

Breakthrough Thinking:
A Systems Concept
for Creative Strategic Planning

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A topic being revisited by leaders in both public and private organizations is systems thinking. As Senge phrased it, "Systems thinking is a conceptual framework, a body of knowledge and tools that have been developed over the past fifty years, to make the full patterns clearer, and to help us see how to change them effectively." For too long, our leaders and managers have been instructed in processes derived from classical scientific methods for applications to planning, problem solving, change and improvement. While such processes can be invaluable for certain activities, notably research and investigation, their very nature (that emphasizes examination of parts or components) hinders seeing the complete and true picture.

Simply put, systems encourage an individual to consider not only the critical components of a system, but also their relationships within the immediate system and other systems. As Churchman so well stated, "It is one of the approaches based on the fundamental principle that all aspects of the human world should be tied together in one grand rational scheme, just as astronomers believe that the whole universe is tied together by a set of coherent laws." Systems thinking serves to remind us that in organizations, like icebergs, seven-eighths of most things cannot be readily seen!

One approach to systems thinking and organizational planning is *Breakthrough Thinking*. *Breakthrough Thinking* has been described as "a revolutionary new approach of creative problem solving" and "a method for arriving at truly original, lasting answers that not only address an immediate problem but provide a solid foundation for ongoing development and constructive change." *Breakthrough Thinking* is an alternative to the classical problem-solving method, offering a systematic approach to planning, problem

solving, change, and improvement. The strategy involves five intuitive phases:

- **Purpose determination.** What specific function will the solution system practically achieve?
- **Possible solution generation.** How can the function be achieved if no constraints with regard to resources, time, feasibility, etc. are forced upon the design?
- **Target plan selection.** This phase shapes the ideas from Phase 2 into a somewhat idealized plan or solution system.
- **Details specification.** The purpose of this phase is to develop details of the target system and to accommodate exceptions to the rule (i.e., system irregularities).
- **Implementation and evaluation.** Preparation for implementation may include simulation and testing, development of operational components, specification of timelines and performance criteria and consideration of political forces.

A set of general principles guide the process and strategy:

- Ascertain the purpose of what is being done--continually ask "Why. . .?"
- Direct efforts toward the development of the "ideal solution" or "solution after next" rather than toward repairing what exists.
- Devise a target plan at which to aim.
- Try to include in the process as many people as possible who will be affected by the plan.
- Do not worry about everything at once. Different activities have different purposes and may be treated separately.
- Gather information and data only as needed to answer specific, essential questions.
- As conditions or needs change, do not patch up the plan. Replan from the appropriate point, continually asking "Why. . .?" and thinking in terms of purpose.

These seven principles, whether considered individually or collectively, are generally accepted by professionals without question or argument. In actual, real-world rational planning, they are generally not followed because of: (1) an absence of a well-defined, purpose-oriented strategy; (2) the adherence to a process, the roots of which are firmly implanted in a scientific, research-oriented methodology; and (3) belief in "business-as-usual" management. Furthermore, the conviction of many professionals that planning is impossible--that the most they can hope to accomplish is day-to-day survival discourages rational, purposeful planning. On the other hand, *Breakthrough Thinking* encourages the above 7 principles and embraces the following seven key features:

1. ***Uniqueness.*** Each problem or situation is different. Approach it first by recalling its differences, rather than by copying solutions from others.
2. ***Purposes.*** Explore and expand purposes to work on the right problem. Avoid fixing something, which perhaps should never have existed.
3. ***Solution-After-Next.*** Make changes today based on what might be the solution of the future. Think ideal and start fresh with a clean sheet.
4. ***Systems.*** A systems perspective promotes a holistic framework and organization of details.
5. ***Limited Information Collection.*** Avoid collecting unnecessary data. Study the solution rather than the problem.
6. ***People Design.*** Give everyone who will be affected by the plan an opportunity to take part in the process.
7. ***Betterment Timeline.*** Prepare a schedule for continuing change and improvement, and take advantage of long term perspectives.

These features are the foundations for organizing projects to advance performance beyond what can be reasonably expected. The systems feature is of special importance,

as it operationalizes what has been espoused by many critics of both conventional and systems thinking. The *Breakthrough Thinking* paradigm proposes the use of a matrix of 8 elements by 6 dimensions for the complete description of systems.

Of course, there are no perfect approaches to planning--in education or any other field. Traditional paradigms offer strategies familiar to most professionals. They have a certain appeal because they are a derivative of the scientific method which professionals have been taught to value. There are, however, shortcomings associated with such processes. These may render them less valuable for particular classes of problems such as those encountered in educational change and improvement.

Breakthrough Thinking offers a somewhat different procedure. In principle, it simply involves thinking of alternative ways to achieve specified desired ends, and choosing the one that eliminates the problem and creates as few more problems as possible. The strategy emphasizes ways to best accomplish a purpose rather than dwelling on an analysis of what is wrong. This motivational factor alone is an important benefit of the approach. Many traditional paradigms may be employed when appropriate; it would be a mistake to dismiss such approaches completely. An understanding of purpose, however, will always be central to any effective planning strategy and learning organization.

Author Notes

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Breakthrough Thinking is the product of the work of Dr. Gerald Nadler, IBM Chair Emeritus in Engineering Management at the University of Southern California and also President of Breakthrough Thinking Inc.

Breakthrough Thinking Phases

PHASE 1

Purpose Determination

The purpose of this phase of Breakthrough Thinking is to give direction to the overall planning, design, and problem-solving process. What specific function will the project or solution practically achieve? Phase I also serves to facilitate agreement among all the clients as to what is hoped to be accomplished. The steps of this phase will encourage the group members to broaden and expand their thinking about what they are trying to achieve rather than dwelling on what is presently wrong.

Phase I Techniques

1. Select and name the project (remember -- names may convey important messages)
2. Generate a list of possible purposes [suggestion: use Nominal Group Technique]
3. Choose the most specific, unique purpose of the project [use Couplet Method]
4. Expand the chosen purpose [develop Purpose Hierarchy]
5. Choose the focus purpose from the hierarchy

Suggestions for Purpose Expansion

1. Write purpose statements in infinitive form, using action verbs. Imply complete states rather than qualitative or quantitative changes in states.
2. Try to exclude qualifying adverbs and adjectives from purpose statements. These qualifiers will be handled in the solution specification and system matrix.
3. Make purposes specific; avoid ambiguous statements.
4. Select as the initial (entry) statement for the purpose hierarchy a purpose which is fundamental or basic to the originating system/project/problem.
5. Proceed in small increments (jumps) when expanding purposes in the hierarchy
6. Make each successive purpose a **higher level** purpose.
7. Think in terms of purpose rather than activities or solutions.
8. Expand purposes well beyond any possibility for the likely selected level. Think beyond the immediate future!
9. Ask tough questions such as -- "What is the immediate or real purpose of _____?" or "What is the primary function/reason of doing this?"
10. Discourage clients from returning to present problems during the group dialogue! They always have this natural tendency to return to difficulties they face today.

PHASE 2

Ideal and Purposeful Solutions Development

The primary purpose of Phase 2 is to creatively think of as many ways to achieve the purpose selected in Phase 1. The concept is to produce many ideas without careful scrutiny of these ideas with regard to practicality, workability, feasibility, etc. This is a tricky and difficult phase. Clients often focus on the present system or one which appears to be operating successfully in a similar environment. Be as open as possible. If an error is made, it is should be in the direction of being too open or too impractical. Suggestions can always be refined at a later time. The primary source of the ideas during this Phase 2 should be the clients themselves, not an outside expert. Such expertise can be incorporated in future work.

Phase 2 Techniques

1. Identify the project by name (again remember -- names convey important messages)
2. Generate a list of possible ideas which address the selected purpose [NGT is a good tool]
3. Encourage non-feasible, impractical ideas in the list; such ideas often stimulate the group's creativity
4. Develop a large list of ideas; try to maintain a balance of ideas ranging from broad to specific and
5. Develop systems/solutions that would eliminate the need for selected purpose level.
6. Consider "regularity" conditions (don't plan the system to deal with exceptions).

Suggestions for Generating Purposeful Solutions

1. Employ a group process such as Nominal Group Technique (NGT) or brainstorming. Avoid dominance by individuals who may feel they have "the solution" or know what "won't work."
2. Try to discourage discussion and evaluation of proposed solutions. It is common for groups to consider ideas in terms of why they won't work. Creativity flows when are just recorded as they are presented. Sometimes "ridiculous" ideas can stimulate thinking.
3. Ideas must make sense in terms of the guiding purpose. Periodically, remind the group of the purpose or function the system should achieve. The words and terms in the purpose statement itself can often stimulate ideas.
4. Most clients are able to develop creative ideas on their own. An "expert" is often needed only to work out details or to provide technical assistance. Also, experts are often committed to solutions which are within their area of expertise and may bias the group.
5. Try to have as many ideas or solutions as possible. A wide array and large number of ideas provide more options and a wider range of choice.
6. The role of the facilitator is to maintain the group process. S/he needs to try to maintain the interest and enthusiasm of the group, but should not push the group too hard. Keep the exercise going as long as members are actively participating.
7. As in Phase 1, discourage clients from returning to present problems! They always have this natural tendency to come back to difficulties they face today.

PHASE 3

Target Plan Development

This phase of *Breakthrough Thinking* shapes the ideas generated in Phase 2 into a target plan which will achieve the desired purpose. The Feasible Ideal Systems Target (FIST) is a somewhat idealized plan which is not replete with detail and specificity. It also may not deal with every possible problem or situation (i.e., irregularities). A key to developing an idealized target plan is to not get bogged down in details at this time.

Phase 3 Techniques

1. Identify the regularity conditions. Under what conditions will the solution system typically be operating?
2. Organize the ideas in some logical order or groups. When possible, separate ideas into major solution categories and incorporate as many component ideas as possible into each category.
3. Consider the feasibility of the various solution categories. Experts should be called upon as needed at this time.
4. Discuss measures of effectiveness. How can the "best" solutions be recognized?
5. Do not discard any ideas at this point. They may yet be incorporated into the final plan.

Suggestions for Generating Target Plans

1. A primary objective in this phase is to organize all the ideas produced in Phase 2 without becoming confused and without accepting more comfortable standard solutions. Serial clarification of ideas may be good place to begin. Such clarification may prevent group members from misunderstanding ideas due to semantic differences. Avoid discussion of merits, advantages, disadvantages, etc. of the ideas at this time. Pacing the group will help avoid this.
2. Categorizing the ideas will assist the group in working with a large number of ideas. It will also force the group to synthesize and order their work. Try to collapse the ideas into a manageable number of categories (i.e., 8 - 10).

PHASE 4

Detail the Recommended Plan

The purpose of this phase of *Breakthrough Thinking* is to develop the details of the target plan and to accommodate exceptions to the rule (e.g., the irregularities). Since plans were developed for idealized conditions, they must be modified for reality situations. Also, the many components, aspects, and features must be specified. The key guideline in Phase 4 is to stay as close as possible to the ideal system target or plan.

Phase 4 Techniques

1. Develop target systems components that will incorporate irregularities and exceptions while staying as close as possible to the ideal target (FIST).
2. Estimate the likely performances, outcomes, and possible consequences of the alternative plans using the measures of effectiveness.
3. Select the workable solution that is to be recommended for adoption.
4. Formulate plans to get final approval of the workable solution.
5. Using the systems matrix, work out all the final details. Review these elements with knowledgeable persons to assure correctness, completeness, and implementability.

Suggestions for Detailing Target Plans

1. The planning facilitator's main task during this phase is to keep groups moving toward the completion of their work. Too often, some members will drift toward current problems, personalities, and issues rather than addressing the contemplated system.
2. The systems matrix is a key tool to use during detail work. The elements and dimensions offer a very complete framework for almost any conceivable eventuality. Remember, "Seven-eights of everything can't be seen!"

Elements	Dimensions				
Fundamental: basic or physical characteristics—what, how, where, or who	Values: goals, motivating beliefs, global desires, ethics, moral matters	Measures: Performance (criteria, merit and worth factors), objectives (how much, when, rates, performance specifications)	Control: How to evaluate and modify element or system as it operates	Interface: Relation of all dimensions to other systems or elements	Future: Planned changes and research needs for all dimensions
Purpose: mission, aim, need, primary concern, focus					
Inputs: people, things, information to start the sequence					
Outputs: desired (achieves purpose) and undesired outcomes from sequence					
Sequence: steps for processing inputs, flow, layout, unit operations					
Environment: physical and attitudinal, organization, setting, etc.					
Human agents: skills, personnel, responsibilities, rewards, etc.					
Physical catalysts: equipment, facilities, etc.					
Information aids: books, instructions, etc.					

Suggestions for Implementing Plans

1. At least five major factors contribute to the successful implementation of the plan:
 - a. A "good" idea
 - b. Sufficient funding
 - c. Perceived need
 - d. Incentives for participants
 - e. Leadership
2. Decisions to continue solution systems closely parallel the decisions or motivations that contributed to the original design initiatives.
3. Continuation of a plan or solution is system is generally related to:
 - a. The project's initial success
 - b. The importance of needs addressed by the system
 - c. Required resources (in light of competing demands)
 - d. Political forces promoting or inhibiting the system
4. The extent to which staff members are involved in the implementation phase (and all phases) closely parallels institutional acceptance.
5. Effective organizations develop their plans by looking backward from the future.

PHASE 5

Implement the Plan

In many respects, Phase 5 is not a separate and distinct phase of *Breakthrough Thinking*. Decisions and dialogue throughout the planning and design process ease implementation. It may well be, however, the most crucial phase. In fact, many groups find it helpful to use the same five-phase strategy to develop an implementation plan.

Phase 5 Techniques

1. Test, simulate, or otherwise try out the proposed solution.
2. Prepare necessary operational components and logistics (e.g., order equipment, acquire location or facilities, create job descriptions, develop time lines, etc.).
3. Secure and train personnel
4. Provide for close monitoring of implementation stages to detect unforeseen problems.
5. Establish operational performance measurements in order provide norms and comparisons.
6. Continually examine performance of system in light of Phase 1 purpose.
7. Establish time line for planned improvements on the installed solution.

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