A Work in Progress At DuPont: The Creation of a Developmental Organization

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The DuPont chemical plant outside of Memphis, Tennessee sprawls across the flat green prairie like the tentacles of a giant squid. Started up 40 years ago, the plant today employs 850 people, produces seven product lines of industrial chemicals for a world-wide market, and is a provider of highly valued basic chemicals to the global marketplace. For most of its existence, the plant has been a classic example of a well-run, traditional American manufacturing plant. Reasonably profitable with no major problems, it was not a self-evident candidate for a major organizational transformation, yet that is exactly what it is engaged in now.

Why Change?

In September 1989, when the change effort was launched, employees of the Memphis plant were well paid, physical working conditions were as good or better than most, and, from the perspective of business profits, it was providing a sound return to DuPont. So why invest in a long term fundamental transformation of the organization? To plant manager Bob Porter, the need was clear— "I knew how we had worked in the plant wasn't going to be sufficient for the future. We needed some profound changes." While Porter was the initiating force, every level of participant is now able to articulate their own understanding of the need for change. When one clerk was asked why he thought change was initiated, he offered that "DuPont had the reputation as number one in being competitive, producing good quality product, paying people good salaries…they also recognized the fact that the world was changing and

to compete globally, they have to change. In order to do that you have to have input from all people, you know everybody that's gonna make this thing work. They didn't get to be number one not recognizing those things." "I think the world is almost shrinking so it's becoming a neighborhood," noted a supervisor, "and I feel that in order for this company or whatever company to succeed in the future, it's going to require people to work as a team. You're going to be pitted against people who are working as a team, and I think you have to use all your resources available." A manager, asked the same question, added that he thought "that to a large extent the people that are involved have gotten to a point where their basic needs are met as far as a sound financial basis for living, and are looking to satisfy other internal needs now, to having some control over their destiny."

Overview and Theory Base of the Change Effort

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The Memphis change effort was born in the fall of 1989 when Bob Porter and Dick Jensen met with two consultants from Sanford and Associates. Out of these initial meetings grew a series of development sessions in which, starting in early 1990, teams of plant employees began working with the consultants for 2 days every 6 weeks. Made up at first of managers only, each team is now a "holographic reflection" of the total plant make-up—i.e. the make-up of each team is reflective of all the key perspectives in the plant such as function, age, experience, gender, etc. One of the more fascinating aspects of a hologram—the three dimensional image produced by a laser beam—is that if you break up the beam, rather than reflecting fragments of the original image, a whole image is reflected by each part of the beam. This concept, of having each part contain a reflection of the whole, is fundamental to the design of the Memphis change effort and will be referred to often in the following pages.

The number of teams at Memphis, which are called Core Teams, has grown from 3 to 11, including one team from a customer plant. The Core Team serves as a steward for the continuously increasing harmony between the business unit and its environment. To do so, they take on some of the roles traditionally played by management, as well as others that were not played by anyone. The Core Teams, in turn, set up other teams on-site—some focused around long term improvements, others around specific projects—to whom they transfer their learnings while

working together on joint improvement efforts.

The ultimate aim of this effort is to transform the plant's culture in order to create a Developmental Organization—an organization in which every employee is a source of creativity and in which all employees are self-organizing and working together to create a self-organizing business. As a foundation for achieving this aim, the critical initial stages of the effort focus on building a systemic set of 4 interwoven capabilities, each of which nourishes the development of the others:

(1) Self-Reflection—being able to see, in any situation and at any point in time, the patterns that dominate my thinking and interactions, and to understand their source. This is the essential first step toward the development of self-accountability.

(2) Evolutionary Systems Thinking—being able to hold in my mind, while engaged in my day-to-day activities, a picture of myself as one of a series of dynamic, evolving systems. Each of these systems constitutes a different level of system that is nested within the next. Furthermore, each is continuously engaged, directly or indirectly, in a multitude of complex interactions and associations with the other levels. Thus, I see myself as part of a team whose performance and well-being I impact and am impacted by. My team impacts and is impacted by the business unit within which it is nested and which, in turn, is within the plant which is within the corporation and so on out in ever-widening spheres of influence. Within this context, I can understand and appreciate the implications and significance of my patterns of thinking and interacting and, through that, take a second step toward self-accountability.

(3) Integration of Personal Development and Performance Improvement—being able to utilize every effort to improve business performance as an opportunity to develop myself, and vice versa.

(4) Holographic Approach to Work—being able to bring to every decision-making process a total perspective that holds within it a reflection of all the critical elements which make up the whole of the business and the nested systems of which it's a part.

Each one of these capabilities can be developed

only to the extent that the other three are also developing. While they build on each other, they are best developed in an iterative and systemic way, rather than by working on them one at a time in sequence.

In May and June of 1991, we had an opportunity to do some reflecting with employees in the Memphis plant on their experiences during the 18 months spent working to develop these capabilities and improve their business. Over 90 people were interviewed. They were asked to talk about what has changed in them and in the plant; what has been most difficult and what kept them going in tough times; what has been most rewarding. and what they have new hope for as a result. In the following pages, we draw from these interviews to look in more detail at how the Memphis plant's change effort is unfolding.

Self Reflection: Using Reality as a Mirror

With the rapid popularization of "Self-Managing Teams", there has been a tendency to mistake form for substance and equate a self-managed team to a team without a manager. One of the unfortunate results, seen in many companies, has been a focus on organizational shuffles as a way of achieving self-managing teams, even leading, in some cases, to competitions over who can eliminate the most managers in the shortest period. At the Memphis plant, change in organizational structure will be a long term output of, rather than an input to the change effort. As one of the line managers puts it, "Let's stop trying to change the organization all the time and get down to business. . . that's what's happening here. We're doing something that doesn't revolve around reorganization, but yet it's going to lead to significant change."

At the heart of the Memphis effort is the increasing capability of every employee, wage role and management, to be truly "Self" managing—managing of the self by the Self. The premise underlying this aspect of the effort holds that the success of self-directed teams in the workplace is directly related to people's capability for self-reflection in their own thinking and in their interactions, a capability which is foundational to their ability to be self-accountable. As a line manager noted, "the whole key really is personal development. The plant is going to grow as each one of us grows. I think that's where the rubber meets the road in this system." "It has to start with us at the beginning," notes plant manager Bob Porter, "if you want change to occur, you are going to have to

change."

The plant is working on developing this capability by attempting to integrate into every aspect of work processes that enable people to learn how to reflect on the mental patterns that dominate their thinking and doing, to see the sources of these patterns, and to choose and put in place the patterns that will best achieve the destiny they desire.

What changes are people seeing in the plant as a result? The growing value for understanding the thinking behind one's own ideas, opinions and actions has led to greater interest in and openness to the thinking of others, as well as to cooperation across traditional boundaries to a degree not seen before. "So far as myself", one operator notes, "I've seen some changes where I'm not just thinking about myself but I'm reflecting and starting to learn how to reflect on what other people feel as well as what I feel. I'm able to listen to people and try to understand where they are coming from and what happened." People are learning to ask why someone is thinking a particular way before rushing to judge the output of their thoughts. As an operator in one of DuPont's customer plants that is going through the process with them says of himself: "It's made me value everyone's opinion. You listen and you think 'Why are they thinking this way?', rather than 'That's a dumb thing.' " These changes gain added significance in light of a recent survey of American workers by Northwestern National Life Insurance in which 33% of those interviewed pointed to co-workers as the major cause of their job stress—stress which they said lowered their productivity and adversely affected their health.

Another evident change is the extent to which people at all levels in the plant are discovering and applying their own leadership capabilities. People who had never participated in any kind of work session with upper management are finding themselves speaking up with ease, making presentations and initiating improvement efforts when they see a problem. The trust that people build in their own inner knowing as a result of the self-reflective processes they are engaging in is foundational to developing leadership at every level. An operator describes a pattern he discovered in himself and how it has affected his ability to be a leader . "Looking back on myself, my life, childhood on up, you're programmed to react to what someone else says, to do what you've been told and not to take the initiative so it's kind of hard to change that pattern all of a sudden… First you've got to focus on what kind of

changes you want to make, and constantly reflect and see where you are to make those changes. To be a leader you've got to make decisions, not just sit there and be told what to do. Never having had a chance to do that, it's hard to make that change but you constantly work toward it—it's just a constant battle."

Evolutionary Systems Thinking : Seeing the Intricacies of the Web that Weaves Life Together.

The increasing ability to access intrinsic sources of creativity and wisdom that results from reflective processes is recognized as necessary, but not sufficient for the Memphis effort to achieve its goals. Being able to bring one's thinking patterns into alignment with purpose does not necessarily contribute to the whole if one's purpose remains narrowly focused. The next step required helping people learn how to extend their thinking to encompass relationships between and associations with ever-widening sets of nested systems or wholes. That is, to be able to mentally connect with other units in the plant, the plant's suppliers, its customers, its customer's customers, and the chemical industry and its environment, and to see how each level is evolving and the implications of that evolution for their own activities. To accomplish that, the Memphis effort introduced evolutionary systems thinking as the second core capability.

As with self-reflection, processes which engaged evolutionary systems thinking are integrated into work tasks wherever feasible. Improvement tasks undertaken by the teams require that people extend their thinking beyond the entity or entities immediately impacted. Symbols are used when people are working together to depict graphically the relationships and associations that will be impacted by a decision or an action.

Evolutionary systems thinking is essential to making sense of the complexities and dynamics of life, to understanding why events unfold the way they do, and thus, to organizing oneself to be the creator of one's own destiny. Unfortunately, traditional schools and training programs, as well as the traditional business culture, tend to restrict themselves to skills and instruments for engaging in analytic, reductionist thinking and, in fact, even discourage systems thinking by their demand for a single "right" answer. One of the seductions of analytic thinking is its apparent effectiveness in reducing complex, dynamic situations down to simple, manageable elements.

While this simplicity may be appropriate when repairing a piece of equipment, its effectiveness becomes illusory and misleading when applied to understanding why a system operates the way it does. This bias toward analytic thinking in our learning institutions is not, however, the only factor which inhibits the use of systems thinking.

A systemic approach requires being able to hold in the mind, and to think about, many complex ever-changing relationships between multiple elements in a situation. Yet the human brain seems to be constructed in a way that limits the number of things the conscious mind can think about, and create relationships among, at any one time. Despite this, all of us are at times able to intuitively grasp the complexity of a system as a whole. The analytic skills and instruments we learn at school and in training programs do not, however, enable us to extend and apply this intuitive understanding or to share it in a way that allows others to work on it as a team.

The Memphis change effort dealt with the difficulty of integrating systems thinking into day to day work by building people's capability to use mental structures. These structures are part of a change technology developed and evolved over the last 25 years. Dynamic and systemic in nature, they enormously enhance the capacity to think about and work with a total view – tangible and intangible – of complex systems. Even though systems thinking is gaining increasing recognition as an essential capability in today's business world, few organization change efforts have been able to provide concrete ways to help people overcome the fundamental inhibitions to its use. The introduction of structural intelligence makes the Memphis change effort unique in this regard.

As a result of the increasing use of evolutionary systems thinking in the Memphis plant, managers and wage role employees are increasingly operating from the same mental picture of the business and its evolving environment, leading to improved teamwork, and increased individual motivation as people see greater significance in their work by seeing its impact on larger systems. An operator describes how "Beforehand, the thinking. . . was more of a blame-type situation as to these guys will screw up and we are going to end up having to shut the plant down. Well, now its more. . . 'What can I do for the business to make it better to keep us from shutting down.' The blame factor seems to be disappearing."

The mental scope of responsibility each person holds is also expanding. In planning and problem

solving sessions, workers talk about their impact on future generations, and about their impact on and stewardship for the chemical industry—its overall health and its impact on the environment. Projects with increasingly long term implications, such as seeking raw material replacements that are more environmentally sound, are being generated from the bottom of the organization. Another operator describes his own evolution, "As for being involved in the core team, it has helped me to see that there's a larger whole outside my little work area. . . As time's gone on I've begun to see the ramifications of some of my actions or inactions, and it's just helped me look at the bigger picture."

With every step that the individual employees take toward seeing beyond themselves, the Memphis plant is finding it increasingly possible for the organization as a whole to see more of its place in the world. The result, they are finding, is a system which is increasingly capable of evolving itself, not just responding to feedback or direction from its environment.

Integration of Personal Development and Performance Improvement: Bridging the Gap between Valuing People and Producing Profits

This third layer of core capabilities is based on the premise that to build continuous creation into a business, people must work on self-creation in every act of work—that personal development and performance improvement are a necessary dyad that supplies the essential energy required for continuous improvement. As countless managers have found, few things kill the spirit of a change effort faster than learning new skills and having no place and no freedom to apply them. At the other end of the spectrum, and equally deadly to continued change, is ungrounded involvement—people using their new skills to start projects or make decisions which don't match business needs.

A line manager in the DuPont plant describes how he sees their effort as different: "I think one of the keys to this approach is that we continually try to keep the effort business focused, and some of our previous attempts at developing people and changing our management styles were not always connected to the business. And I think that is what has allowed this approach to go as far as it has"

The Memphis effort was designed to provide structured opportunities for involvement that grow in

concert with people's capabilities to manage themselves and their capability to use evolutionary systems thinking to identify business needs. At first the needs that were identified focused on small issues which hindered the day-to-day work Over time, as capabilities have grown, the teams are increasingly focusing on business needs which reach far into the future. For example, out of gaining understanding of how their customers and their customer's needs are evolving came a recognition of how current product formulations will not meet those future needs. As a result, there are now operator and R&D teams working on the chemical redesign of these products.

In addition to structured involvement opportunities, managers are encouraged to introduce in day-to-day work interactions whichever element of the development/ improvement dyad is missing—asking how people engaged in problem solving are working on themselves, or requesting specific ideas for application of new learnings from people who attend training sessions. A supervisor describes his role: "Not only do you evaluate how well you accomplish a specific task, but how well have we developed the people now working on that task to be better able to handle other tasks in the future. . . it forces you to sacrifice some of the perhaps short-term gains in a specific solution while developing the capabilities of people going more and more on their own in the future."

As people are able to manifest the personal change they are experiencing, those changes take on greater significance and meaning, and their motivation to continue the difficult task of changing themselves is reinforced. A mechanic reports that "The change I've seen in myself and this group is that we feel more positive about what we're doing because we see changes, we've made some decisions, we've done things that are affecting the plant, and in the past, you had to go through so much red tape and get so many blessings, that the original idea had changed so much that you didn't even feel a part of it. So now I think it makes you more motivated because you can actually see a change being made."

Integrating a change effort with day-to-day work also alleviates the feeling of being overwhelmed by new responsibilities. From a supervisor: ". . . this is not in addition to your job; this is your job. And that helped me because I'd been struggling with, I've got all these other things to do, and it seemed to be taking away from doing these other things."

While the benefits of integrating personal development into the daily work are clear to the Memphis

participants, they're equally clear about how difficult it is to sustain this integration. Development, while profound in its eventual impact, is, by its nature, rarely a rapid process. Our culture, however, is focused on instant gratification and driven by crisis motivation. For most of us, our attention span is so short, we want change to happen overnight even though we know the conditions we're trying to shift took years to form. No matter how much we come to value our, and others' development, keeping sight of that value when under pressure from external sources on the job, or at home requires constant vigilance in light of these cultural constraints. As an operator notes, "It (working on personal development) helps. . . yet it can be very hard. Especially when you're into the day-to-day types of problems and you're not thinking at the time about development."

Holographic Approach to Work Creating Wholeness from Valuing Diversity

The fourth core capability, developing a holographic approach to work, returns to the concept mentioned earlier of having each part contain a reflection of the whole. It is based on the premise that hierarchies of power, where those at the top are seen as "smarter", prevent distribution of creation and leadership throughout the organization. The only way of shifting that hierarchy is to move to holographic decision making processes—processes which honor the unique capabilities, perspectives and contributions of every individual, as well as the synergy that comes from these individuals working together.

As with self-managed teams, the temptation around hierarchy has also been to focus on form rather than substance in change efforts. Holographic decision making processes are mental phenomena, not physical. They do not require polling or otherwise involving everyone every time a decision is made. Rather, they depend on the degree to which people are capable of self-reflection, of evolutionary systems thinking and of sustaining the mental polarity of personal development and performance improvement.

The Memphis plant utilizes teams which are holographic reflections of the business and which operate parallel to the management structure, providing leadership to the change effort. These teams, which serve as developmental instruments for both the business and the individuals, provide an arena for people to apply and build on their self-reflective skills, serving to further reinforce self-confidence and valuing for others, while working on business improvement. Two

operators describe their experience: "…in the meetings we have learned to be equals… And that equal sense is really giving people incentive to participate. You know, I see myself when we go to staff meetings…I can with no shame at all speak up my mind. …And I think you have a lot more sincere respect for what you can do for the business.", and, ". . . by being a part of this group I have gained a lot more self-confidence. First is being not quite so reluctant to speak out; the other thing is beginning to see myself in a leadership role. I've always thought of myself as a doer and a follower. And I think somebody has seen something in me that I didn't see, so I believe I can become a leader."

The impact on management is described by a supervisor who says "It has helped me to see the total picture as far as the total plant operation from management point of view all the way down to the assistant operators point of view because of the mixture of people in the room and the problems I hear them talk about. You know it has helped me to open my mind up and accept the problems they have more readily."

In addition to enabling simply better thinking and decision-making, the holographic make-up of the teams is also an important source of motivation, especially during the early stages of a change effort. When asked what keeps her going in the face of difficulties, a clerk says "its the commitment that I see from upper and middle level management here on the team now. How hard they struggle with it and how they keep coming and they're trying their hardest, and as long as they're trying, I'm going to hang in there and try with them."

Looking Ahead

In addition to organizational and personal improvements made over the last eighteen months, all teams cited accomplishments resulting in substantial fiscal savings or gains for the Memphis plant. Employees involved in the effort are excited about the changes they've seen in themselves and in the business, but there is also a strong recognition of how hard they have worked and of how difficult it has been to break old patterns. As a manager seeking change, it can feel very comfortable to let employee's make decisions, until those decisions differ from one's own. A line manager advises those who would undertake a similar effort, "have people really reflect on, are they really ready to let go and trust people. I don't mean just to say it, but to the point of letting go so much that it hurts, that you are really exposed and

you have to trust people to keep you from getting in serious trouble." These old and inhibiting patterns are not the sole domain of management however. It takes equal effort on the part of operators to overcome patterns, one of the most common being the fear and/or cynicism that this is just another "program of the month".

The difficulty of sustaining change is being reconciled by recognition of the many changes that have occurred at all levels of the plant. Decisions which, in the past were routinely made by top management are now being made by teams; when direction is set for the business unit, it is done by the Core Team which is reflective of the perspectives of the whole unit. V.I.P. visits, formerly the domain of staff, are now planned and conducted by teams of operators and supervisors. An operator, excited about what was happening in the change effort, sent DuPont C.E.O. Ed Woolard a letter inviting him to come see for himself, an invitation Woolard accepted. In the past, when people had a problem with someone in another unit, they would pass it up through the chain , across and down. Now people talk directly to the person with whom they are having a problem. Responsibility for plant improvement is also no longer exclusive to management—as many improvement projects are initiated from the floor as from management. Even more important, the people who create the idea now carry it through to evaluation. There is no longer an artificial separation between the idea generator, implementor and evaluator.

While change can be seen throughout the plant, there is also recognition of how much still remains to be done. Dick Jensen, the manager who has been responsible for guiding the change process plant-wide is quick to point out that "the biggest challenge in front of us now is extending the changes in capabilities and vision to the rest of the folks who have not yet been touched; and that takes a lot of patience, and remembering how hard it was for us at first." Bob Porter also adds that "some people are still wondering 'why change?' That is partly because we haven't connected everyone to all the relevant business information and partly because we are not yet totally consistent in how we are working with people. This is what we are working on now, and have quite a way to go."

Sustaining a Change Effort

Most managers in American business have long believed that people will change only if they see

something in it for themselves, specifically some material reward or personal advancement. Perhaps one of the most significant aspects of the experience of the Memphis DuPont plant is that it is bringing into question this long-standing truism. Managers there are increasingly discovering that the most powerful source of change may, in fact, be people who have the opportunity to give of themselves. In the eloquent words of a clerk speaking on behalf of herself and her fellow workers, ". . . we're really beginning to recognize that there is untapped capability here and an untapped desire to experience being an individual who contributes something to the business and is recognized for that contribution, and so I think part of what drives a group like this is that sense of being able to touch and manage and shape in some way their destiny."