SIMPLEX: MODELLING THE PHASES 
AND STAGES OF THE 
INNOVATION PROCESS IN 
OPEN-SYSTEM ORGANIZATIONS 

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Abstract

In an era of rapidly accelerating change, thriving organizations are not merely efficient or flexible, but adaptable, or innovative. This means that they act as open systems sensitive to their environment and continuously transform changing inputs into changing outputs. This paper models organizational creativity or innovation as a three-phase, circular transformation process of deliberately and continuously anticipating and finding valuable problems, developing solutions and implementing those solutions. The four stages of this process, called the Simplex process, are generation, conceptualization, optimization and implementation. Within the process are eight steps: problem finding, fact finding, problem defining (including challenge mapping), idea finding, evaluating and selecting, planning, gaining acceptance and taking action. Each step is activated by a sequential thinking process involving active divergence and active convergence. While this paper focuses on organizations, the model, the process and all of the concepts can equally apply to individuals and groups or teams of individuals.
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INTRODUCTION

Organizations are often modelled as open systems which absorb inputs from the environment, transform them and emit outputs. These outputs then interact with the environment, and become new, modified inputs for the next cycle of this continuous transformation process. The extent to which organizations “listen” to their environments is said to be a measure of how “open” or “closed” they are. Closed-system organizations ignore environmental changes and continue to take in the same inputs and to emit the same outputs.

Figure 1 shows a model of an open system. Central to Figure 1 is the organization itself depicted as a transformational engine comprising people, equipment, processes and structures which convert the inputs into outputs. If the system were closed, it could survive only if the environment remained stable, thus taking in the same inputs and emitting the same outputs. If the environment were to become unstable, a closed system would eventually lose step with the environment. Hence, if the environment continually changes, an organization can survive long-term only by being an open system -- keeping step with a changing environment by transforming changing inputs into changing outputs. An effective organization achieves congruency with its environment (Beer, 1980).

Mott (1972) showed that effective organizations have two major but very different characteristics: efficiency and adaptability. Efficiency means optimizing, stabilizing and polishing current methods (routines) to achieve the highest quantity and quality at the lowest cost possible. Adaptability means changing current methods to attain new levels of quantity, quality and cost. Both new methods and new products result from adaptability. High efficiency means mastery of routine and high adaptability means rapid, positive change in routine. A routine is a standard
Figure 1: An organization operating as an open system
method for conducting the main work of the organizational unit. Every organization (including every organizational subunit) turns out some product (a needed good or service). Efficient organizations know their "customer" and their "product" and they master their routine. Efficient organizations are also flexible; i.e. they can respond to sudden temporary changes or interruptions to the routine. They can deal with unexpected problems and opportunities which cause disruptions and return to their normal routine quickly without getting stuck in "red tape." Efficiency, including flexibility, is vital in the short run.

Adaptability means continually and intentionally changing routines and finding new, better ways to do business. Adaptable organizations anticipate and seek out problems and opportunities, develop timely solutions ahead of time, and stay abreast of new methods and technologies. Their members readily accept good new ideas and ensure installation and maintenance of new solutions and new techniques. Acceptance of the new solutions and techniques prevails across all organizational subunits. Figure 2 shows the three characteristics of effective organizations.

In the past, organizations could be effective by concentrating only on efficiency. Efficiency is needed when the organization knows what must be done and only needs to improve it. In other words, the problems are well defined and the organization focuses on attaining the best solutions possible. The product or the method, or both, are well known; optimizing them is the challenge. Adaptability is now equally important because of today's rapidly accelerating rate of change (Toffler, 1970). Adaptability, or creativity and innovation, is needed when the organization is unclear about what needs to be done, or when what needs to be done is constantly changing. A closed-system organization works diligently to master the routine, and focuses on internal efficiency. An open-system organization works diligently to deliberately change the routine to suit its environment, and focuses on external adaptability.
Figure 2: Characteristics of effective organizations
To increase adaptability, many organizations are seeking ways to change how their employees think. Organizations believe employees to be overly “efficiency-minded,” focusing too closely on performing their daily, routine work assignments. Optimizing the day-to-day routine often works against efforts to become adaptability-minded -- to find new opportunities, to find new problems (called opportunistic surveillance by Simon, 1977), to develop new routines and new products, and to solve old, persistent problems in new ways. People who are overly efficiency-minded often consider adaptability less important and strive to attain perfection in their current approaches (Leavitt, 1975). They fear that increasing adaptability would mean compromising efficiency. They fear suffering a sharp, immediate drop in efficiency. They assume that people cannot be creative and efficient simultaneously.

However, in an era of rapidly accelerating change, thriving organizations must be not merely efficient or flexible, but adaptable, or creative (Basadur, 1997). All organizations face a common challenge: the need to improve their performance in order to adapt to change. Yet many organizations lack the requisite skills to do so. Bureaucratic organizations established under more stable conditions now find it difficult to adapt. Even as organizational outputs encounter a changing environment, and as inputs continue to change, many organizations lack the ability to transform them effectively. An effective open system requires a creative, innovative process. Basadur (1995) modelled organizational creativity as a three-phase, four-stage circular process of deliberately and continuously anticipating, seeking and defining valuable problems as inputs, developing solutions and implementing those solutions as outputs. These inputs and outputs are both internal and external. The four stages of this transformational model, called the Simplex process, are generation, conceptualization, optimization and implementation. Within the process are eight steps: problem finding, fact finding, problem defining (including challenge mapping), idea finding, evaluating and
selecting, planning, gaining acceptance and action. Each step is activated by a sequential thinking process involving active divergence and active convergence.

PHASES OF THE CREATIVE PROCESS

Adaptable organizations make changes deliberately. They use a three-phase, creative process that enables them to continuously anticipate and find problems (new inputs), develop solutions and implement those solutions (new outputs). The three phases of the creative process, which were identified by Basadur, Graen and Green (1982), are shown in Figure 3. Creativity in organizations can be defined as an ongoing process of problem finding, problem solving and solution implementation. Problem finding means continuously finding new problems to address. Problems can be current or future changes, trends, challenges and opportunities, as well as things that are going wrong. Problem finding includes identifying new product or service opportunities by anticipating new customer needs. It includes discovering opportunities for improving existing products, services, procedures and processes, and for improving the satisfaction and well-being of the organizational members. It also means redefining seemingly insoluble problems in new ways. Problem-solving activity means developing new and useful solutions to problems found. Solution implementation activity means making new solutions succeed. Implementation usually leads to more new problem finding-activity. New problems are created as the organization’s environment reacts to the impact of each new implemented solution. Thus, creativity in organizations is a process of continuous improvement -- a continuous finding and solving of problems and implementation of new solutions. Having identified and modelled this three-phase process, Basadur called it Simplex in 1981.
Figure 3: The three phases of the creative process
THE EIGHT-STEP CREATIVE PROCESS

The three-phase process in turn consists of eight steps as follows: 1) problem finding (anticipating future problems and seeking out current problems); 2) fact finding; 3) problem defining; 4) generating potential solutions; 5) evaluating potential solutions; 6) action planning; 7) gaining acceptance; and 8) taking action. The entire process is circular and continuous: the eighth step is followed by the first step to begin a new cycle. Each action taken to implement a new solution automatically leads to new problems, changes and opportunities for a new round of creativity. Basadur (1995; 1997) described how Simplex theory, field research and practical experience evolved from the basic Osborn-Parnes 5-step Creative Problem Solving Process (Parnes, Noller & Biondi, 1977). Figure 4 displays the eight steps within the Simplex complete, creative process, beginning with problem finding and ending with action.

A. Problem finding (Phase 1)

1. Problem finding (Step 1)

Problem finding consists of sensing and anticipating problems, changes and opportunities for improvement within and outside of the organization. The result: a continuous flow of inputs, in the form of new problems to solve, changes to address and capitalize upon, and opportunities for improvement.

A skilled problem finder takes initiative, anticipates and senses problems, and welcomes change as an opportunity to improve or gain competitive advantage. Their attitude of “constructive discontent” makes problem finders desire continuous improvement and adaptation and enables them to tolerate ambiguity and to address vague, unstructured, “fuzzy” situations. Rather than merely react to problems, they seek them out.
Figure 4: How the three phases correspond to the eight steps of the Simplex creative process
Within the problem-finding step, individuals and groups continuously defer convergence and actively diverge to collect a wide variety of potentially relevant problems, changes and opportunities. Only then do they converge on a selected number for further exploration. Problem finders view even those selected problems as ambiguous, fuzzy situations.

2. Fact finding (Step 2)

During fact finding, the individual or group first defers judgment in order to gather potentially relevant information about a selected problem, change or opportunity. They then evaluate and select the particular facts most likely to be useful in developing fruitful problem definitions during the next step of the process. While diverging within fact finding, the individual or group defers evaluation and analysis, and accepts all points of view or versions of the facts. Establishing what is not known is as important as learning what is known or thought to be known. Only later during convergence does the individual or group choose the most relevant and potentially worthwhile facts.

A skilled fact finder avoids unwarranted assumptions, examines a situation from a wide variety of viewpoints, listens well to other versions of the facts and accepts those versions, extends effort to dig out further information, and asks fact-finding questions in simple ways designed to increase understanding. They can then converge upon a few key facts for further development.
3. Problem definition (Step 3)

During problem definition, the individual or group first uses ideation to convert the key facts selected during the preceding step into a variety of creative challenges, or problem definitions, then selects one or a few most promising problem definitions. Here, they create a direction for solving the problem. A person skilled in problem defining creates a wide variety of insightful challenges from a few key facts. They can broaden or narrow the problem. They can break down large problems into smaller components and, at the same time, can see how those parts fit into the bigger picture. They can defer convergence to develop new ways of formulating the problem until they find a clearly superior problem definition. Basadur, Ellspermann and Evans (1994) said that this step requires skill in asking the right question, which will then be answered during the next step of the process.

In a process called challenge mapping, problem definitions are first framed as challenges, using the question: “How might we...?” This is probably the single most important question in the Simplex process, as it provides a way around the numerous roadblocks that an individual or group will encounter in attempting to develop solutions to problems. Then these challenges are further developed and new challenges are created, using a special method of divergent thinking called the “why-what’s stopping” analysis. By mapping challenges to depict the interrelationships among them, this method helps the individual or group to discover breakthrough challenges. The method involves a three-step process: asking “why” or “what’s stopping” of a particular challenge; phrasing the answer in a simple, complete sentence; and creating a new challenge based on the answer. Asking these two questions repeatedly (“why else?”; “what else is stopping?”) further broadens or narrows the
problem’s scope. This challenge mapping process yields a visual hierarchy of interrelated challenges that shows both the big picture and its components, as in Figure 5.

B. Problem solving (Phase 2)

1. Idea finding (Step 4)

During idea finding, the individual or group practices deferral of judgment while actively creating many potential solutions to the selected challenges. They then select the most fruitful potential solutions for subsequent evaluation. Skilled idea finders use imagination to create many possible solutions -- including seemingly radical or even impossible ideas that can be developed into more workable yet novel solutions. Rather than stop with the first good idea, they assume that even better ideas await. They are able to visualize ideas and build upon fragments of ideas to develop more possible solutions. They are also skilled in selecting a few potential solutions for closer scrutiny during the next step of the process.

2. Evaluate and select (Step 5)

Evaluation and selection involves open-minded generation of many criteria that might help the individual or organization make an unbiased, accurate evaluation of the potential solutions developed in the preceding step. The individual or group then selects and applies the most significant of these criteria to decide which potential solutions might be implemented during the next stage of the process. Skilful evaluators avoid leaping to conclusions based on a single, simple criterion. They can turn flawed ideas into workable solutions.
## Strategic Plan

**Why?**

**What's Stopping You?**

**Provide world class logistics expertise to our customers**

**Extend logistics services to nonlubricant customers**

**Help our customers manage their wastes**

**Use inventory as a strategic marketing weapon**

**Continuously improve our customer satisfaction**

**Gain employee commitment to change by promoting lifetime learning**

**Employ the state of the art tools to carry out our business processes**

**Note:** Each challenge statement was originally expressed as "How Might We ...?"

### Vision

- Increase customer value

### Mission

- Consistently provide services, products & attitudes that meet our customers' requirements

### Objectives

- Understand & meet customers' requirements the first time, every time

### Strategies

- Use inventory as a strategic marketing weapon

### Programs

- Implement ISO-9000
- Implement the reliable supplier program
- Introduce telemarketing
- Involve employees in improving business processes
- Implement new accounting software
- Complete the barcode coding project
- Continuously improve employee skills

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**Figure 5:** A sample of challenge mapping

**Note:** Each challenge statement was originally expressed as "How Might We ...?"
C. Solution implementation (Phase 3)

1. Action planning (Step 6)

Having developed a good solution, the individual or group then enters the implementation stage, in which they exercise skills in preparing and implementing the solution. Implementing a solution carries its attendant anxieties. In effect, people are being asked to enter the unknown, which causes discomfort because of a lack of familiarity and a fear of failure. It requires creativity to gain support for risking change, to build commitment for entering the unknown, to adapt the solution to specific circumstances, and to ensure the necessary follow-up to cement the new change. During action planning, the individual or group develops specific action steps that will lead to successful implementation of the new solution. They first generate actions, then select the specific actions.

2. Gaining acceptance (Step 7)

The step of gaining acceptance recognizes that the best-laid plans can be scuttled by resistance to change. Coch and French (1948) pointed out the importance of developing ownership of a new idea in order to win its acceptance. People will more likely accept change if they understand its benefits and if they see how attendant problems can be minimized. During this step, the individual or group generates ways to create ownership, explain the benefits and address objections. They then apply judgment to choose the best approach to gaining acceptance.
3. Taking action (Step 8)

Carrying out action steps is an integral part of the creative process. At the organizational level, the result is a continuous flow of outputs in the form of products, services and processes to interact with the changing environment. Having carefully considered the specific steps in an action plan, the individual or group must still carry them out. It is at this step that individuals and teams often become mired in detail and in reasons for not taking action. Among these reasons:

- Tice and Baumeister (1997) noted that procrastination makes it difficult to take action even when the next step is obvious;
- the action plan might be too vague, complicated, difficult, distasteful or insufficiently challenging;
- fear of the unknown;
- fear of failure (and the stigma attached to failure);
- fear of implementing an insufficient or imperfect solution (compounded by a myth that answers to problems must be right or wrong);
- inability to say no to less important but easier tasks.

Lakein (1973) described techniques for overcoming hurdles to taking action, including the following:

- Start with even the most trivial step.
- Make action plans extremely simple, specific and challenging, yet realistic.
- Start with the least desirable step.
- Face fear of the unknown by writing down the worst that could happen, then creating ideas for coping.
• Address fear of failure by sharing the action plan with others and by developing strategies to minimize discomfort or even to turn failure to advantage.

• Learn to say no to distractions.

• Set written deadlines and share those commitments with others. Promise simple but significant rewards for meeting those deadlines.

THE FOUR PROCESS SKILLS

Within each of the three phases and within each of the eight steps of the creative process, individuals and organizations must apply specific process skills identified by Basadur (1995). Active convergence, active divergence and deferral of judgment are “horizontal” process skills used within each of the eight steps of the creative process. A fourth process skill, called vertical deferral of judgment, is applied between the steps and phases of the process. Figure 6 shows the four process skills.

A. Active divergence

Active divergence enables individuals and groups to generate options without judging or analyzing them. Using this process skill, they continually seek new opportunities for change and improvement; view ambiguous situations as desirable; seek potential relationships beyond the known facts; show awareness of gaps in experience; recognize the importance of discovering the right questions before seeking the right answers; and seek additional, potential solutions to problems and seek additional factors to evaluate solutions and to create successful plans for implementation and for gaining acceptance.
• Active divergence
• Active convergence
• Deferral of judgment
• Vertical deferral of judgment

Figure 6: The four critical process skills
B. Active convergence

Within each step, active convergence then allows individuals or groups to select options to take to the next step. Using this process skill, they take reasonable risks to proceed on less-than-perfect options and drive the process through to completion.

C. Deferral of judgment

Within each step, deferral of judgment separates divergent thinking and convergent thinking. By enabling individuals and groups to resist the tendency to prematurely evaluate and select options, this skill encourages active divergence. Skill in deferring judgment manifests itself in an open-minded attitude to new opportunities and facts; and a willingness to find alternative ways to define a problem, and to try unusual approaches to solve the problem and to implement the solution.

D. Vertical deferral of judgment

A fourth process skill, called vertical deferral of judgment, allows the individual or group to proceed systematically through the eight steps or the three phases of the creative process, instead of leapfrogging among phases or becoming bogged down in a particular step. Vertical deferral of judgment helps individuals resist the tendency to leap directly to their preferred phase or step of the creative process. This process skill enables them to understand the difference between a “fuzzy” situation and a well-defined problem; distinguish between defining and solving a problem; unearth pertinent facts before defining a problem; recognize that imperfect solutions are merely the starting point for another round of the creative
process; recognize that team members prefer different parts of the creative process; and avoid leaping to action upon discovering a problem.

THE CREATIVE PROCESS PROFILE

Basadur, Graen and Wakabayashi (1990) suggested that using the creative process effectively requires a recognition that people acquire and use knowledge differently. People learn or acquire knowledge in two opposing ways: through experience (becoming personally involved in a task); and through thought (observing, analyzing and theorizing in order to understand). Similarly, they use knowledge in two opposing ways: for ideation (generating ideas, options and points of view while deferring judgment); and for evaluation (judging and selecting from among those ideas, options and points of view), as shown in Figure 7.

An individual's unique approach to the creative process is called a creative process profile. The profile portrays the individual's relative preferences for these opposing ways of gaining knowledge (experiencing versus thinking) and of using knowledge (ideation versus evaluation). It explains people's varying orientations toward aspects of the creative process and suggests how to combine those orientations for effective and creative teamwork.

In order to better understand these orientations and to determine their own preferences, individuals can complete a creative process inventory, as shown in Figure 8. Then, using the creative process profile as shown in Figure 9, they calculate scores to plot their unique creative process profile.
Figure 7: Differences in gaining and using knowledge that cause differences in creative process profiles
This inventory is designed to describe your method of creative thinking. The aim of the inventory is to **describe how** you use your creativity, **not to evaluate** your creative ability. You may find it hard to choose the words that best describe your creative style because there are no right or wrong answers. Different characteristics are equally good.

**Instructions:**
Eighteen rows of four words are listed horizontally below. In each row assign a “4” to the word which best characterizes how you approach problems, a “3” to the word which next best characterizes how you approach problems, a “2” to the next most characteristic word, and a “1” to the word which is least characteristic of how you approach problems. Be sure to assign a different number to each of the four words in each horizontal row. Do not make ties.

<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ___ Alert</td>
<td>___ Poised</td>
<td>___ Ready</td>
<td>___ Eager</td>
</tr>
<tr>
<td>2. ___ Patient</td>
<td>___ Diligent</td>
<td>___ Forceful</td>
<td>___ Prepared</td>
</tr>
<tr>
<td>3. ___ Doing</td>
<td>___ Childlike</td>
<td>___ Detached</td>
<td>___ Realistic</td>
</tr>
<tr>
<td>4. ___ Experiencing</td>
<td>___ Diversifying</td>
<td>___ Objective</td>
<td>___ Eliminating</td>
</tr>
<tr>
<td>5. ___ Reserved</td>
<td>___ Serious</td>
<td>___ Fun-loving</td>
<td>___ Playful</td>
</tr>
<tr>
<td>6. ___ Trial &amp; Error</td>
<td>___ Alternatives</td>
<td>___ Pondering</td>
<td>___ Evaluating</td>
</tr>
<tr>
<td>7. ___ Action</td>
<td>___ Divergence</td>
<td>___ Abstract</td>
<td>___ Convergence</td>
</tr>
<tr>
<td>8. ___ Direct</td>
<td>___ Possibilities</td>
<td>___ Conceptual</td>
<td>___ Practicalities</td>
</tr>
<tr>
<td>9. ___ Involved</td>
<td>___ Changing Perspectives</td>
<td>___ Theoretical</td>
<td>___ Narrowing</td>
</tr>
<tr>
<td>10. ___ Quiet</td>
<td>___ Trustworthy</td>
<td>___ Irresponsible</td>
<td>___ Imaginative</td>
</tr>
<tr>
<td>11. ___ Implementing</td>
<td>___ Visualizing</td>
<td>___ Modelling</td>
<td>___ Decisive</td>
</tr>
<tr>
<td>12. ___ Hands on</td>
<td>___ Future-oriented</td>
<td>___ Reading</td>
<td>___ Detail-oriented</td>
</tr>
<tr>
<td>13. ___ Physical</td>
<td>___ Creating options</td>
<td>___ Thinking</td>
<td>___ Deciding</td>
</tr>
<tr>
<td>14. ___ Impersonal</td>
<td>___ Proud</td>
<td>___ Hopeful</td>
<td>___ Fearful</td>
</tr>
<tr>
<td>15. ___ Practicing</td>
<td>___ Transforming</td>
<td>___ Synthesizing</td>
<td>___ Choosing</td>
</tr>
<tr>
<td>16. ___ Handling</td>
<td>___ Speculating</td>
<td>___ Fathoming</td>
<td>___ Judging</td>
</tr>
<tr>
<td>17. ___ Sympathetic</td>
<td>___ Pragmatic</td>
<td>___ Emotional</td>
<td>___ Procrastinating</td>
</tr>
<tr>
<td>18. ___ Contact</td>
<td>___ Novelizing</td>
<td>___ Impersonal</td>
<td>___ Making sure</td>
</tr>
</tbody>
</table>

**Figure 8: The creative process inventory**
SCORING: In each Column, add up all the items except 1, 2, 5, 10, 14 and 17, to get your column scores.

LEGEND: Column 1 scores indicate the orientation to getting knowledge by Experiencing. (Direct personal involvement.)
Column 2 scores indicate the orientation to using knowledge by Ideation. (The generation of ideas without judgment.)
Column 3 scores indicate the orientation toward getting knowledge by Thinking. (Detached abstract theorizing.)
Column 4 scores indicate the orientation toward using knowledge for Evaluation. (The application of judgment to ideas.)

Post your total scores for each column on the appropriate axis below.

To develop your personal creative process profile, simply connect the 4 points in sequence with 4 curved lines to make a distorted or "warped" circle accordingly. (If you have identical column scores, you will have a perfect circle. This is unlikely.) The quadrant in which your profile is most dominant indicates your strongest orientation. The other quadrants represent secondary styles accordingly. Your profile is your own unique blend of the four quadrants.

Figure 9: Creative process profile
THE FOUR STAGES OF THE CREATIVE PROCESS

The creative process can be considered as a wheel with four quadrants or stages: generation; conceptualization; optimization; and implementation. These stages are shown in Figure 10.

A. Generating

Individuals who prefer generating tend to gain knowledge through direct experience and to use it to create options, or diverge, rather than evaluate options, or converge. Generators like to question, imagine possibilities, sense new problems and opportunities, and view situations from different perspectives. They see relevance in almost everything and think of good and bad sides to almost any fact, idea or issue. They dislike becoming too organized or delegating the complete problem, but are willing to let others take care of the details. They enjoy ambiguity and are hard to pin down. They delight in juggling many new projects simultaneously. Every solution they explore suggests several new problems to be solved. Thinking in this quadrant stresses problem and opportunity finding, and information gathering, the first two steps of the Simplex transformation process.

B. Conceptualizing

Conceptualizing also involves divergence. But rather than gain knowledge by direct experience, individuals who favor conceptualizing tend to gain knowledge by detached, abstract thinking. Conceptualizers enjoy putting new ideas together, discovering insights that help define problems and opportunities, and creating theories to explain things. People and organizations strong in conceptualizing skills enjoy taking disparate pieces of information from the generator phase and making sense of them. Conceptualizers need to “understand”:
Figure 10: The four stages of the creative process
to them, a theory must be logically sound and precise. They prefer to proceed only with a clear grasp of the big picture, and only when the challenge or main idea is well-defined. They dislike having to prioritize, implement or agonize over poorly understood alternatives. They like to play with ideas and are not overly concerned with moving to action. Thinking in this quadrant stresses problem and opportunity defining, and idea finding, the third and fourth steps of the Simplex transformation process.

C. Optimizing

Optimizing is the opposite of generating. Optimizers prefer to gain knowledge through detached, abstract thinking and to use it to converge, thus converting abstract ideas and alternatives into practical solutions and plans. They rely upon mentally testing ideas rather than upon trying things out. Optimizers prefer to create optimal solutions to a few well-defined problems or opportunities. They are adept at sorting through large amounts of information to pinpoint "what's wrong" in a given situation. They are confident in their ability to make a sound, logical evaluation and to select the best option or solution. They often lack patience with ambiguity and dislike dreaming about additional ideas, points of view or relations among problems or opportunities. They believe they "know" what the problem is. Thinking in this quadrant stresses idea evaluation and selection, and planning for implementation, the fifth and sixth steps in the Simplex transformation process.

D. Implementing

Implementing is the opposite of conceptualizing. Implementers prefer to gain knowledge by direct experience rather than by detached, abstract thinking, and to use knowledge to
converge. They enjoy getting things done — implementing new solutions. They try out ideas rather than mentally test them. People and organizations strong in implementing prefer situations in which they must somehow make things work. They do not need complete understanding in order to proceed, and adapt quickly to immediate, changing circumstances. When a theory does not appear to fit the facts, they will readily discard it. Others perceive them as enthusiastic about getting the job done, but also as impatient or even pushy as they try to turn plans and ideas into action. They will try as many different approaches as necessary, and follow up or “bird dog” as needed to ensure that the new procedure will stick. Thinking in this quadrant stresses gaining acceptance and taking action.

CREATIVE PROCESS PROFILES IN ORGANIZATIONS

The creative process profile will likely be skewed toward particular quadrants to reflect the individual’s peculiar blend. The largest of the four quadrants indicates their strongest orientation. The others represent supporting orientations in turn. Figure 11 shows how individual differences in orientation can yield different creative process profiles. For example, if the area of the profile in quadrant 1 is larger than in the other three, the primary creative process style is generating; if quadrant 2, then conceptualizing; if quadrant 3, then optimizing; and if quadrant 4, then implementing. Each of these styles reflects individual ways of gaining and using knowledge.

In order to succeed in innovation, a team or organization requires strengths in all four quadrants. Members must learn to use their differing styles in complementary ways. For example, generating ideas for new products and methods must start somewhere, with some individuals scanning the environment, picking up data and cues from customers, and suggesting possible opportunities for change and improvement. Thus, generators raise new information and possibilities
Generator style dominant with all three other styles relatively small.

Conceptualizer style dominant with all three other styles relatively small.

Optimizer style dominant with all three other styles relatively small.

Implementer style dominant with all three other styles relatively small.

Figure 11: Creative process profiles with different dominant styles
- usually not fully developed but in the form of starting points for new projects. Then conceptualizers pull together the facts and idea fragments from the generator phase into well-defined challenges and opportunities and more clearly developed ideas worth further evaluation. Good conceptualizers give sound structure to fledgling ideas and opportunities. Optimizers then take these well-defined challenges and ideas, and find a practical best solution and well-detailed, efficient plan for proceeding. Finally, implementers must carry forward the practical solutions and plans to completion. This includes convincing colleagues or customers of the worth of the changes, and adapting the solutions and plans to make them fit real-life situations and conditions. Skills in all four quadrants are equally valuable. Organizations and teams must appreciate the importance of all four quadrants and find ways to integrate and reward performance in all of these styles. Figure 12 illustrates how a team whose members' collective preference for the optimizer and implementer stages corrected this imbalance by concentrating on the generator and conceptualizer stages for two-thirds of a three-day workshop to deal effectively with an important production problem.

In Figure 13, how the Simplex innovation process acts as the transformational engine for an open system is modelled. This model is intended to summarize the ideas presented in this paper.
Implementation

Implementer
(Action)

Generator
(Problem finding, fact finding)

Optimizer
(Solutions)

Conceptualizer
(Problem Definition)

Two days in fact finding and problem defining

One day in solution development

The entire creative process used

Figure 12: An example of how a team corrected an imbalance in orientation
Figure 13: How the Simplex process permits an organization to operate as an open system
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Fig. 7 Differences in gaining and using knowledge that cause differences in creative process profiles

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Fig. 9 The creative process profile

Fig. 10 The four stages of the creative process

Fig. 11 Creative process profiles with different dominant styles

Fig. 12 An example of how a team corrected an imbalance in orientation

Fig. 13 How the Simplex innovation process permits an organization to operate as an open system
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