

PAPERS IN PERFORMANCE TECHNOLOGY

PUBLISHED REPRINT:

ORGANIZATIONAL ENGINEERING: A NEW PARADIGM FOR UNDERSTANDING INDIVIDUAL DIFFERENCES

JOSEPH "JERRY" LAPIDES AND WILLIAM R. MATTHEWS

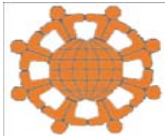
AS PRESENTED DURING THE



INTERNATIONAL
SOCIETY FOR
PERFORMANCE
IMPROVEMENT

1999

INTERNATIONAL
PERFORMANCE
IMPROVEMENT
CONFERENCE &
EXHIBITION



IFTDO
INTERNATIONAL
FEDERATION OF TRAINING
AND DEVELOPMENT
ORGANIZATIONS

Organizational Engineering: A New Paradigm for Understanding Individual Differences

Joseph "Jerry" Lapides and William R. Matthews

Psychology has contributed a significant proportion of the tools that we employ in the discipline of team development and team learning. Yet, we continue to be faced with the question of why some teams start with a bang only to fizzle out, while others begin at a snail's pace then rocket to results. What do these psychological tools really have to offer to teams? When pressed, we usually end up alluding to some ill-defined, generalized good such as "understanding," or "appreciation of differences." If pressed, we cannot answer exactly what good "understanding" or "appreciation" will do for the particular team in question.

Psychology is not the villain however. Human Performance Technology has taken a discipline that was designed to address the issues of a single person and has attempted to apply it to groups of people. Unfortunately, this strategy often fails more than it succeeds. The reason for the common failure is that the current set of psychological tools require assessing the internal dynamics of each person in a group. An inference is then drawn on the relationship between one individual's internal dynamic characteristics and those of another person. The inherent problem is that the psychological characteristics of a person do not affect other people. Only their manifestation in some form of behavior can have any effect. We are, in effect, making multiple untested assumptions. These include:

1. that the characteristic of the individual measured is in some way relevant to others in the specific group being addressed
2. that information concerning that characteristic is being transmitted to these others and
3. that the nature of the influence of the information has some kind of systematic, identifiable effect on the relationship

Each step in this process carries an opportunity for error. The combined probability of error of all three steps makes accurate relationship evaluation coincidental at best and impossible at worst.

Even if everything goes right in the assessment process, there is still a bigger problem to overcome. The relationships that are being measured are all of a one-to-one character. For example, George is evaluated relative to Mary. Mary is evaluated relative to Pete. The problem is that in a team setting, Pete and Mary and George all interact simultaneously. Some of the issues raised between George and Mary may be "washed out" by their simultaneous interaction with Pete. To our knowledge, psychology offers no method for handling these multi-level interactions. Attempts to go much beyond two party relationship assessments are probably destined for failure.

A new approach to team development is now available, an approach which is

based on relationships, not individuals, and which has been proven in firms across the United States. For issues concerning team formation and development, we can now rely on Organizational Engineering, the life's work of Dr. Gary J. Salton.

A NEW APPROACH

Organizational Engineering (OE) is a new technology that directly addresses and reliably resolves relationship issues. It accurately predicts how teams of people, assembled for common purpose, will behave. It can identify natural coalitions. It tells how difficult or easy it will be for people to reach a group decision. It can estimate the direction the team decision will take.

Organizational Engineering uses an information processing approach as its guiding paradigm. It does not contradict what is being done with psychological instruments. Rather it compliments and extends it. Organizational Engineering uses a machine scored instrument called "I Opt™" to measure the relationship of information input to output. "I Opt™" relies on the fact that for any given decision, no matter how trivial, there is potentially more information available than the human mind can process. Take the simplest of examples, getting dressed in the morning.

You get up and go to your closet. The first (often unconscious) choice is to decide how you are going to decide. Should you assess what you are going to do today and use that as a guide? Should you just grab the first thing that hits your hand? Should you be creative and "express" yourself in your garments? Should you follow your preplanned schedule based on your wash day? Are you going to take into account the weather; what about the condition of particular garments; what about the intensity of sunlight; what about the different environments and clients you will be encountering in your day; what about what everybody else is going to wear. These issues can go on forever. If you try to take into account every potential condition that could affect your decision on dressing you will never get out of the closet and will probably starve to death.

The point is that we find very few emaciated skeletons in closets with puzzled looks on their faces. This suggests that humans must have figured out a way of filtering information. The book Organizational Engineering (Salton, 1996) outlines the application to issues such as those described above. It postulates the concept of "method" as the vehicle humans' use in their filtering process. There are two basic strategies available. A structured strategy uses a mental "template" to organize and filter information. People discover a "template" that works in their environment(s) and tend to reuse it.

For example, a person may adopt a template that says that they will scan all exposures, define all options, resolve competing or conflicting options and plan the implementation. To one degree or another, this template can be applied almost everywhere. One consequence of applying this template is that these people will probably avoid being tagged with the nickname "Speedy."

At the other end, there are those who adopt an unpatterned strategy. The "template" here is to try to weave together anything that seems to fit in such a way that it resolves the issue at hand. In our closet example, a person using this strategy may grab successive elements of an outfit that look "okay" together. Much less information is being processed and they will probably be one of the first ones to arrive at breakfast. However, it is unlikely that these people will be elected as "best dressed" at the office. The underlying unpatterned strategy yields a "satisfying" result rather than an optimal one, but it saves transaction cost and time.

To summarize Salton's paradigm to this point, Organizational Engineering postulates that humans use different "templates" in filtering the massive amount of potential information which might impact a decision. The choice of the filter can influence the character of the behavioral responses. For example, a person who collects and processes large volumes of information can probably issue responses of greater depth or precision than those who used an unpatterned strategy and avoided acquiring details.

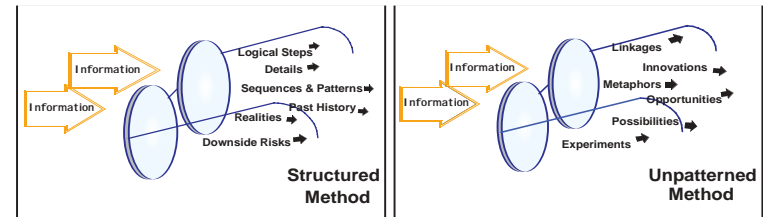


Illustration I
Method is used to govern the information flows that are used by the person

The other side of the information-processing paradigm is the output. The outcome of whatever processing a person does is described in the Organizational Engineering paradigm by the concept of "mode." Organizational Engineering (Salton, 1996, p.15) postulates that, at the extremes, there are at least two "modes" available.

The first is the "action" mode. In this mode a person's behavioral response is directed at immediately addressing the issue being confronted using expedient strategies which "may" resolve the issue. In the ordinary world of business, a person in an "action" mode might grab a telephone and call a customer before working out exactly what is to be said. The essential element of the action mode is that the individual is organizing the response to effect some element in the outside world that directly pertains to the issue at hand.

Another mode available to people is "thought." In this realm the response is an idea, plan, assessment, evaluation or judgment. The response does not directly affect the issue but is rather a step along the way toward effecting it. The "thought" response is intended to give direction to subsequent action.

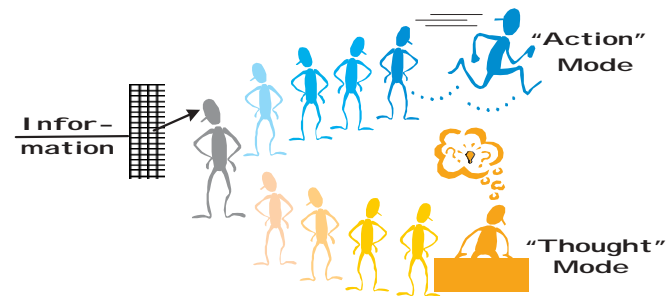


Illustration II
Mode governs the character of the response.

In today's information age society the ability to "live" on the output of the "thought" mode is even more available than in the past. For example, many columnists make a living offering opinions in print. They may never sell a single paper or even act on their pronouncements. They may never directly effect anything except through their impact on others who will and do act. Thought is as viable of a survival strategy for an individual as is action. However, for a society as a whole action is more valuable than thought. It may be possible for a species to survive without much thought. It will not survive without action.

Organizational Engineering teaches that input and output can be linked without involving the exact methods and mechanizations that people use. It accomplishes this by using the concept of strategic posture or "style." In effect, the various methods and modes combine to create characteristic behavior patterns dictated by the amount and character of the information interacting with people's "template" of response preferences. These "styles" can be summarized in Table I as:

To summarize, the Organizational Engineering paradigm circumvents the need to plumb the intricacies of psychology by looking at the patterned, reliable relations between information input and behavioral output. The reason it is able to do this is that it is not concerned with modifying individual behavior. Its focus is on the group.

Table I
SUMMARY OF STRATEGIC STYLE
CHARACTERISTICS

Reactive Stimulator:	The pure RS is an action oriented individual. They typically work with low detail, are tightly focused on near-term objectives and seek tangible results. They operate in the action mode using unpatterned methods.
Logical Processor:	The pure LP is methodical and action-oriented. They are naturally detail oriented and work best where assignments are clear and precise with well-defined expectations. LP's operate in the action mode using structured methods.
Hypothetical Analyzer:	The pure HA is a problem solver. Their focus is on problems and their solution. Their primary concern is identifying the best way to address a situation with a typical output being a plan, assessment, evaluation or judgment. HA's operate in the thought mode using structured methods.
Relational Innovator:	The pure RI is an idea generator. Relationships between divergent ideas are quickly identified. Seemingly disparate ideas, concepts and innovation are quickly integrated into coherent theories and systems. The RI operates in a thought mode using unpatterned methods

The importance of Organizational Engineering lies in the effects input and output has on team behavior. This occurs because a large part of a person's input is the output of some other person. Similarly, each person's output is someone else's input. The fact that the individual is not the principal focus of Organizational Engineering does not mean that the people involved are ignored.

The "I Opt™" instrument creates an individual report which usually gets an "Ah Ha!!!" response from the participants. Its focus, however, is clearly on work related rather than psychological issues. For example, a typical "I Opt™" individual report is able to identify preferences in areas such as those listed in Table II:

TABLE II
SAMPLE OF INDIVIDUAL INFORMATION RETURNED

GOALS - long or short-range, specific or general
DIRECTIONS - specific or general guidance, flexible or rigid
SUPERVISION - minimal or intense, consistent or variable, etc.
APPRECIATION - personal or abstract focus, ideas or outcome content
ORGANIZATION - straight-forward or complex, defined or ambiguous
DETAILS - conceptual or operational, high or low volume
CHANGE - generation or resistance, slow or fast, etc.

Because the information is not psychological in character, team members generally freely share their individual profiles. It is immediately obvious to them that no deep, dark secrets are in danger of being revealed. Rather, the entire focus is on the information flows that must occur if a group is to be a real team. It's hard to get defensive about information flows so, usually, people don't. Rather, they focus on how to go about adjusting the flows so that they can execute their preferred strategy in a way that allows its optimization and through that, their contribution to the team.

TEAM APPLICATIONS

The "I Opt™" instrument is the ruler of the Organizational Engineering paradigm. A ruler is a thing in and of itself, but its value lies in its ability to guide the creation of bigger things-bridges, roads, buildings, and other things useful to the human species. In the case of "I Opt™" and the Organizational Engineering paradigm, the bigger "thing" of interest is the team. The first step in understanding how this works is how method and mode are combined

Salton conceives both the method and mode as existing on continuums with each person having an element of each combination within their behavioral toolkit. The strength a particular combination holds determines the probability that any given response will conform to the characteristics of that strategic posture or "style." The relative probabilities are depicted graphically using a "strategic profile" of the kind shown in the Illustration III.

The profile is arranged so that adjacent "styles" or "strategic postures" share common characteristics. For example, both the Relational Innovator and Reactive Stimulator use unpatterned methods. Therefore the area in the quadrant which they share (labeled "Changer Pattern") represents the probability that these individuals will employ that method in addressing a given issue. Similarly, the Hypothetical Analyzer and Logical Processor share a preference for a structured method. The area they share (labeled "Conservator Pattern") represents the probability that they will employ that strategy.

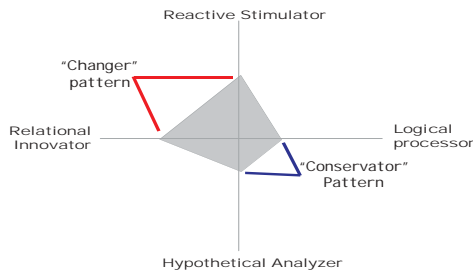


ILLUSTRATION III

A single person has a profile. The profile displays the strength of commitment to each style and relates the styles using the concept of "pattern." A pattern represents shared characteristics along either the method or mode dimension.

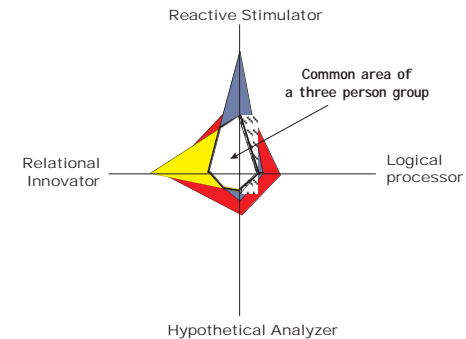


ILLUSTRATION IV

Single person profiles can be overlapped, one on top of the other to arrive at a geometric composite of the group as a whole. This area can be interpreted with mathematics to arrive at probabilistic judgements on the most likely behavior of the group acting as a single unit.

Like an individual, the team has an output. Salton proposes that the character of a team's response will be largely governed by probability. The level of probability is determined by the interaction of the strategic information processing profiles of group members. In other words, if all of the individuals in a group share a strong RS strategic style, it is probable that the output of the group will be rapid-fire initiatives repeatedly addressing the issue until one of them works. If the group were HA's, the probable response will be ever more detailed and all-embracing analyses and plans. In this situation, the members share a common structural view and can reasonably be expected to use it in resolving common issues. If a group is composed of a mixture of people, the output will be determined by the strength and interaction of the probabilities imbedded in each of the individual profiles. One might ask at this point, "but isn't this advocating groupthink?" Absolutely not! OE focuses on the systematic application of information processing strategies to achieve optimal outcomes, not working toward singular thinking. The distinction becomes clear in Illustration IV.

In Illustration IV, the most probable group response will conform to the "Changer" pattern. It is the quadrant with the largest area. The "Changer" pattern engages the idea generation capabilities of the RI and the action oriented RS. Both of these strategic styles use an unpatterned method and so can be expected to respond quickly using minimum detail. Speed is a probable behavioral outcome.

The "Common Area" of a team usually has at least some representation in each quadrant of the joint profile. This means that there is some basis for joint agreement in each of these areas. In other words, it is possible that the new team entity will respond in a manner consistent with any of the four patterns described by the four quadrants. The "Changer" pattern is only distinguished because it is the covers more area and thus is more likely to occur in this team.

On any single decision, the team may land in any one of the quadrants. However, just as in a dice game, over a stream of transactions the team described by Illustration IV will most often behave in a manner consistent with the "Changer" pattern.

STRUCTURING AND DEVELOPING TEAMS

Organizational Engineering's most powerful effect can be seen where it is used to assemble a group from scratch. For example, it has been used to optimize the organizational structure of multiple teams who had to operate in a coordinated fashion in a new power station at Tampa Electric. At this stage a group can be "designed" so that its natural inclinations are aligned with the mission of the group.

In the instance of Tampa Electric, there was a need to create four operating teams and one relief team to cover the 24 hour/7 day needs of a new state-of-the-art power station. Since each team would be "turning over" the plant to the next, having teams that believed that the other teams would make the same kinds of decisions was of prime importance. Preventing "turfism" was also essential. So teams were structured at the onset to ensure that each team shared the same basic decision preferences and tendencies - suitable for the leading-edge, detailed nature of the facility. In addition, the relief team was structured so that they would optimally move in and out of any of the four other operating teams.

The opportunities for structuring teams from scratch are rare, however. Fortunately, the theory underlying Organizational Engineering gives us some direction on what to do and when to do it. Structure, in the sense that Salton uses it, is anything that patterns human behavior. For example, King Arthur's round table can be seen as a structural device for governing group behavior. It eliminated the status implied by the head of the table. The facilitated effect was to increase the unbiased flow of information. This was done without anyone changing their personality, without anyone having to be told to modify their behavior, without anyone even having to say anything. The structural adjustment introduced by the round table operated at the level of the group entity.

The Performance Technologist (PT) can use the principles of Organizational Engineering as a part of their toolkit to suggest structural changes that will optimize team (and individual) performance. For example, suppose you have a currently existing team whose profile emphasizes logical processing and substantial analytical resources. One might conclude that this team will be ideally suited to performing in stable environments which value precision in the execution of

known processes and procedures - their strength is in the area of attention to detail and a capacity for the systematic application of knowledge. But what if their environment is not stable? What if they are faced with the unknown? Consider this actual team example:

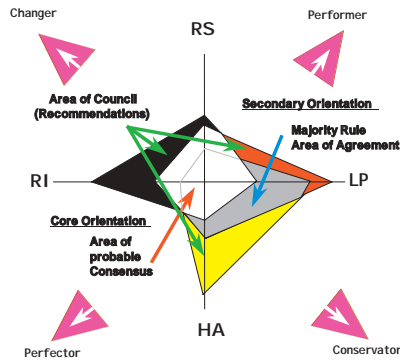


ILLUSTRATION V

A team profile of a real-life leadership team. Note how much of the profile resides in the Performer and Conservator strategic patterns and how little of the profile resides in the Changer pattern.

Organizational Engineering research suggests that teams such as this tend to underestimate their own capabilities for creative problem solving. Their detailed analyses tend to focus on what might go wrong as opposed to identifying those things that might go right. They can become subject to what we commonly refer to as "analysis paralysis." In knowing the team's profile, the PT can apply OE principles to suggest ground rules the team can employ to encourage risk taking, timely analysis, the encouragement of new and innovative ideas and the development of options. Their decision making strategy can be framed in such a way that they start by considering downside consequences and the cost of extended analysis on any given decision. Team members can be asked to approach a pending decision from the viewpoint of another style preference (HA thinking like an RI for example).

Space limitations prevent the full outline of the structural tools available or the methods that can be used to devise new ones. However, it is worth mentioning that these tools do not necessarily replace the intervention tools now in the PT's toolkit. In fact, many of the tools are already there. The theory tells us when one or another may be the most advantageous for a particular team. It is not a "one-size-fits-all" model of organizational behavior. You choose your tools using the understanding you have of the group as a single, functional entity.

CONCLUSION

It may be worth revisiting the relation of this new paradigm to the psychology that we all know and with which we began this article. We are not dismissing the importance of psychology or personality instruments at all. Basically, the issue is one of resolution. When using a microscope, you can resolve the image at different levels but at the same magnification by using the focusing knob. You can also resolve the image by changing the power of the lens. At one power, the entire egg cell is visible. At another, the cell is lost but genetic strands of the chromosomes suddenly appear. At still another level, the chromosomes are lost and the DNA structure is brought into focus.

All of the things that we resolved in our microscope are really there. Our choice of which resolution power to select is dictated by what we are trying to do. In the case of group behavior the easiest and most accessible focal point is the group itself. Organizational Engineering gives us the lens through which it can be seen and operated on. If the issue we are trying to address is not amenable to solution at that level, we can change our lens and resolve our "microscope" at an individual level. Still further down lies the realm of atoms and the quarks of quantum physics. Our responsibility as professionals in the field of human behavior is to choose the tool best suited to the problem. The situation is akin to that of a physician who can address a malady by prescribing diet and behavior modification all the way to chemotherapy or radical surgery. The choice should be dictated by the condition and the characteristics of the host who has that condition. The same professional decision applies here.

- 1 Salton, Gary J. *The Organizational Engineering Approach to Team Building*. Ann Arbor: Professional Communications Inc., 1997.
- 2 Salton, Gary J. *Organizational Engineering: A New Method of Creating High Performance Human Structures*. Ann Arbor: Professional Communications Inc., 1996.
- 3 Stepanek, John. "Organization Optimization at Tampa Electric," *OD Practitioner*, a journal of the Organization Development Network, January, 1997.

About the Authors:

Joseph "Jerry" Lapidis, Ph.D. is a Senior Lecturer and Coordinator of the MA in Adult Instruction and Performance Technology, School of Education, The University of Michigan-Dearborn. He may be reached at: (313) 593-5133 or jlapi-des@fob-f1.umd.umich.edu

William R. Matthews is a Senior Consultant with Prism Performance Systems, a process consulting firm specializing in strategic change, team and leadership development, located in Farmington Hills, Michigan. He may be reached at (248) 474-8855 or bmattmi@aol.com

Both authors are certified Organizational Engineering practitioners, consultant/trainers and members of ISPI.