

Learning as an Integrating Concept for a Successful Company Strategy



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I. Introduction

The strategy literature contains many prescriptions for developing a successful company strategy. These include the emphasis on

- w developing core competencies by Hamel and Prahalad,
- w understanding Porter's "five forces" in an industry and positioning a company to deal with them,
- w being competitive by adopting TQM and continuous improvement,
- w listening to the "voice of the customer,"
- w defining a clear and inspirational vision and purpose,
- w forming high performance teams, and now additionally
- w the systems thinking and learning organization approach advanced by Peter Senge.¹

This last may be best characterized by Arie de Geus' statement that "the ability to learn faster than competitors may be the only sustainable competitive advantage."² This was echoed by Hamel and Prahalad: "The essence of strategy lies in creating tomorrow's competitive advantages faster than competitors mimic the ones you possess today. ... An organization's capacity to improve existing skills and learn new ones is the most defensible competitive advantage of all."³

How do we make sense of these and other perspectives? Michael Porter observed that: "While there has been considerable progress in developing frameworks that explain differing competitive success at any given point in time, our understanding of the dynamic processes by which firms perceive and ultimately attain

¹ Senge, P. M., *The Fifth Discipline - The Art and Practice of the Learning Organization*. New York, NY: Doubleday, 1990.

² De Geus, A. P., "Planning as Learning," *Harvard Business Review*, Mar/Apr 1988.

³ Hamel, G. and Prahalad, C. K., *Strategic Intent*, *Harvard Business Review*, May/June 1989

superior market positions is far less developed.”⁴

Paul Krugman discusses the formation and evolution of industrial cluster groups in a way that might be equally relevant to company formation and evolution:⁵

The whole process of industrialization within the United States was marked by ... small accidents leading to the establishment of one or two persistent centers of production. ... What is important ... here is ... not the initial accident but the nature of the cumulative process that allows such accidents to have large and long-lasting effects. ... there is a circularity that tends to keep a geographic cluster in existence once it is established.

So what is the “circularity” that tends to keep a company in existence? In system dynamics terminology, what are the reinforcing loops that make up a model illustrating the circularity? How do all the different prescriptions for developing a successful company strategy fit into such a model?

The purpose of this paper is to use the perspective of organizational learning, not as just another of many approaches to company competitiveness, but as an organizing concept to integrate the different strategic viewpoints into a framework that describes the dynamic, reinforcing feedback mechanisms necessary to create sustainable company competitiveness.

Unless understood in this way, systems thinking and organizational learning are in danger of being dismissed as further instances in a long history of management fads. This danger is evidenced by Porter’s words: “Hoping to keep up with shifts in the productivity frontier, managers have embraced continuous improvement, empowerment, change management, and the so-called learning organization.”⁶ The “so-called” appears to be pejorative.

As J. R. Williams observed,⁷

Firms exist as collections of evolving capabilities that are managed dynamically for the purpose of earning rents. Differences among firms arise from the interplay of capabilities, search behavior, and sustainability conditions. As firms attempt to attain their ends, robust differences arise, are nullified, and arise again. An understanding of this dynamic process has great scientific potential; moreover, it can guide the actual practice of business strategy.

II. The Model

The model proposed here which uses learning as an organizing concept for strategy is composed of multiple, reinforcing feedback loops. The idea for developing this model came from two sources. One was Michael Porter’s paper, “Toward a Dynamic Theory of Strategy.”⁸ The other was Peter Senge’s talk at the 1996 *System Thinking in Action*TM conference on the need for practice, research and theory building, and capacity building as critical elements of success.⁹ Figure 1 shows a qualitative diagram of his elements showing an overlap. Figure 2 shows a causal, stock and flow (S&F) diagram of the interactions. Consultants use theory, developed by academics, to generate tools & methods. Businesses use the tools & methods to generate practical knowledge. In turn, academics study the experiences of businesses to create new theory.

My interest was in examining how these different approaches to strategy might be integrated to form a dynamic feedback system.

The links to the left of “creating a company learning strategy” in Figure 3 are primarily related to *Developing*

⁴ Porter, M. E., “Toward a Dynamic Theory of Strategy.” In Rumelt, Schendel, & Teece, *Fundamental Issues in Strategy - A Research Agenda*, Harvard Business School Press, 1994

⁵ Krugman, P., “Location and Competition: Notes on Economic Geography.” In Rumelt, Schendel, & Teece, *Fundamental Issues in Strategy - A Research Agenda*, Harvard Business School Press, 1994

⁶ Porter, M. E., “What is Strategy?,” *Harvard Business Review*, Nov/Dec 1996

⁷ Williams, J. R. “Strategy and the Search for Rents.” In Rumelt, Schendel, & Teece, *Fundamental Issues in Strategy - A Research Agenda*, Harvard Business School Press, 1994

⁸ Porter, M. E., “Toward a Dynamic Theory of Strategy.” In Rumelt, Schendel, & Teece, *Fundamental Issues in Strategy - A Research Agenda*, Harvard Business School Press, 1994

⁹ Senge, P. M., “Creating Transformational Knowledge,” The Systems Thinking in ActionTM Conference 1996, San Francisco, CA. (audio tape) Pegasus Communications, Inc. 617 576-1231

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Capabilities; they are scenario awareness, strategy variety, operational effectiveness, and learning. The links on the right are primarily related to *Taking Action*; they are performing, practicing and scanning the environment.

The two central connecting elements are “creating company learning strategy” and “creating company structure & strategy.” They are about both Developing Capabilities and Taking Action.

The links on the left as part of loops that are completed by feedback through “Practice” and “Perform” ... hence the “a” and “b” labeling. The better the company “Performs” and, in parallel, the more effective its “Practice,” the better it is at designing a learning strategy.

“Perform” includes improving both market share and opportunity share.¹⁰ It also includes measuring performance.

“Practice” in this context is being aware of, and reflecting on, performance and interactions with customers, suppliers, and competitors. It includes refining theory and defining the measures that will confirm, or disconfirm, theory. An organization must be aware of and reflect on what’s going well and what can be improved.

Some might consider that “operational effectiveness” and the “ability to think & learn” would be better included as competencies that should be core for every company. They are separate here because they are not what’s generally thought of as the core business of the company; they could better be described as “sustaining” competencies than “core” competencies. Additionally, emphasis on “operational effectiveness” has been so prominent that it’s now considered an absolutely “must have” for every company ... and emphasis on the “ability to think & learn” has been so little and too long in coming.

A learning strategy must address:

- w what needs to be done to better comprehend future possible scenarios,
- w the competencies needed to address creating products to fill the “white space” among current offerings and to give the company the flexibility needed to deal with possible emerging scenarios,
- w how to manage the strategic scenario planning process to create robust strategies,
- w how to be more effective at improving operations,
- w and, perhaps most important, how to improve the company’s ability to think and learn.

The better these capabilities, the more suitable the company structure and strategy to improve company performance in terms of market / opportunity share and to improve the company’s ability to practice, including observing performance and refining theory and measures. The experience gained in performing and practicing feeds into developing a learning strategy for developing capabilities.

As always, these reinforcing loops can either lead to greater success when working for a company, or they can lead to less success and ultimately failure when working against a company.

As with all models, this one is also incomplete and incorrect. There are certainly many valid and useful views on strategy that are not considered in this treatment. Each of these perspectives is individually complex and

Figure 1. Success Elements

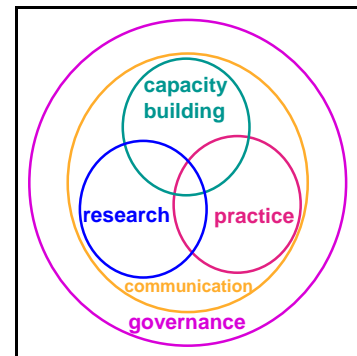
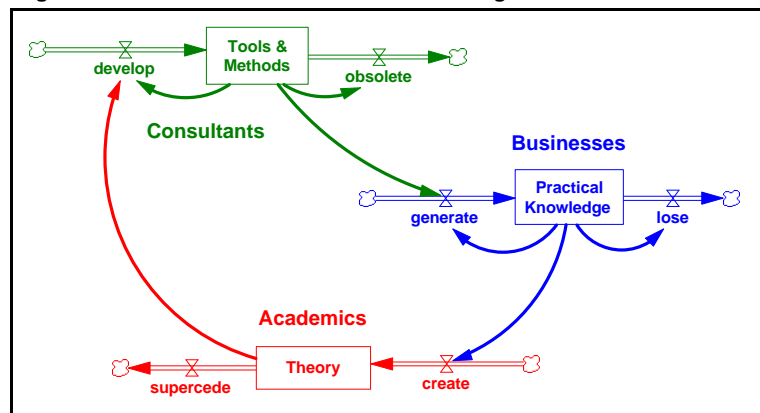
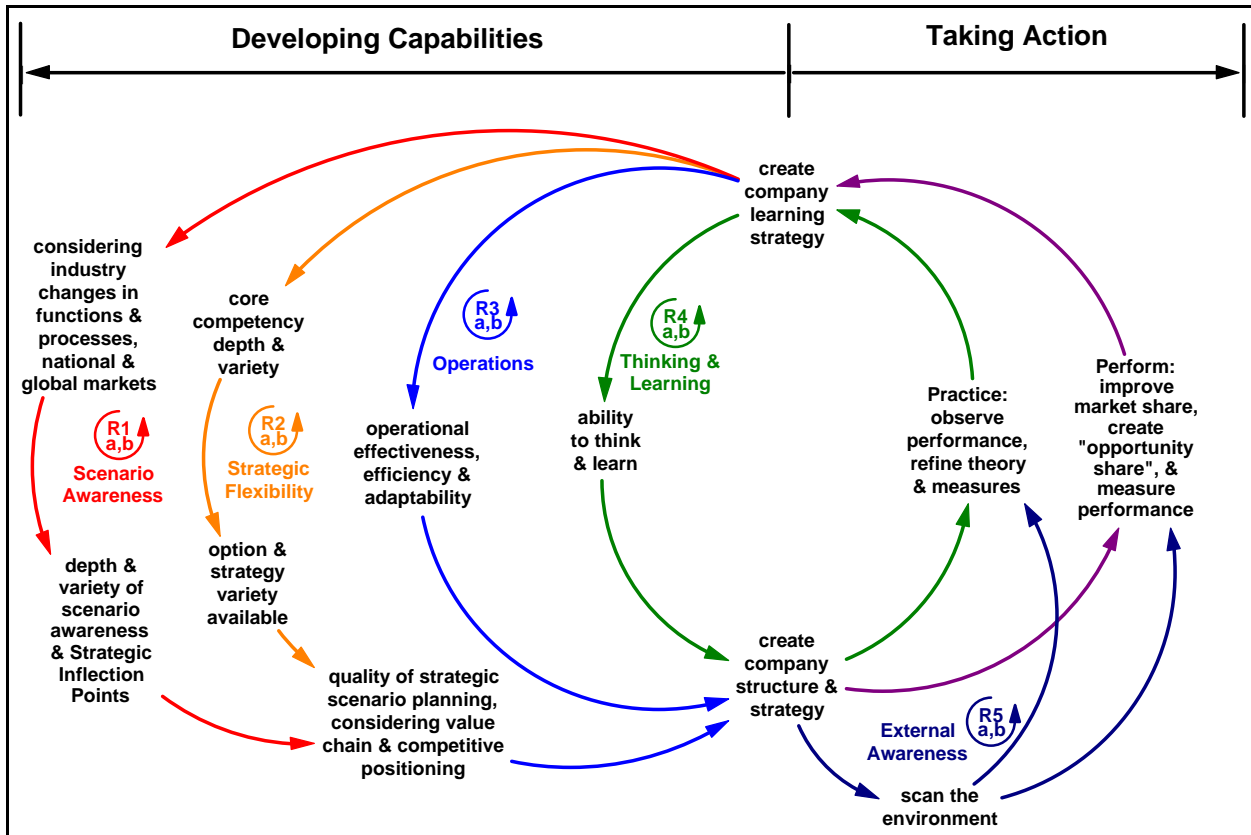


Figure 2. Success Elements - Stock & Flow Diagram



¹⁰ “Opportunity share” goes beyond looking at the share of the current market served to looking at the share of future opportunities that can be served.

Figure 3. Learning as an Integrating Concept for an Evolving Strategy



there are volumes written about each. The reality, which cannot be captured, is very complex; but the intent is for this model to be useful in placing multiple strategic perspectives into a framework for thinking about the dynamics of strategy.

This paper deals with the topic at an overview level and makes no attempt to treat any of the viewpoints in detail, instead providing references as starting points for further reading.

III. The Critical Elements

A. Developing Capabilities

The segments on the left of Figure 3 are primarily about *developing capabilities* to be more effective in each area, including developing what has been called infrastructure for each. The enhanced capabilities support the *taking action* activities on the right.

1. Scenario Awareness

An understanding of the competitive market conditions (including function, process, business, industry, and national and global markets) that can affect the company is a necessary input to a scenario planning process. Such a process does not produce “a” company plan, but multiple plans to respond to different possible conditions.

To organize an analysis of the competitive pressures, one can use Michael Porter’s “five-forces” model (Figure 4): customers, suppliers, competitors, new entrants, and providers of substitute products.¹¹ This can be enhanced based on game theory considerations by including a sixth force from Brandenberger & Nalebuff (Figure 5): complementors, for which a critical interdependence between companies makes both company’s

¹¹ Porter, M. E., “How competitive forces shape strategy.” *Harvard Business Review*, Mar/Apr 1979.

products more valuable.¹² Scenario awareness includes being aware of what Andrew Grove of Intel¹³ calls SIPs (strategic inflection points), which are 10X or greater changes in the environment.¹⁴

2. Strategic Flexibility

Hamel and Prahalad describe these capabilities as core competencies,¹⁵ pools of functionally specific skills, or a complex bundle of skills which in their entirety are difficult to imitate.¹⁶ George Stalk, et al., expand the core competency concept somewhat by referring to “end-to-end process” capabilities with well-defined metrics to be used as a “lever for forcing collaboration among functions within a business.”¹⁷ Hamel and Prahalad recommend initiatives to identify products to fill the “white space” between current market offerings, to identify and develop the targeted core competencies needed to produce the new products, and to go beyond an effort to increase a company’s “market share” of current products to focus on increasing what they call “opportunity share” for new products.

Strong, focused competencies can help a company meet competitive threats. However, Arie de Geus speaks of the danger of pruning capabilities too severely.¹⁸ A breadth of competencies or capabilities gives a company a variety of options and flexibility in adapting to a changing environment. This is especially needed as change has become intragenerational.¹⁹ If a company has become too focused and aligned, it will not be able to adapt and it will die.

Bartlett and Ghoshal quote Andy Grove as saying, “The more successful we are as a microprocessor company, the more difficult it will be to become something else ... We need to soften the strategic focus at the top so we can generate new possibilities from within the organization.” They also point out how important new products are: “Over 30% of 3M’s sales come from products introduced in the last five years.”²⁰

Therefore, a balance of depth and variety of core competencies is needed to survive. This requires irreversible commitments and becomes primarily a longer term strategy consideration, as opposed to positioning, which generally a shorter term consideration.

3. Strategic Scenario Planning

Strategic scenario planning brings together the understanding of the scenarios that could develop and the competencies that give a company the capabilities to respond to the changing environment. The technique is important in surfacing mental models, addressing disagreements, and consequently developing creative internal initiatives as well as creative responses to address market and industry changes.

Figure 4. “Five-forces” Model

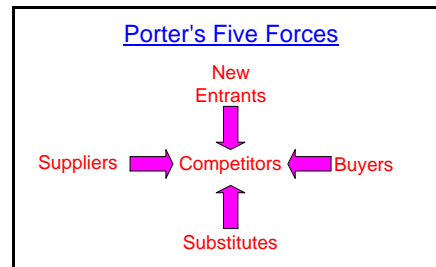
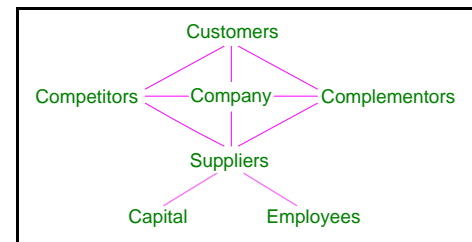


Figure 5. Brandenburger & Nalebuff's “Value Net”



¹² Brandenberger, A. M. and Nalebuff, B. J., *Co-opetition*. New York, NY: Currency/Doubleday, 1996.

¹³ Grove, A. S., *Only the Paranoid Survive: How to Exploit the Crisis Points That Challenge Every Company*. New York, NY: Currency/Doubleday, 1996.

¹⁴ Brandenberger, A. M. and Nalebuff, B. J., “Inside Intel: Universal lessons every manager can learn from Andy Grove’s paranoia.” *Harvard Business Review*, Mar/Apr 1979.

¹⁵ Hamel, G. and Prahalad, C. K., *Competing for the Future*. Boston, MA: Harvard Business School Press, 1994.

¹⁶ Stalk, G., Evans, P., and Shulman, L. E., “Competing on Capabilities: The New Rules of Competition,” *Harvard Business Review*, Mar/Apr 1992.

¹⁷ Stalk, G., Evans, P., and Shulman, L. E., HBR letters, *Harvard Business Review*, May/June 1992, p. 170.

¹⁸ De Geus, A. P., “Infrastructure and Its Impact on Organizational Success,” *The Systems Thinking in Action Conference™* 1995, (audio tape) Pegasus Communications, Inc. 617 576-1231

¹⁹ Schon, D., *Beyond the Stable State*. London, England: Temple Smith, 1971

²⁰ Bartlett, C. A. and Ghoshal, S., “Changing the Role of Top Management: Beyond Strategy to Purpose,” *Harvard Business Review*, Nov/Dec 1994.

Figure 6 shows an “Issues to Strategic Action Process” process^{21 22} with the steps:

- w raising issues using hexagons,²³
- w developing a variety of potential scenarios (sets of uncertainties based on a company’s understanding of the world),
- w developing strategies (sets of options based on a company’s capabilities to respond),
- w determining appropriate strategies for different scenarios (using either qualitative or quantitative system dynamics models, or both),²⁴
- w taking action (including business response),
- w scanning the environment, and
- w diffusion of a common understanding throughout the company using a Management Flight Simulator [MFS] or Learning Laboratory).²⁵

In strategic scenario planning there should be balanced consideration of both Michael Porter’s industry forces and Hamel and Prahalad’s core competencies. Michael Porter’s “five forces” model (Figure 4) has been used to explain the different level of profitability between industries and his “value chain” model has been used to explain firm differentiation within an industry. Hamel and Prahalad’s focus on core competencies is important in laying the groundwork for new capabilities necessary for increasing a company’s “opportunity share” for new offerings.

David Boghossian, President of Real-Time Systems, reflected on these two approaches in a letter to the *Harvard Business Review*.²⁶

[T]he ... question is the value of core competence ... versus the more traditional competitive positioning (or “industry forces”) approach to strategy and how these concepts might be integrated. Both are powerful approaches that focus on different aspects of the complete strategic picture. Competitive position concepts focus on environmental information external to the company. The company itself is a black box; internal capabilities and improvements are “just execution.” Core competence and related concepts of organizational learning shed light on forces inside the company. To them, the environment is the black box. Neither approach in isolation is adequate. Together they provide a complete picture.

Aside from the last statement, which appears to limit organizational learning to “inside the company,” this is a good explanation of the complementary nature of these two approaches. This is reflected in Figure 3 by both external and internal considerations feeding strategic scenario planning and why both must be considered in creating structure and strategy for improving the performance of a firm.

Arie de Geus references²⁷ an article by David Ingvar called “Memory of the Future”²⁸ on how the human brain deals with the future. The idea is that a company can similarly build up strategies for scenarios, contingency plans which could be called “memories of the future,” to deal with whichever scenario develops. This could be called “just-in-case learning.” Arie de Geus notes that developing structure and strategy goes beyond planning, it is using the planning process for learning; planning is learning.²⁹

4. Operational Ability

To improve operations, there’s been a prominent drive for continuous improvement in operational effectiveness, efficiency and adaptability through business process improvement. The focus is on improving business

²¹ FASTBreak™ Tutorial Disk, © 1995 GKA Inc., 125 Cambridgepark Dr., Cambridge, MA 02140 617 577-0426. Note: GKA, Inc. provides training and consulting on a process similar to that in Figure 6. Modifications and major extensions based on a less complex diagram drawn in a 6/96 “Systems Thinking and Scenario Planning & Strategic Simulation” GKA workshop.

²² Powell, R. E., “A System Thinking Issues to Action Process,” unpublished, 1996

²³ Hodgson, A. M., “Hexagons for systems thinking.” In Morecroft, J. D. W., and Sterman, J. D., (eds.) *Modeling for Learning Organizations*. Portland, OR: Productivity Press, Inc., 1994

²⁴ Hennessy, G., Genta, P. and Enloe, T. “Integrating Systems Thinking and Scenario Planning,” *The Power of Systems Thinking™ Conference* Boston, MA. 1996, Pegasus Communications, Inc. 617 576-1231

²⁵ Vennix, J. A. M., *Group Model Building - Facilitating Team Learning Using System Dynamics*. West Sussex, England: John Wiley & Sons Ltd., 1996

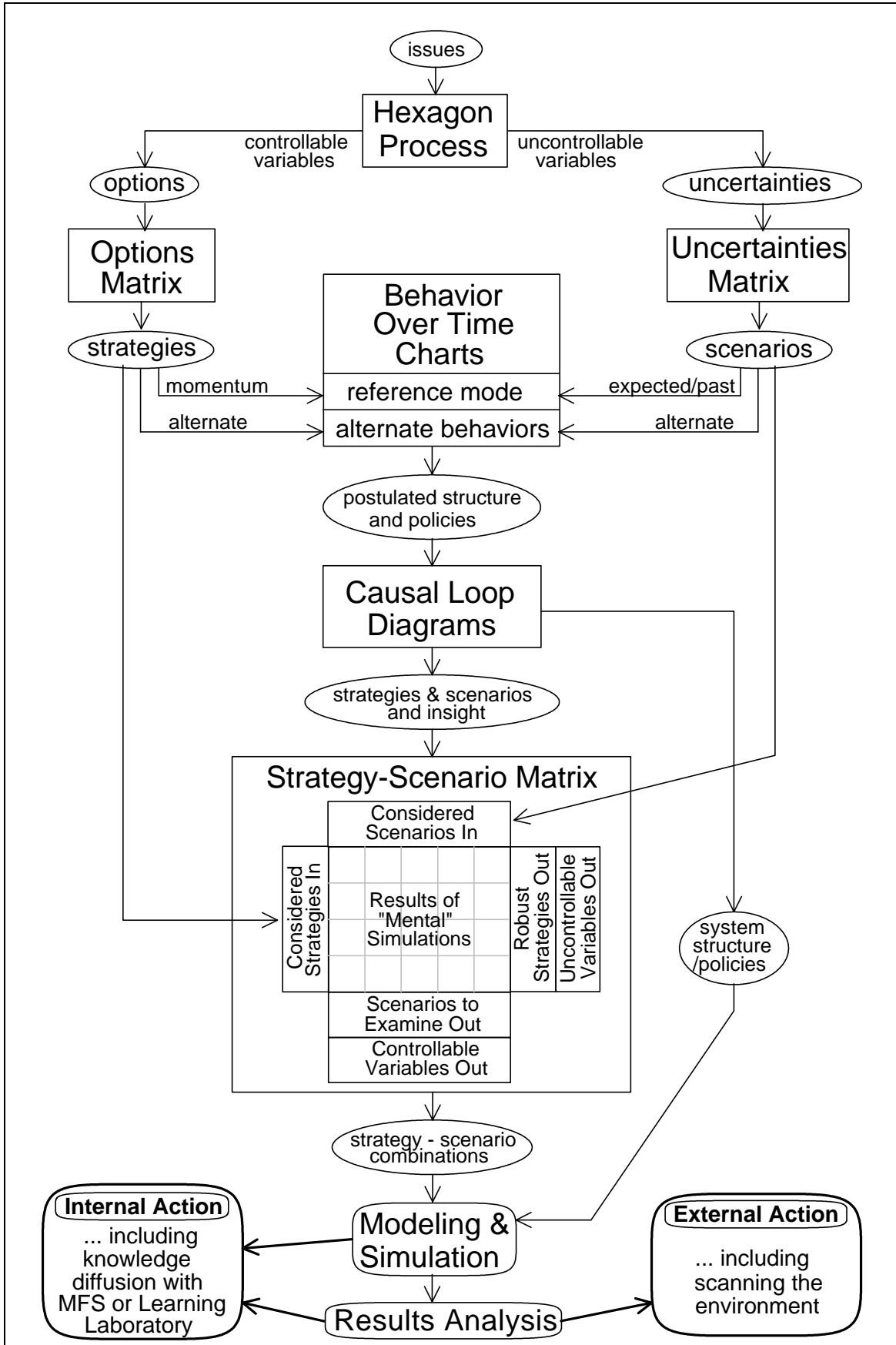
²⁶ Boghossian, D., HBR letters, *Harvard Business Review*, May/June 1992, p. 162

²⁷ De Geus, A. P., “Modeling to Predict or to Learn,” Foreword to Morecroft, J. D. W., and Sterman, J. D., (eds.) *Modeling for Learning Organizations*. Portland, OR: Productivity Press, Inc., 1994 p. xv.

²⁸ Ingvar, D. H., “Memory of the Future: An Essay on the Temporal Organization of Conscious Awareness,” *Human Neurobiology* 4: 127-136.

²⁹ De Geus, A. P., “Planning as Learning,” *Harvard Business Review*, Mar/Apr 1988

Figure 6. Issues to Strategic Action Process



processes, rather than improving functional performance.³⁰ There's also been a movement to reorganize into "high performance" teams, though recent research has shown that the form of organization is less important than changing "the way employees behave and work with one another." Majchrzak and Wang³¹ "found that process-complete departments did *not* necessarily have faster cycle times than functional departments. In fact, the only ones that did were those whose managers had taken steps to cultivate a collective sense of responsibility among workers ... [They] found that ... collective responsibility could be fostered in a variety of ways:

- w by restructuring jobs with overlapping responsibilities,
- w basing rewards on group performance,
- w layout the work area so that people can see one another's work, and
- w designing procedures so that employees with different jobs are better able to collaborate.

Interestingly, the particular method or number of methods employed did not seem to matter."

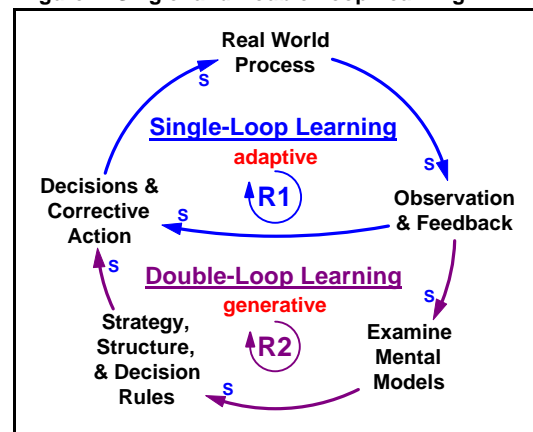
A powerful approach to measuring the rate of operational improvement is the "half-life" method originally developed by Art Schneiderman. His finding was that in a wide variety of firms "... any defect level, subjected to legitimate QIP [quality improvement processes], decreases at a constant [fractional] rate ..."³² This gives an linear improvement on a semi-log scale with linear time and shows a 50% improvement every half-life period, where the period varies anywhere from months to years depending on the technical and organizational complexity of the process.^{33 34}

Initiatives to improve operational effectiveness are extremely important; companies missing this boat are going out of business. As powerful the effects of operational improvements are, however, continuous improvement in operational effectiveness, efficiency and adaptability is not enough.³⁵ This approach to competitiveness is too easy to duplicate. An enhanced ability to learn is required.

5. Ability to Think and Learn

Argyris has pointed to the importance of single- and double-loop learning in solving problems (Figure 7). Single-loop learning is learning to "do things right" as in the Deming PDCA (plan-do-check-act) loop. Double-loop learning is learning to "do the right things" by examining our mental models and the way we think.

Figure 7. Single- and Double Loop Learning



Senge has talked about designing the organization so that "learning isn't left to chance" ... developing learning infrastructures to make learning a part of working to assure that "there's the time, the resources and the occasion for learning."^{36 37} The infrastructures should address learning from external sources (customers, suppliers, competitors, new entrants, providers of substitute products and complementors) and from internal sources (employees).

Hamel and Prahalad point out that learning from failure can be more important than learning from success:³⁸

³⁰ Harrington, H. J., *Business Process Improvement - The Breakthrough Strategy for Total Quality, Productivity, and Competitiveness*, New York, NY: McGraw-Hill, Inc. 1991

³¹ Majchrzak, A. and Wang, Q., "Breaking the Functional Mind-Set in Process Organizations," *Harvard Business Review*, Sep/Oct 1996

³² Schneiderman, A., "Setting Quality Goals," *Quality Progress*, Apr. 1988

³³ Stata, R., "Organizational Learning --- The Key to Management Innovation," *Sloan Management Review* Vol. 30, No. 3, Spring 1989.

³⁴ Sterman, J., Repenning, N., and Kofman, F., "Unanticipated Side Effects of Successful Quality Programs: Exploring a Paradox of Organizational Improvement." <http://web.mit.edu/jsterman/www/ADI/ADI.html>, 8/94

³⁵ Porter, M. E., "What is Strategy?," *Harvard Business Review*, Nov/Dec 1996

³⁶ Senge, P. M., "The Fifth Discipline and the Infrastructures of a Learning Organization," *The Power of Systems Thinking™ Conference*, Boston, MA. 1996, (audio tape) Pegasus Communications, Inc. 617 576-1231

³⁷ Senge, P. M., "Building Learning Infrastructures," *The Systems Thinking in Action™ Conference* 1994, San Francisco, CA. (audio tape) Pegasus Communications, Inc. 617 576-1231

³⁸ Hamel, G. and Prahalad, C. K., "Strategic Intent," *Harvard Business Review*, May/Jun 1989

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Given their technological leadership and access to large regional markets, how did U.S. and European companies lose their apparent birthright to dominate global industries? There is no simple answer. Few companies recognize the value of documenting failure. Fewer still search their own managerial orthodoxies for the seeds for competitive surrender.

The hardest learning may well be to unlearn what we already know. Hamel and Prahalad liken our mental models, what they call “managerial frames of reference,” to genetics.³⁹

Just as genetic heritage manifests itself as a susceptibility to some diseases and an ability to resist others, managerial frames of reference — the assumptions, premises, and accepted wisdom that bound or “frame” a company’s understanding of itself and its industry and drive its competitive strategy — determine in large part which diseases a company will fall prey to and which it will avoid. ... [M]anagerial frames, perhaps more than anything else, bound a company’s approach to competitive warfare and thus determine competitive outcomes.

Personally and organizationally, unlearning the technique, or formula, that made us successful is perhaps the most difficult task of all. On a personal level, Tracy Goss calls this our “Winning Strategy,” which is a result of what she terms the Universal Human Paradigm, defined as: “There is a way things should be. And when they are that way, things are right. When they’re not that way, there’s something wrong with me, with other people, or with the world.”

This Winning Strategy is a lifelong, unconscious formula for achieving success which we learned from childhood onward. “It constrains our ability to create the future we desire and it controls and limits our lives, because we respond to interpretations of events, not to the events themselves. It focuses our attention and shapes our actions, thereby determining what’s possible and not possible for each of us.”⁴⁰ It creates our ultimate confirmation bias⁴¹ and, in fact, creates our reality. Figure 8 shows how belief reinforces actions that confirm beliefs. Figure 9 shows a real-world example of a waiter who doesn’t get tips from poorly-dressed customers because he doesn’t give them good service ... a self-confirming attribution.

Figure 10 shows how to break free of a Winning Strategy. It’s based on defining our “Invented Future,” what might be called a vision, but which Tracy Goss better describes as a “context” of who we are. It’s not so much of a “vision” of a future we’re “going to,” but more like a “way of being,” or a *place we’re “coming from.”*

We define our invented future using language. The organizational counterpart could be using the languages of causal loop diagrams and stocks and flows to define our invented future.

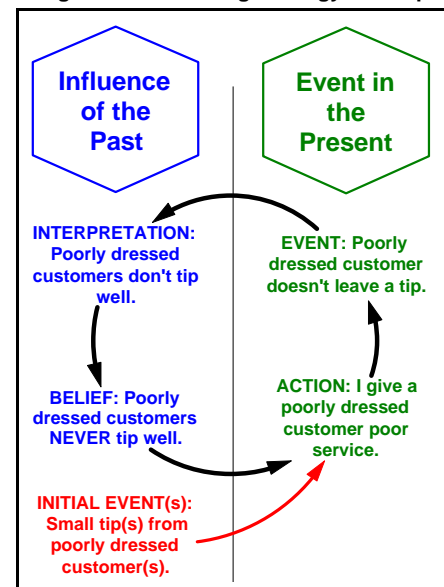
David Garvin summarizes the basic building blocks for a learning organization as “five main activities:⁴²

- w systematic problem solving,
- w experimentation with new approaches,
- w learning from their own experience and past history,
- w learning from the experiences and practices of others, and

Figure 8. Diagramming “Winning Strategy”



Figure 9. A “Winning Strategy” Example



³⁹ Hamel, G. and Prahalad, C. K., “Strategy as Stretch and Leverage,” *Harvard Business Review*, Mar/Apr 1993.

⁴⁰ Tracy Goss, *The Last Word on Power*, New York, NY: Currency Doubleday, 1996, p. 35

⁴¹ Sterman, J., “Learning in and about complex systems,” *System Dynamics Review* 10: 2-3, Summer-Fall 1994

⁴² Garvin, D. A., “Building a Learning Organization,” *Harvard Business Review*, Jul/Aug 1993

w transferring knowledge quickly and efficiently throughout the organization.”

Knowledge diffusion can be improved by the use of management flight simulators and learning laboratories as shown in Figure 6.⁴³ Garvin also notes that learning progress can be measured effectively using the “half-life” method mentioned earlier.

The most important approaches to improving learning appear to be eliminating defensive routines and improving our language and ability to think. Argyris has addressed overcoming defensive routines⁴⁴ and Sterman has reviewed the barriers to learning in complex systems.⁴⁵

We must especially improve group processes and group learning.^{46 47} Learning in complex systems is greatly assisted by using the tools of system dynamics (qualitative causal loop diagrams and quantitative stock and flow models) to make mental models explicit. Forrester has noted our inability to mentally simulate complex systems and the need for system dynamics to allow simulating a system’s behavior over time.^{48 49}

One of the major barriers that affects standard “strategic planning” is that we are risk adverse. Kahneman and Lovallo observe that “... evaluations of single risky prospects neglect the possibilities of pooling risks and are therefore overly timid.”⁵⁰ Managers view it as not acceptable to fail, because their individual risk is not spread out over multiple projects. Hamel and Prahalad comment that: “The planning process typically acts as a “feasibility sieve.” Strategies are accepted or rejected on the basis of whether managers can be precise about the “how” as well as the “what” of their plans. ... Although strategic planning is billed as a way of becoming more future oriented, most managers, when pressed, will admit that their strategic plans reveal more about today’s problems than tomorrow’s opportunities.”

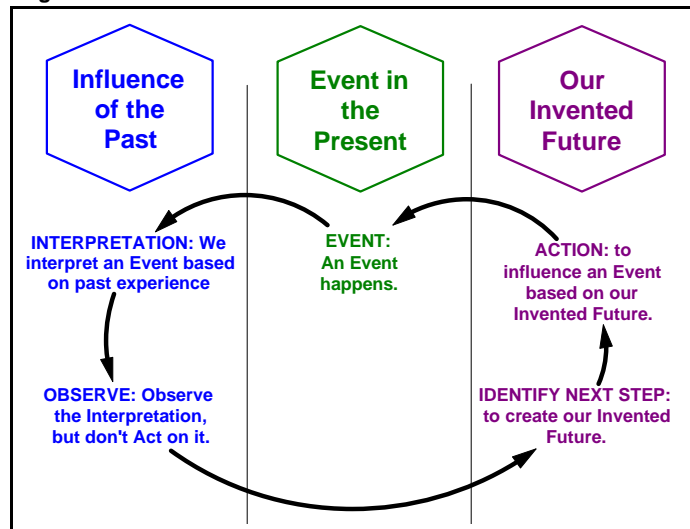
Without analysis using system dynamics a company can be too strategic. Hamel and Prahalad cite the case of GM. “If anything, GM was *too* strategic. The company’s ability to invest outpaced its ability to absorb new technology, retrain workers, reengineer work flows, rejuvenate supplier relationships, and discard managerial orthodoxies.”⁵¹

As W. Edwards Deming has stated, “The greatest leverage for improvement lies not in changing the way we work, but how we think.”

B. Creating Company Structure & Strategy

Thomas Hammond notes that “A central argument of Alfred Chandler’s classic study, *Strategy and Structure*

Figure 10. How to Break Free



⁴³ Kim, D. H., “Managerial Practice Fields: Infrastructures of a Learning Organization.” In *Learning Organizations*, Chawla, C. and Renesch, J., (eds.) Portland, OR: Productivity Press, Inc., 1995

⁴⁴ Argyris, C., “Teaching Smart People How to Learn,” *Harvard Business Review*, May/June 1991.

⁴⁵ Sterman, J., “Learning in and about complex systems,” *System Dynamics Review* 10: 2-3, Summer-Fall 1994

⁴⁶ Vennix, J. A. M., *Group Model Building - Facilitating Team Learning Using System Dynamics*. West Sussex, England: John Wiley & Sons Ltd., 1996

⁴⁷ Schwarz, R. M., *The Skilled Facilitator - Practical Wisdom for Developing Effective Groups*. San Francisco, CA: Jossey-Bass, Inc., 1994

⁴⁸ Forrester, J. W., “Policies, Decisions, and Information Sources for Modeling” In Morecroft, J. D. W., and Sterman, J. D., (eds.) *Modeling for Learning Organizations*. Portland, OR: Productivity Press, Inc., 1994

⁴⁹ Forrester, J. W., *Designing Corporations for Success in the 21st Century, The Power of Systems Thinking™ Conference*, Boston, MA. 1995, (audio tape) Pegasus Communications, Inc. 617 576-1231

⁵⁰ Kahneman, D. and Lovallo, D., “Timid Choices and Bold Forecasts: A Cognitive Perspective on Risk Taking,” In Rumelt, Schendel, & Teece, *Fundamental Issues in Strategy - A Research Agenda*, Harvard Business School Press, 1994

⁵¹ Hamel, G. and Prahalad, C. K., “Strategy as Stretch and Leverage,” *Harvard Business Review*, Mar/Apr 1993.

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(1962), is that the chief executives of a firm choose a structure that enables them to pursue the strategy they have chosen for the firm. In Chandler's well-known phrase, "structure follows strategy," which encourages what some critics have called a "heroic view" view of strategy formulation where "... the major emphasis is on the role of top management."⁵²

But Hammond also notes that

... critics advanced an alternative view: because top-level executives are generally unable, by themselves, to formulate a sensible strategy of their firm, strategy formulation necessarily becomes a much more *organizational* process, involving many people spread out among multiple levels of the firm. ... Several of Chandler's critics went so far as to suggest that a contrary empirical proposition — "strategy follows structure" — was as reasonable as "structure follows strategy."

Hammond further observes that

... while critics have established plausible grounds for believing that a firm's structure can be expected to shape, constrain, and otherwise influence the development and content of the firm's strategy, there is a striking absence of any positive theory of how particular structures actually affect or bias policy decisions or strategies.

He does go on to describe how the decision-making process, and the decision itself, can be largely determined by the hierarchy of the decision-makers (in the same way that whoever controls the agenda of a meeting can have a great impact on outcomes). What he does not discuss is the system dynamics understanding that events and patterns of events are a result of system structure; this, in a very real sense, makes strategy and structure inseparable. No wonder there's a "chicken or egg" controversy between strategy and structure; they are two sides of the same coin.

Another consideration is to understand the nature and purpose of hierarchy and to construct hierarchy in terms of the level of responsibility measured in terms of time span.⁵³ An implication is that, as the time span to be considered increases, the delays encountered increase, that is, dynamic complexity increases. Therefore understanding and using the system dynamics methodology becomes more critical to company success for those at higher levels in the hierarchy. It's at these higher levels that one must deal with the dynamics to identify the mechanisms that will limit growth ... deal with them well in advance of encountering them ... and then work on reducing the limiting action, rather than pushing harder against it.

As Henry Mintzberg points out, the notion of "strategic flexibility" discussed above is an ironic concept: "... the planning literature claims that change must be continuous: the organization should be adapting all the time. ... Yet ... the very concept of strategy is rooted in stability, not change."⁵⁴ So how do we reconcile stability and change?

Mintzberg's approach is to consider strategy as flexible and **emergent** from the past pattern of decisions of the firm. This emergence must arise from all levels in the firm. He notes that "The salesperson who finds a customer with an unmet need may possess the most strategic bit of information in the entire organization."

In Figure 3 this is feedback from the experience of taking action in the market and observing results through *Developing Capabilities* on the left to strategy development.

This differs from the more typical view of strategy as exclusively a **deliberate** shaping the future direction of the firm. Hax and Majluf⁵⁵ point out that

Managers need deliberate strategies to provide the organization with a sense of purposeful direction. Emergent strategy implies learning what works — taking one action at time in search for that viable pattern or consistency." It means "management ... is open, flexible and responsive ... in other words, willing to learn.

⁵² Hammond, T. H., "Structure, Strategy, and the Agenda of the Firm," In Rumelt, Schendel, & Teece, *Fundamental Issues in Strategy - A Research Agenda*, Harvard Business School Press, 1994

⁵³ Jaques, E., "In Praise of Hierarchy," *Harvard Business Review*, Jan/Feb 1990

⁵⁴ Mintzberg, H., "Crafting Strategy," *Harvard Business Review*, Jul/Aug 1987

⁵⁵ Hax, A. C. and Majluf, N. S. *The Strategy Concept and Process — A Pragmatic Approach*, Upper Saddle River, NJ: Prentice Hall 1996

Mintzberg also uses the “quantum theory of strategic change”⁵⁶ in discussing how strategy changes.

... organizations adopt two distinctly different modes of behavior at different times. Most of the time they pursue a given strategic orientation. ... Most organizations favor these periods of stability because they achieve success not by changing strategies, but by exploiting the ones they have. ... But what about all those emergent strategies, growing like weeds around the organization? What the quantum theory suggests is that the really novel ones are generally held in check in some corner of the organization until a strategic revolution becomes necessary.

These occasions are Andrew Grove's Strategic Inflection Points.

Mintzberg observes:

To manage strategy, then, ... is not so much to promote change as to know *when* to do so. Note the kind of knowledge involved: not intellectual knowledge, not analytical reports or abstracted facts and figures ... but intimate understanding Wisdom is the word that captures it best.

C. Taking Action

1. Performing

The greater the effectiveness of company strategy and structure, the better the company performs. That is, the better it increases both market share and fosters innovation to create “opportunity” share to fill the “White Space” (Figure 11).

2. Practicing

This includes observing the “Performance” and developing theories of the business. In a “Readings and Quotes” handout at the 1996 *Systems Thinking in Action Conference*, Deming is quoted as saying: “Without theory, you see nothing. But without observations, you can't change your theory.”

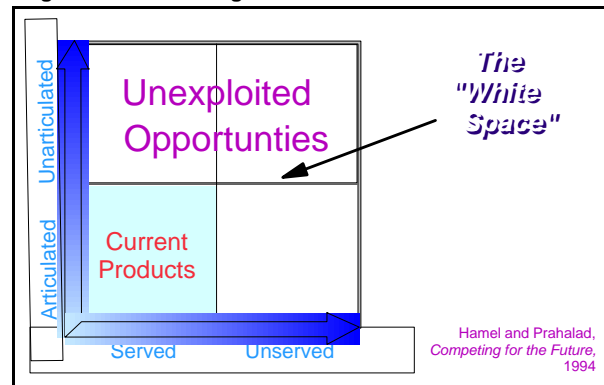
One form of observation is benchmarking. It must be recognized that benchmarking alone, untempered by in-depth analysis and theory using the tools of system dynamics, can lead to imitation, herd behavior, and hypercompetition based on price. Observation must go beyond benchmarking, because an entire industry can be “out of wack.”

Senge and Sterman⁵⁷ give an example in the insurance industry.

The claims vice president wondered aloud if perhaps “We may have half the adjusting capacity that we actually need for our current case load, from the standpoint of high service quality and low total costs.” One of us (Senge) responded that it seemed quite possible. The VP said, “You don't understand what a crazy thing I am saying. We already have a lower case load per adjuster than almost all of our competitors.” When all firms suffer similar quality erosion none serve as role models to demonstrate the potential leverage of increased adjuster capacity. Entire industries can thus experience eroding quality standards, as exemplified by many U.S. firms in the 1960s and 70s.”

An effective way to develop and refine theories of the organization based on observation is system dynamics modeling. Using such modeling as the basis of Management Flight Simulators and Learning Laboratories is a means to “practice.” They develop a company's “ability to think and learn” and provide the necessary infrastructure and training. They are an effective way to communicate theory and practice throughout the organization.

Figure 11. Performing



⁵⁶ Miller, D. and Friesen, P. H., *Organizations: A Quantum View*, Englewood Cliffs, NJ: Prentice-Hall, 1984.

⁵⁷ Senge, P. M. and Sterman, J. D., “Systems Thinking and Organizational Learning: Acting Locally and Thinking Globally in the Organization of the Future.” In Morecroft, J. D. W., and Sterman, J. D., (eds.) *Modeling for Learning Organizations*. Portland, OR: Productivity Press, Inc., 1994.

3. Scanning the Environment

Figure 3 shows that part of “Taking Action” is scanning the environment to make “Practicing” and “Performing” more effective.

D. Creating Company Learning Strategy

Creating a learning strategy must be done explicitly so that learning is done by design and isn't left to chance. An aid to improve the learning systems in place is the “Organizational Learning Inventory” [OLI] developed by Nevis, DiBella, and Gould at the MIT Organizational Learning Center (Figure 12). This is not a traditional inventory, but an assessment tool to help a team conduct a conversation that leads to creating its own learning charter. The OLI examines 12 Facilitating Factors which are generic, normative factors which might be called a “learning indices.” These indicate the degree to which learning is occurring. The OLI also examines 7 Learning Orientations to create a kind of “learning profile.” The orientations are opposing approaches to learning, where the preferred approach for any orientation may differ from firm to firm depending on the work or team preferences.⁵⁸

Figure 12. Organizational Learning Inventory

Learning Orientations	Facilitating Factors
● Knowledge Source: Internal vs. External	● Scanning Imperative
● Content-Process Focus: What vs. How	● Performance Gaps
● Documentation Mode: Personal vs. Public	● Concern for Measurement
● Dissemination Mode: Formal vs. Informal	● Experimental Mindset
● Learning Focus: Incremental vs. Transformative	● Climate of Openness
● Value Chain Focus: Design/Make vs. Market/Deliver	● Continuous Education
● Skill Development Focus: Individual vs. Group	● Operational Variety
	● Multiple Advocates
	● Involved Leadership
	● Systems Perspective

Designed at the MIT Organizational Learning Center

IV. Values, Purpose & Vision (VPV) as a Central Influence

Collins and Porras⁵⁹ expand the concept of Vision to contain 4 components (Figure 13). “Core Ideology” contains “core values” and “core purpose” (often referred to as mission or purpose). “Envisioned Future” is a major 10-30 year goal (a hoped-for outcome, which they call a BHAG - for “Big, Hairy, Audacious Goal) and a “vivid description” of the desired outcome and/or company to convey a picture charged with emotion.

VPV provide inspiration and guidance for building alignment. They note, “Building a visionary company requires 1% vision and 99% alignment. ... Creating alignment may be your most important work. But the first step will always be to recast your vision or mission into an effective context” Figure 14 shows why alignment is so important.

For this reason Figure 6 does not explicitly show VPV. The context of vision is a field of influence that affects all parts of the system. Figure 15 shows it as a kind of gravitational field around which the elements of the system orbit. Figure 16 shows how VPV form a hierarchy of considerations ... levels are informed by those above.

Figure 13. Collins & Porras' “Vision”

■ Vision includes*:
→ Core Ideology (... preserve the core)
● Core values
● Core purpose (mission)
→ Envisioned Future (... stimulate progress)
● A major 10-30 year goal, a hoped-for outcome (a BHAG for “Big, Hairy, Audacious Goal”)
● “vivid description” of the desired outcome and/or company to convey a picture charged with emotion
■ Provides inspiration and guidance for alignment

V. Conclusion

Without learning as an integral part of a company strategy, the feedback mechanisms outlined here will not work for a company's success. They will work against it.

Arie de Geus points out that, “Sociologists and psychologists tell us it is pain that makes people and living

⁵⁸ Gould, J., DiBella, A., Rau, H., and Drummond, C., “Developing Organizational Learning Capability: Using and Adapting the ‘Organizational Learning Inventory,’” *Proceedings of The Systems Thinking in Action™ Conference 1996*, San Francisco, CA. Pegasus Communications, Inc. 617 576-1231

⁵⁹ Collins, J. C. and Porras, J. I., “Building Your Company's Vision,” *Harvard Business Review*, Sep/Oct 1996

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systems change. And certainly corporations have their share of painful crises, the recent spate of takeovers and takeover threats conspicuously among them. But crisis management — pain management — is a dangerous way to manage for change.”⁶⁰

The reason it’s dangerous is that once we feel the pain, it’s often too late ... too late to learn from it and survive, at least without being badly burned. To avoid the damage, we must identify limiting mechanisms well in advance of encountering them and work on reducing the limiting action, rather than pushing harder. This means we have to be aware of the “better before worse” effect of the quick fix. We must use systems thinking and the tools of system dynamics to develop a rationale for betting on actions for the long term, rather than the short term.

In conclusion, the prescription of this model applies equally well to a person as well as a company: Build a knowledge of what’s going on in the world, continually acquire skills to build flexibility in dealing with change, learn skills to be more effective and efficient, learn to learn, practice to improve one’s “performance,” and take time to reflect and learn.

Figure 14. The Effect of Alignment

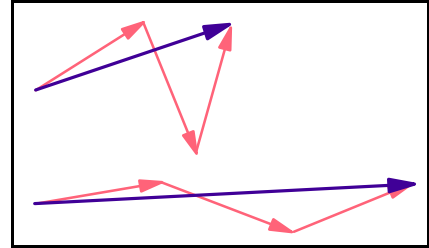


Figure 15. Values, Purpose & Vision as a Central Influence

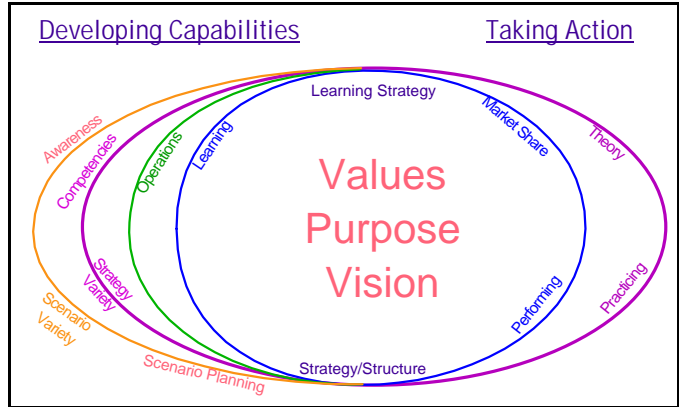
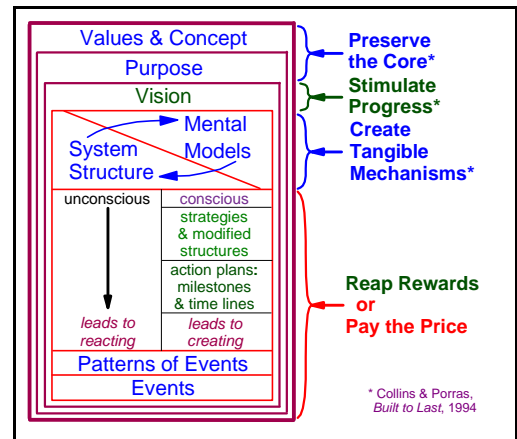


Figure 16. The VPV Hierarchy



⁶⁰ De Geus, A. P., “Planning as Learning,” *Harvard Business Review*, Mar/Apr 1988.