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certain orders—which pleases angry customers, but also takes time away from order fulfillment and leads to an increase in the order backlog and more angry customers (R1). This series of events can be captured by adding a causal loop to our initial accumulator and flow diagram.

Viewing the situation from an accumulator and flow perspective makes it clear that there are only two ways to reduce the backlog—decrease the inflows or increase the outflows. We either have to slow down or stop marketing for a while, or ramp up capacity to increase the order fulfillment rate. The accumulator and flow diagram poses the situation in a clear and concise way and focuses our attention on addressing the key flows.

Accumulators as Memory

Mapping in terms of accumulators and flows reminds us that accumulators don't simply disappear just because we stop a particular flow. If, for example, we were to stop all marketing efforts today, it would still take time for orders from previous marketing campaigns to stop flooding in, which means we need to address our capacity issues regardless of how we change our marketing efforts. When managing an accumulator and flow structure, it is important to remember that accumulators are a little like elephants—they never forget what they have been given to remember. ☐

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An Infrastructure for Organizational Transformation at Shell Oil

by Philip J. Carroll

One of the most valuable insights I ever received on transforming organizations came from my study of physics. My early studies of classical physics led me to believe that the world was an orderly place that operated by predictable and immutable laws. Later, quantum mechanics brought me face-to-face with the reality that the world was neither as precise nor as predictable as I had thought.

My thinking about corporations has undergone a similar evolution. When I joined corporate America over 30 years ago, I entered a world that was still operating on organizational principles not unlike those of the traditional command-and-control model. People felt they understood the rules by

which the corporation operated, and their roles within it.

But that was before economic upheaval, global competition, and dynamic change forced companies to downsize, reengineer, and restructure. These changes, designed primarily to affect the way financial assets were used, had a profound and often unsettling impact on the relationship between employees and their companies.

These changes also prompted me to reexamine the role of CEO. Clearly, the model of traditional commander-in-chief was not adequate for the demands of an organization seeking to transform itself in a world of rapid change. It seemed to me that in organizations undergoing rapid change, the CEO must at times function rather like an ecologist

5 Elements of Shell's Learning Infrastructure

- **Creating Mission, Vision, and Values**
- **Developing and Implementing a Business Model**
- **Creating a New System of Governance**
- **Developing New Concepts of Leadership**
- **Using Learning as a Fulcrum for Change**

gist. He or she needs to strive to create an environment that allows the separate parts of the whole to flourish as a single organic system, while also understanding how that system fits into the larger economic, social, and political systems of which it is a part.

The truth is that transformation is not about downsizing, reengineering, and restructuring. It's about people—about raising their aspirations and unleashing their potential. It's also about learning, which is the cornerstone of any successful transformation.

Those insights have influenced the transformation process at Shell Oil Company. They have also contributed to a transformational infrastructure in which learning plays a central role. That infrastructure is made up of five elements:

- **Creating Mission, Vision, and Values.** We began our transformation through a process designed to create a mission, vision, and values powerful enough to engage the minds and hearts of all 22,000 people in the corporation. The process—which is ongoing—encourages people to share their ideas about who we are, who we want to be, and where we fall short of those aspirations. The emerging dialogue from this process is producing a valuable dissonance that forces people to look deep within themselves and discover their personal visions for the company. This is important, since our transformation will not be complete until the personal visions of all our people converge into one collective vision.

- **Developing and Implementing a Business Model.** Because of the highly technical nature of our business, many of our managers have traditionally been more comfortable with differential equations than with balance sheets. To raise our business acumen to the level of our technical skills, we have developed a business model that gives us a new theory about our business as well as a new set of tools with which to shape our

future. Our leaders are currently using this business model to build winning strategies by understanding where they can exert the greatest leverage and add the most value. But the business model has applications far beyond the executive suite. When it is fully implemented, it will give every Shell employee a better understanding of his or her contribution to our company.

- **Creating a New System of Governance.** To unleash the potential of all our people, we are moving to a new system of governance that disperses authority and responsibility throughout the organization. This new system distributes much of the power that formerly resided in the office of the CEO to our principal businesses. Eventually, a significant share of that power will devolve into the business units within those businesses. We expect this sharing of power to offer our people a more entrepreneurial environment, a greater sense of ownership, and enlarged opportunities for personal growth. And we expect it to propel our company to the level of financial performance that can only be achieved in a high-accountability culture.

- **Developing New Concepts of Leadership.** Until recently, leadership was considered the preserve of those at the "top" of organizations. But at Shell, we believe that everyone has both the opportunity and the responsibility to exercise leadership within his or her own area of expertise and sphere of influence.

Are leaders born or made? Whatever the answer to that question, we do believe that leadership skills can be broadened and deepened. Through leadership development workshops, we are helping our managers understand their personal leadership potential and discover new ways of thinking and doing.

- **Using Learning as a Fulcrum for Change.** All of our transformational activities—from the creation of our mission, vision, and values to the develop-

ment of our business model and our new system of governance—are taking place under the aegis of the Learning and Development Initiative. This initiative provides the framework within which both individual and collective learning takes place. Although theoretical learning has its place, we believe that the most powerful learning experiences—the ones that produce both the fastest and most lasting results—are those in which real people are engaged in finding real solutions to real problems.

Because learning is both the foundation of our transformation and a permanent part of our culture, we are also establishing a corporate learning center that will promote continuous learning and business excellence, immerse new leaders and new employees in our culture, and continue the process of change.

To accomplish our objectives, we are striving to weave learning into the very fabric of our culture at Shell Oil Company. We consider it the means by which we will achieve all our other ends. It is the way we make sense of a complex and interconnected world. In a period of rapid change, it is our only sustainable competitive advantage. And it is the infrastructure for the transformational change that will enable us to achieve world-class performance in all our businesses. ■

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