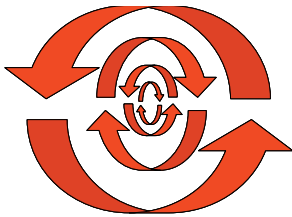# Learning organizations and quadruple loops of feedback

Part I. Theoretical models

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RESUMEN

Una organización en aprendizaje va más allá del entrenamiento y el desarrollo a alto nivel de todos los aspectos corporativos. Se describen 4 tipos de retroalimentación para enfatizar la necesidad de aprendizaje multinivel. Se enfatiza sobre los nuevos roles requeridos, incluyendo líderes éticos, líderes transformacionales, liderazgo distribuido, profesores, y equipos auto administrados.

PALABRAS CLAVE

Organización en aprendizaje, administración, liderazgo, retroalimentación, equipos autoadministrados.

ABSTRACT

The learning organization should not be limited to training and development; it should include the higher levels of re-organizing of all aspects of corporations by changing to more distributive leadership and more teamwork, which increases participation to knowledge development by all the people in the organization. Four types of feedback loops are described to emphasize the need for multi-leveled learning. New roles are emphasized, including ethical leaders, transformational leaders, distributed leadership, practitioner faculty, and Self-Managed Teams.

KEYWORDS

Learning organization, management, leadership, feedback, self managed teams.

What should we learn to achieve organizational excellence? New management theories with their advice keep popping up as people discover more laws of nature. We can consider some of the conceptual models that have developed over the past few decades. When stimulus-response psychology discovered reinforcement, management theory created the transactional model of leadership where trades and rewards are given for performance. When humanistic psychology discovered cooperative tendencies, management theory created sensitivity training where appreciation of people increased performance. When quantum theory discovered observer effects, management theory created participation in relationships where interaction among members contributes to the field effect. When complexity theory

discovered emergence out of chaotic conditions, management theory created the support of diversity to promote emergence of new organizational levels where organizational vitality is enhanced by the number of new possibilities competing for survival. There is, however, a difference between natural systems and human systems. We choose, while natural systems do not. Whatever natural system is discovered, it is never more than a metaphor to apply to human free choice. A guiding metaphor is important, however, it is after all a metaphor (or in scientific terms, a theoretical model) once it is applied to humans with free will. The task of understanding and implementing these new models belongs to the Learning Organization, but it has sometimes been criticized for being vague and difficult to implement. To be successful, this model requires much more than more training; the entire organization must be re-organized to become more horizontal, reduce centralism, expand the role of self-managed teams, and change the roles of middle and upper management. In a simplified definition, a Learning Organization is one that consciously implements learning throughout the organization so that it is capable of quality, flexibility, and rapid change. This implementation process ranges from simple training to sophisticated knowledge management systems to capture expertise and make it accessible to all members and teams. A learning organization differs from an organization with training programs because everyone in the organization adds continual learning, improvement and breakthrough as part of their goals. Any organization that implements programs like Total Quality Management, horizontal management, continous improvement, and change management must, by necessity, also become a

learning organization to some degree because those programs require everyone to learn frequently and profoundly. If companies with such programs are not aware of the learning dimension, they might miss opportunities to enhance the very learning that makes those programs possible.

FEEDBACK LOOPS IN THE LEARNING ORGANIZATION

Feedback Loops

The following figures refer to feedback loops in learning; each successive system of feedback encompasses the previous ones to yield four levels of learning. A loop is knowledge of results that guides activity; a level is a type of learning that changes according to the kind of loop involved. The purpose of the items in the Figures is to give only an example of the types of business functions involved in each of the four feedback loops for the learning organization. The items shown are not intended to be adequate for drawing up a specific plan for a specific business but are rather intended to be suggestive for the different types of issues that become important at the four different levels of feedback.

In cybernetic theory, the feedback loop is necessary to give continuous information to guide the activity of the system. A single loop of feedback tells the system if it is on target or off target. For example, a guided missile senses its target and sends feedback to its guidance system when it is off target, requiring correction of error. By continually correcting errors, the missile eventually zeros in on its target. In a learning organization single-loop feedback is perfected through training in established knowledge and standard operating procedures. The payoffs are efficiency and quality. In figure 1 there are two columns showing feedback loops, one oriented to beginning and the second oriented to endings. The beginning phases in column one are done with some anticipation of the ending phases in column two. It would be possible to expand the number of columns to show a sequence of value-added operation for Supply Chain Management or re-engineering, but the emphasis here is on the four levels of successively more expansive feedback loops.
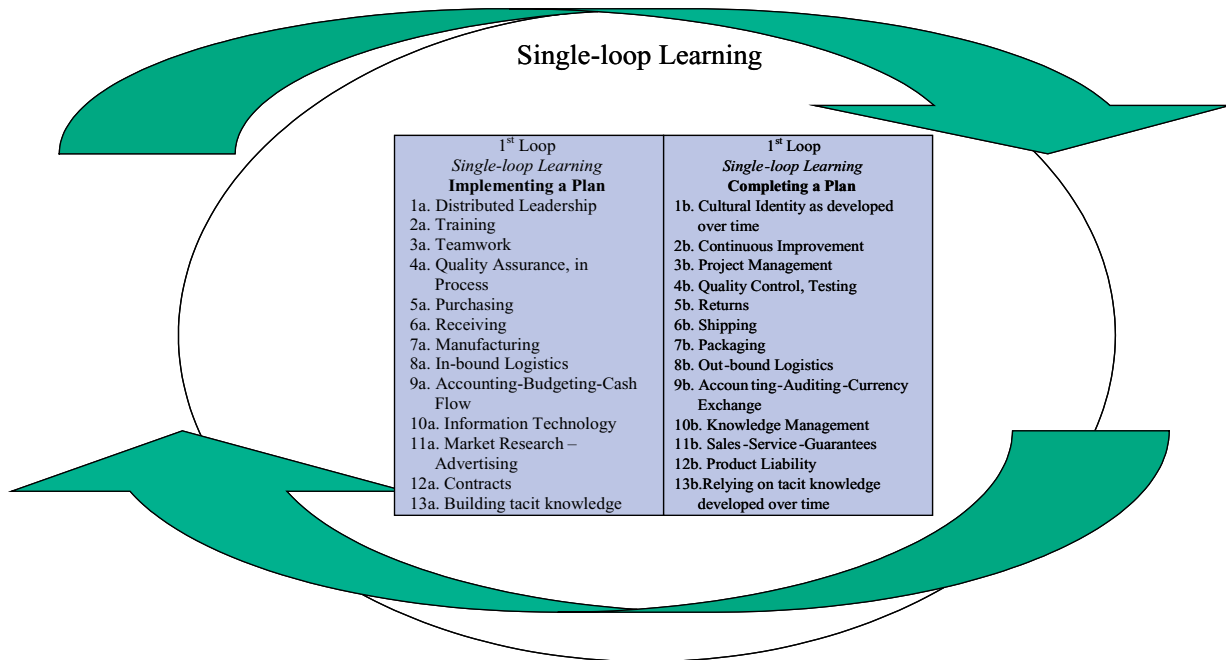
Fig. 1. Operations.

Single-loop learning

Figure 1 shows some of the basic operations of an ongoing business. Here there is an important assumption: the business has already been established. Therefore, the focus for learning is how to meet established goals within an established corporate culture. There are two columns showing single-loop feedback, one oriented to implementing a plan and the second oriented to completing a plan.

Double-loop learning

A double loop of feedback is reflective. It requires a self-conscious agent that questions whether the goal is worth while. The guided missile might work well, but the second loop of feedback can change the goal.[1] For figure 2, it is no longer assumed that there is an ongoing organization, business as usual, or an established corporate culture. This change of assumption also changes considerably the focus for learning, which now is about which goals to have. There are two basic conditions for double-loop feedback in organizations: a start-up

of a new organization or a shake-up of an existing organization.

Figure 2 shows in two columns (a) aspects of originating a cycle, such as the reflective view of the future, articulation of beliefs and values, and (b) aspects of ending a cycle, such as change management or re-structuring. The types of cycles will vary according to whether it is a start-up of an organization with little history or a shake-up of an established organization with more than a few years of history.

In an established learning organization, double-loop feedback is perfected through the movement that identifies tacit knowledge and makes it explicit so it can become accessible throughout the system. The payoffs are effectiveness and targeting of the best niches to serve. Teamwork changes into Self-Managed Teams (SMTs), where distributed leadership and flexible roles Three-sixty (360 degree) feedback risks in-fighting but can also give superiors important insights into their limitations. Keeping close to the customer and stakeholder focus is an
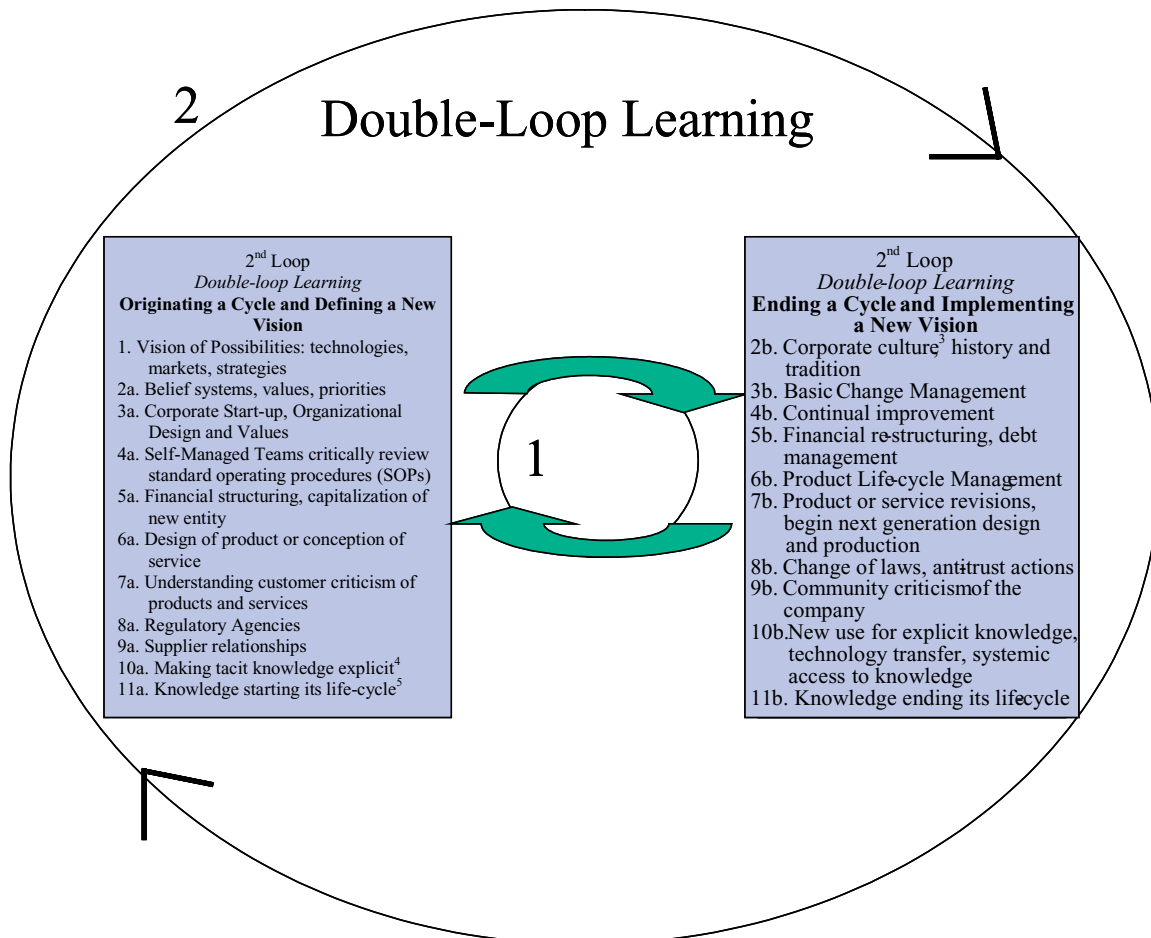
Fig. 2. Reflections

important aspect of double-loop feedback because the customers and stakeholders[2] (including suppliers, regulators, and the community) naturally have a critical view of products/services purchased.

Double-loop learning and other higher levels are not meant to replace the single-loop. Single-loop learning is part of standard operating procedures, which are appropriate after the company is set up or until change is required. The second level of learning is connected to the first[3] and encompasses it. The second loop occurs as one reflects on what the single-loop learning accomplishes; the double loop is feedback obtained when making the single loop a theme or when criticizing the purposes of the single loop.

Triple-loop learning

Triple-loop feedback means expansive action in light of multiple systems, diverse cultures, and new opportunities.[4] The third loop requires exposure to fundamental differences, such as found when agents from different cultures find they see things differently.[5] In a learning organization, triple-loop feedback is initiated in a number of ways: (a) internally by increasing diversity by hiring people from different countries or backgrounds, so they bring different cultural perspectives to a company even if it still has domestic operations, (b) externally by doing business in diverse markets, so the foreign markets themselves have different cultural assumptions, (c) externally by outsourcing, joint ventures, and/or making strategic alliances with companies from other cultures. The possibility of this third loop of feedback does not mean that management listens and learns. Organizations can miss triple-loop learning and instead work at a minimal level: hire various categories or "foreigners" simply to fulfill statutory requirements, or establish foreign divisions merely

Triple-Loop Learning

3

3rd Loop
Triple-loop Learning
Cross-Cultural Activities
1a. Outsourcing in other regions
2a. Strategic Alliances and the extended organization[10]
3a. Competitor Intelligence evaluating corporate culture and potentials
4a. Organize and improve knowledge throughout the system[11]
5a. Diversity in own workforce
6a. Self-Managed Teams and distributed leadership
7a. Transnational corporations integrate local operations with global knowledge centers
8a. Surfing the edge of chaos [12]
9a. Individual power struggles take advantage of ambiguity

2

1

3rd Loop
Triple -loop Learning
Risks/Rewards
1b. Global opportunities
2b. Risk of power struggles but potential reward of rapid expansion
3b. Reward of out maneuvering competitors but risk of error
4b. Reward of increasing leverage but risk of picking   the wrong focus
5b. Reward of corporate   renewal and emergence from chaotic conditions
6b. Reward of rapid decision making but risk of errors in decisions
7b. Reward of global markets but risk of local reactions against globalism
8b. Relativism, loss   of value differentiation, anything goes
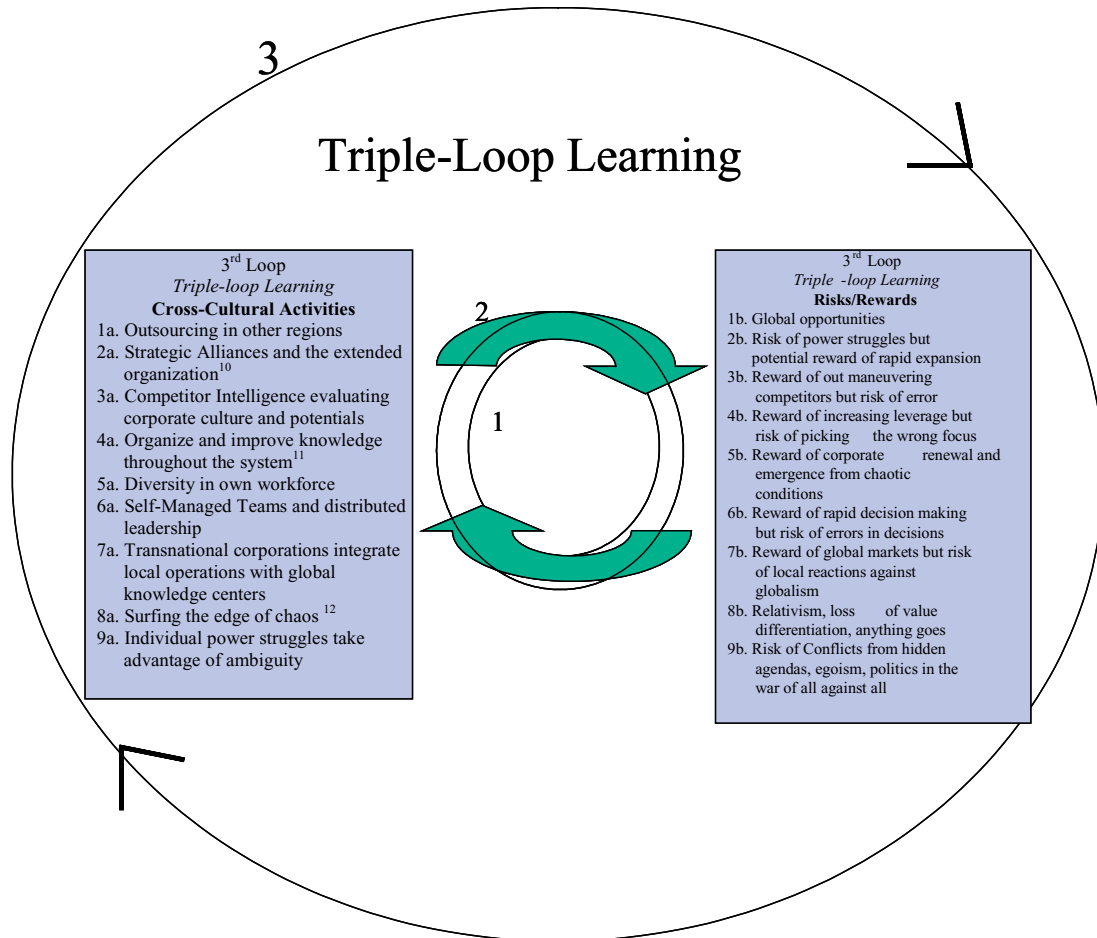9b. Risk of Conflicts from hidden agendas, egoism, politics in the war of all against all

Fig. 3. Expansions.

for the low labor rates. To be effective, triple-loop learning means that that all levels really listen to the contributions of diversity.

The payoffs are emergence of unanticipated changes and organizational vitality that is continually renewed through the diverse viewpoints. This diversity of cultural views also brings conflict, so organizations at the higher level of triple-loop learning need to establish the safe space that encourages people to express divergent views.[6] Ethics at this level is often conceptualized as the responsibility of the organization to have a constitution to protect diversity. We should realize, however, that such assertions within an organization are still subject to reflective review on a philosophical level, which later will bring us to the fourth level. For the moment, staying at the third level, figure 3

lists some of the areas in which triple-loop learning is required, usually involving some form of increased diversity and cross-cultural contact.

The third loop of learning is connected to the second and encompasses it, or at least overlaps with it. The third loop occurs when a member of one culture is surprised by the thoughts and criticisms by the member of another culture. Like the second level, the third level is reflective/critical, but its foundation is in another horizon or another paradigm. We might say our third level learning begins when someone from another culture else applies their second-level criticism to our concerns. The key factor is that we cannot make that kind of critique while trapped within our own horizon and operating at our second level of learning. Therefore, diversity across horizons produces more types of knowledge and world-views, enhancing both survival and creativity.
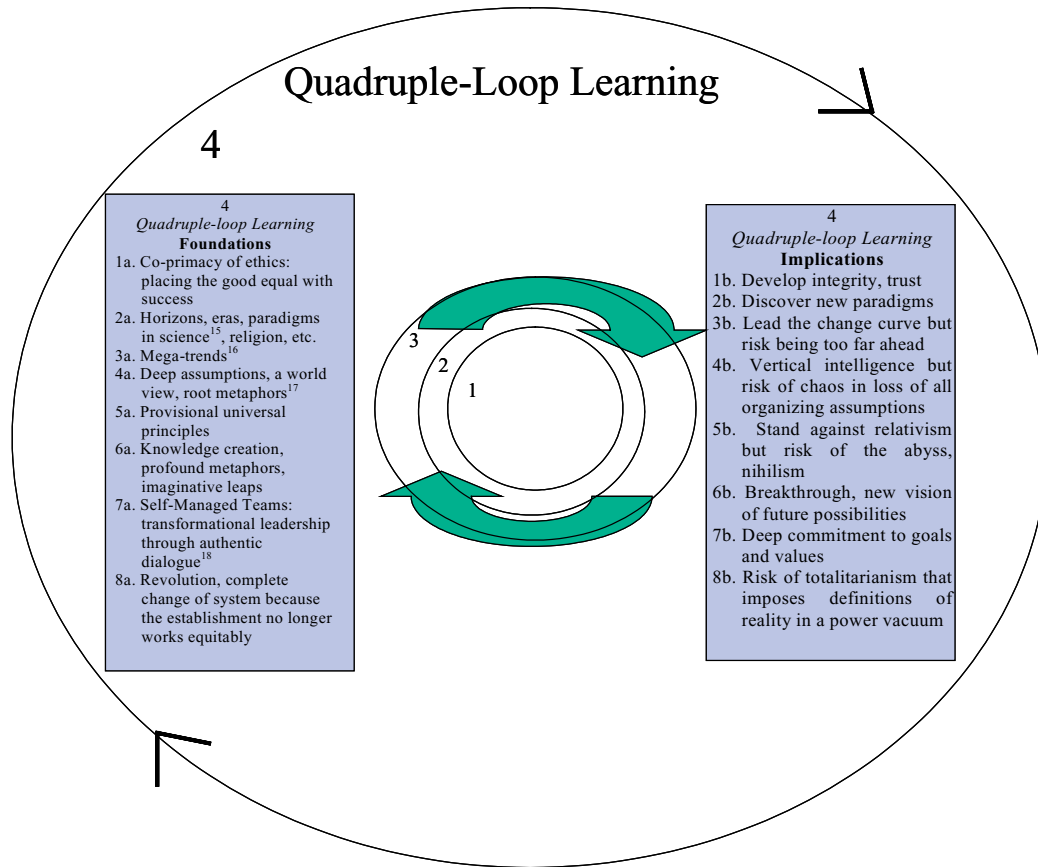
Quadruple-Loop Learning

4

| 4 |
| Quadruple-loop Learning |
| **Foundations** |
| 1a. Co-primacy of ethics: placing the good equal with success |
| 2a. Horizons, eras, paradigms in science[15], religion, etc. |
| 3a. Mega-trends[16] |
| 4a. Deep assumptions, a world view, root metaphors[17] |
| 5a. Provisional universal principles |
| 6a. Knowledge creation, profound metaphors, imaginative leaps |
| 7a. Self-Managed Teams: transformational leadership through authentic dialogue[18] |
| 8a. Revolution, complete change of system because the establishment no longer works equitably |

3
2
1

| 4 |
| Quadruple-loop Learning |
| **Implications** |
| 1b. Develop integrity, trust |
| 2b. Discover new paradigms |
| 3b. Lead the change curve but risk being too far ahead |
| 4b. Vertical intelligence but risk of chaos in loss of all organizing assumptions |
| 5b. Stand against relativism but risk of the abyss, nihilism |
| 6b. Breakthrough, new vision of future possibilities |
| 7b. Deep commitment to goals and values |
| 8b. Risk of totalitarianism that imposes definitions of reality in a power vacuum |

Fig. 4 Philosophical Reflections.

Quadruple-loop learning

A quadruple loop of feedback is more deeply reflective, so it is inherently philosophical. It also questions what is going on but questions much more than specific goals. It learns from application of universals to situations, allowing us to overcome the inherent relativism of triple-loop learning that is stuck with multiple systems and no way to choose among them. The fourth loop of feedback can decide among systemic options and evaluate the foundational claims of each. In a learning organization, quadruple-loop feedback is perfected through philosophically reflecting on foundations, justifying rationales, and discovering new paradigms to identify universal principles[7] by which one can decide among various cultural views. Nothing is more important for the business than its business philosophy, which guides and justifies all decisions. If it is born of the right

level of consciousness, philosophy will define what reality is, justify the proper values, and align the individual/group efforts into unity. The payoffs are breakthroughs into entirely new markets with the opportunity for first-mover advantage.

Transformational leadership goes beyond rational management and the use of formal authority to achieve compliance. Transformational leaders must be great communicators, be able to resist stress, have a negative need for security, a perpetual drive for achievement, and a positive need for challenges. In addition, they must demonstrate high standards of ethical and moral conduct, have a high tolerance for uncertainty and ambiguity, take risks, and initiate innovative breakthroughs.[8]

Figure 4 shows some of the higher-level reflections that are important for business, including the place of ethics, the deep assumptions, horizons,

paradigms, principles and knowledge creation.

The fourth loop of learning is connected to the third and the second and encompasses them. The fourth loop occurs when a member of any culture is both reflective and comparative, and then attempts to justify a position with good reasons. This is a turn toward the universal. At the second level, trapped in double-loop feedback, a member of one culture or representative of one paradigm cannot see outside of that horizon. Therefore, we cannot reasonably claim some universality within the process of double-loop learning. Quadruple-loop learning only begins when it is comparative across horizons, thus avoiding the criticism that it is naïve foundationalism based on absolutes that are valid only within one cultural horizon.

If you are wondering why the "learning organization" is so important, the answer is simple. The alternative is the static organization. Actually, the static organization is not extinct…yet. Many relatively static organizations still exist in spite of slow learning because they have other advantages such as economies of scale, technological exclusivity, brand identity, or lazy markets where things do not change much over the years. Learning organizations are inherently dynamic and become necessary under the opposite conditions: small competitors run circles around the giants, technology changes overnight, generics are rapidly replaced by successive waves of well-tailored specialty products, and market dynamics shift the playing field faster than the giants can dance on the red hot coals. If the organization can then not learn rapidly how to succeed differently, it dies. Period. Old style leaders who still cultivate egotistical richness and power do not change because they get religion; they change because of fear of being wiped off the playing field by world-class competitors both locally and globally. Most of the US Fortune 500 companies of fifty years ago are gone.

In conclusion, the learning organization that encompasses all four feedback loops not only is more competitive in the face of world-class companies, it also is beneficial for humanistic and environmental concerns. The learning organization becomes smart enough to treat knowledge workers better because they now contribute more, and it takes a long-term view of sustainable economic growth. Ethical leadership and corporate social responsibility are integral to the organization and are recognized as a wise investment that fosters sustainable growth, not viewed as an expense that retards the illusion of endless growth. Failing a lack of ethical standards in the economic sector, entire countries have already and in the future will continue to be tempted to turn against capitalism. The learning organization is a necessary even if not sufficient condition for business excellence. The problem is that most companies treated the learning organization as another management fad. When companies achieve corporate-wide reorganization to overcome centralism,[9] they will have the opportunity to implement real learning on an organizational level.

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