It included the Toyota keiretsu system of suppliers, Mitsui, Toyota’s international trading company, and the Japanese governmental agencies; the Ministry of International Trade and Industry (MITI) and the Ministry of Foreign Affairs, etc. All these elements, together, comprised the Toyota System. And, an efficient Toyota system became increasingly strong and difficult to compete against. This was especially the case since it was very complicated trying to determine where Toyota left off and the Japanese government began.

Benchmarking and Business Process Reengineering

In many respects, the Japanese were the most efficient at finding “best practices” around the world and bringing them back to Japan to be adopted, improved upon *and made Japanese*. It took a long time for the U.S. to believe that they could learn anything from Japan. When they did, the process of benchmarking became a tool used by many different enterprises. It was a systematic approach to finding out where a process or function was done better than anyone in the world.

Sometimes, an enterprise’s processes would bump up against its uppermost capability and improvement would wane. To gain a major improvement in the process, some new technique would have to be developed. Business process reengineering does not seek to make enterprises better through incremental improvements of 10 or 20 percent, but in “quantum leaps” in performance of 100% or more. It requires a thorough understanding of the needs for or removal of bureaucracy, hierarchy, and control to more effectively do the work of the enterprise. It also requires an understanding of the core competencies of the enterprise so as not to reduce effectiveness while costs are reduced. Most often, there is a requirement to utilize the latest in technology, and information technology to accomplish this task.

Most often, if the best practices were found in a company that was not a direct competitor, a company might be able to establish a relationship whereby the knowledge of the best practice could be shared. In the United States, in the eighties, there were hundreds of such relationships developed. Frequently, as enterprises went through Business Process Reengineering, they would benchmark the process undergoing change so that learning from others became an integral part of reengineering.

Learning Organization

Benchmarking, as a process, led to an understanding of what Dr. Deming had described by saying, “profound knowledge comes from the outside.” Of course, he wanted to reinforce the idea that enterprises and the people in them had to continuously be learning, and should be focusing their learning on what is the latest, leading edge thinking wherever that happens to be. That was the philosophy behind benchmarking. For millennia, many understood the idea that competition was based on new ideas. Understanding the world well enough to know what was going on in any field was essential. Some might call this “scanning” simply intelligence or competitive assessment. As the benchmarking process became more sophisticated, companies began to develop more sophisticated intelligence and competitive assessment processes, as well.

But, the “learning organization” took some time to develop. Technology continued to evolve and cycle times continued to shrink, so that, in high technology companies, for example, a product's life-cycle might only be a few months. The only competitive advantage a company possessed was the ability to learn enough fast enough and innovate to produce leading edge new products that got to the marketplace first. This required that technology had to flow through the enterprise in a streamlined manner that also required decision-making processes to be streamlined, as well.

Diffusion of Innovation

In highly bureaucratic companies, the flow of technology was found to be too slow to enable those companies to remain competitive. For that reason, decision-making processes had to be examined from the make or buy decision about which technologies to pursue, to the ability to deploy the technology and get it into the marketplace. How quickly that process occurs depends on many variables. Some of these variables include an empowering culture, a willingness to take risks, and freedom from fear of failure.

Knowledge Creation and Networking

Enterprises learned how to create competitive advantage through the knowledge in their people; the solid basic knowledge of how to make the company work, how to innovate, improve processes and anticipate and take advantage of the next paradigm. This knowledge became important to capture and share regularly to everyone and anyone in the enterprise who needed it. Enterprises needed to find ways to maintain the knowledge in the enterprise so that future generations could share in this “private knowledge” as it grew. Knowledge networks became popular, and processes were developed to pass along the knowledge from one generation to another, and between teams in the same generation. Knowledge networks were defined as either computer networks that share information on an intranet or, even, on occasion, internet; or human and/or organizational structures, such as meetings or processes which enabled the transfer of knowledge.

Intellectual Capital

It became obvious to many corporate leaders that the most important competitive advantage was knowledge and process; not plants and/or equipment. Nevertheless, the financial community throughout the world only understood “hard” assets. The real assets of an enterprise were knowledge and process. How could “knowledge” and “process” be valued and shown on the bottom line?

The idea of “intellectual capital” or measuring the intellectual asset of an enterprise was pioneered by Skandia Corporation’s Leif Edvinsson. He was able to develop a process to evaluate the contribution of the knowledge in the heads of a population of an enterprise. It became clear that there was a need to protect those assets and plan for a transfer of knowledge from one generation to the next. Part of the protection of these assets includes the need for succession plans and education and training programs for each succeeding generation.

Information Technology and the Digital Revolution

A major element of capturing knowledge was the use of the new information technology tools and the digitization of so much knowledge; visual, print, audio, video, advanced manufacturing and assembly tools, etc. Computer chips hold magnitudes more data every eighteen months or so, and obsolescence comes at ever increasing rates. The ability to change and take advantage of the increases in the capability of computers, is

revolutionizing enterprises and the way they do business the world over.

Instantaneous communications, at the speed of light, is at the basis of current technology. Computing power is also able to do repetitive and highly analytical work better, faster and cheaper, increasing efficiency and effectiveness. Exponential growth of technology will continue to enable increases in efficiency and effectiveness if harvested and used. Data overload, however, does not automatically produce efficiency. Data must be put into a context in order to produce information. Information needs to be analyzed and synthesized and combined with other information in order to produce knowledge. Knowledge and understanding must be used with insight to produce wisdom.

Whether or not enterprises can use the revolution in the digital information technology depends on many variables. There certainly are no guarantees. Enterprises need leadership to use the increase in knowledge gained. Processes need to be created to help managers make more effective decisions and improve the application of innovations. Cultural changes are frequently needed to use computers, and cultural change is the toughest of all. It often requires giving up ideas that are considered “conventional wisdom” but are not true. A great challenge for leadership. It is ironic that to most effectively utilize technology, a cultural change was needed. Most business leaders did not even think there was a relationship.

Ecology of Commerce -- the “Green Revolution” and Sustainable Development

Most businesses have recognized that in order to survive in the long term, every business transaction will eventually have to be environmentally friendly. Paul Hawken, in his “paradigm” book, *The Ecology of Commerce*, describes, perhaps, one of the few alternatives of the future that may be workable. It requires a partnering of governmental institutions and businesses the world over to develop actions that are good for the environment, yet that are also good for business. Hawken’s holistic approach begins with a global set of objectives such as, “reduce absolute consumption of energy and natural resources in the North by 80% within the next half century; provide secure, stable, and meaningful employment for people everywhere; honor market principles; be more rewarding than our present way of life; and exceed sustainability by restoring degraded habitats and ecosystems to their fullest biological capacity.”

The holistic solutions of the twenty-first century will require cooperation in a way that business, government, academia and environmentalists have never seen. They are not one another's enemies, but are interdependent with one another. It will go far beyond recycling and reducing our dependence on fossil fuels. It will require a reforestation of the planet and reducing the population of the earth. It will require looking at the earth as one ecosystem, and what that means for the future of the planet.

These solutions will also require a redefinition of the economic system of the planet. Companies that will do what is right for the environment will be rewarded economically, and those who pollute and take from the Earth more than they return unharmed, will be penalized. This requires that all countries, their governments and their businesses work together to develop the new rules. This has never been done before on a global scale, but

many businesses understand that it will be their future.

Globalization and the Competitive Advantage of Nations

The issue of sustainable growth for companies and countries is a global issue. When one country pollutes, it potentially has an impact on the world. Air and water pollution have no boundaries and no borders. As Carl Sagan, noted author and scientist has said, “molecules do not carry passports.” The reality that the Earth may have an upper carrying capacity has been sobering for businesses. It, along with instantaneous communication, has been, perhaps, one of the most powerful ideas that have moved business to think globally. Having a global economy that is interdependent has also driven businesses into a global mentality. What has become difficult for many manufacturing companies has been the need to be competitive with developing nations, such as China, and other developed nations, such as Japan.

Other countries of the world are much more sophisticated than the United States when it comes to government and business cooperation. In the United States, business and government are adversaries most of the time. This must change for the United States to be globally competitive in the future. In addition, the entire infrastructure of the country will need to be stronger than it is today, especially in education, if the country is to remain competitive in the future in a world economy that is increasingly a “knowledge economy.”

CONCLUSION

President William J. Clinton has said, “The United States is the most competitive nation in the world. Quality is a key to retaining that title. The Malcolm Baldrige National Quality Award is helping U.S. companies satisfy customers and improve overall company performance and capabilities.”

Sponsored by the Department of Commerce, this award has had a major positive effect on the revolution in businesses in this country. The criteria that have been developed for this award should be considered an integral part of how DoD prepares and implements its revolution in business affairs.