NAVIGATING CHANGE
Organizational Behavior and the Thinking Process

by H. WILLIAM DETTMER

[This paper is excerpted from chapter 11 of the author's book ***Breaking the Constraints to World-Class Performance***, ASQ Quality Press, 1998]

> *The most effective leaders are those who satisfy the psychological needs of their followers.*
> *—David Ogilvy*

One of W. Edwards Deming's most significant contributions to modern management is the concept of *profound knowledge*.[1] Deming suggested that real understanding of any system depended on how much we knew about four basic interdependent disciplines: understanding of systems, the theory of knowledge, psychology and variation. The Theory of Constraints (TOC) and the logical thinking process directly improve our understanding in three of these four areas. In this paper we'll examine the ways in which Goldratt's thinking process can be combined with an understanding of psychology to provide a powerful tool for change agents.

Philip R. Elder once made the observation that the TOC thinking process "is like a giant pegboard upon which we can hang and arrange knowledge."‡ This is an excellent analogy. The thinking process permits us to arrange our discrete pieces of knowledge in a way that enables us to see the interactions and logical connections—what causes what. This capability increases the power of our knowledge dramatically.

Understanding Psychology.

People are the most difficult element of any system for management to deal with. Because of a human's capacity for independent thought and action, the door is open to wide variability in system performance. Sometimes people seem to be rational, other times not. Sometimes they seem emotional, other times logical. Nobody is completely consistent and predictable all the time. In the old *Star Trek* television series, Mr. Spock continually complained that "humans weren't logical". What he meant was that human *behavior* wasn't logical.

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‡ In a conversation with the author, November 1995.

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But Spock was wrong. Human behavior is eminently logical. It follows repetitive patterns, and some prediction of behavior is, in fact possible. If it were not, the psychologists and psychiatrists of the world would be out of business. The difference between the actual *logic* of human behavior and its frequently illogical manifestation lies not with the human doing the behaving, but with our *understanding of psychology*. In the same way that some fields of scientific research are poorly understood (i.e., still developing), so, too, is human psychology a continually evolving and maturing discipline. Engineers and physicists might say that the study of human behavior isn't yet developed enough to be considered a science, but it is certainly a mature enough field that certain rules and principles can be inferred and consistently applied in a large majority of circumstances. Much of the inaccuracy inherent in predicting human behavior is undoubtedly due to our inability to completely identify all the relevant variables in any given situation.

Since we might never be able to identify all the variables, psychology may never achieve the level of scientific precision of mathematics or physics. But that doesn't mean that we can't apply some logical rigor to the area of human behavior, especially in organizations. No, anyone who has ever been in a group work environment for any length of time would probably disagree with Spock: human behavior *is* logical to a significant degree. That it may appear illogical is more the result of our failure to understand the psychology behind it. The logical thinking process can be a particularly useful tool in "managing the unmanageable"—the human element—as we'll see in a moment.

Breaking Constraints, Organizational Change, and Human Behavior

Virtually all business systems can be characterized as a pie with three major slices.[2] (See Fig. 1) One slice of the pie is *activity*. This encompasses technology: the hardware, facilities, equipment, and the nature of the task and interactions among these elements as they perform well-defined functions in pursuit of the system's goal. The second slice is *human factors*. This includes the physical, mental, and psychological capabilities and limitations of the people who are part of the system. A third slice

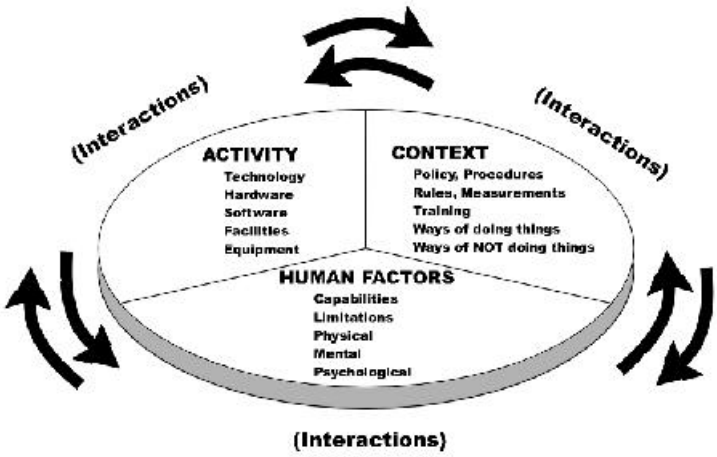

Figure 1. A System Concept

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might be called *context*, which is another way of saying the policy, procedures, training, measures of success, or other rules that are established (or not) to regulate the interaction between the other two slices.

The individual slices will differ in magnitude within different organizations, but these three elements are common to all business systems, whether for-profit or not.

Undesirable effects—those indications that the system's goal or necessary conditions are not being satisfied—can appear in any of these slices. The real system constraint can lie in any one of these areas as well, even if it shows itself through undesirable effects that seem to be in another. If we consider the term "policy" to include traditional ways of doing—or *not* doing—things, even so-called external constraints (a market constraint, for example) are really rooted *inside* the system: in our decisions (or lack thereof) to do business in a certain way.

Feasibility of Change

Our success in re-engineering our systems is a function of the *feasibility* of the change we want to make, and feasibility is also three-dimensional.[3] For a change to have a realistic probability of success, it must satisfy three requirements. It must be 1) *technically* feasible, 2) *economically* feasible, and 3) *politically* feasible. A change is technically feasible if we have the skills, hardware, and knowledge to do a job. It's economically feasible if we have the financial resources needed. And it's politically feasible if we can persuade all the *people* whose cooperation is required to go along with it. Failure to meet any one of these criteria is enough to sink an idea. Combining the conceptual slices of the system "pie" with the feasibility criteria, we come up with a cross-interaction matrix that looks like Fig. 2.

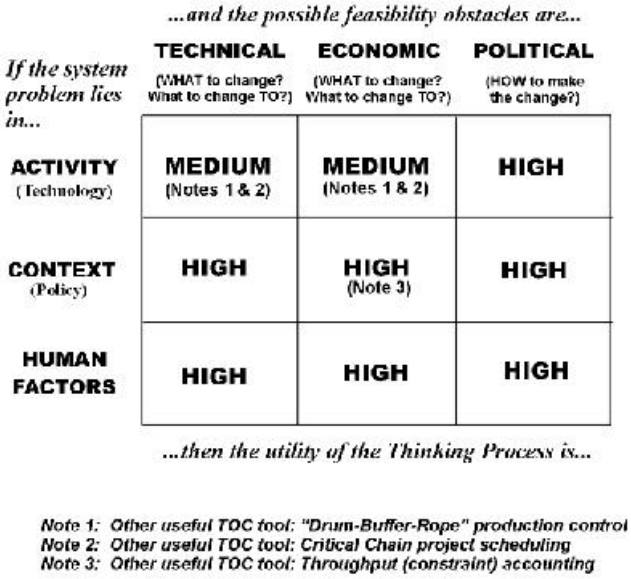

Figure 2. Applicability of the Thinking Process to Organizational Change

The Theory of Constraints, and especially the thinking process, functions

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very well in the technical and economic aspects of problem solving in the *activity* (technology) and *context* (policy) slices. It's particularly good at identifying constraints in these areas and constructing logical ideas to break them. But when logical ideas depend upon people for implementation—that is, to turn these ideas into working solutions—problems in political feasibility begin to emerge:

- Individual behavior patterns
- Satisfying personal needs
- Motivating people to active cooperation
- Internal politics
- Emotional resistance

These are just a few of the possible behavioral issues that could derail a good idea, or at least deflate the great expectations for it. What's not commonly realized, however, is that the thinking process can be equally valuable in the *human factors* sector, too, particularly in the area of psychology and human behavior.

Consider the difficulty involved in health care reform in the United States. Coming up with the ideas for policy changes is the easy part. "Selling" the ideas to the US congress and the public is another story entirely. The ideas might have been completely logical, but their originators did not sufficiently consider how to overcome the emotional and political resistance to the change. As a result, Medicare reform was "dead on arrival" in the US Senate and House of Representatives. Could this scenario have been different? Possibly.

A comprehensive current reality tree, conflict resolution diagram, and future reality tree might have clearly identified the root causes of the existing system's failure and provided the blueprint for one that would work—in other words, it would be technically and economically feasible. Negative branches and prerequisite trees could have located and cleared the political and emotional land mines in the road, and transition trees could have laid out the political persuasion steps for implementation as well as the technical and economic ones.

The Logic Behind Resistance to Change

It's not sufficient to construct a technically and economically sound plan for breaking a system constraint. Because the people within an organization are usually the difference between success and failure, the human factor, whether you call it emotional, political, or behavioral, must also be addressed in *any* solution implementation.

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Effective organizational improvement requires five elements (See Fig. 3):

Subject matter knowledge of the system (including technical, economic, and political information)
The authority to initiate or influence change, and
A methodology for defining, designing, and implementing the change
A desire to see the system improved, and
A willingness to accept responsibility for action

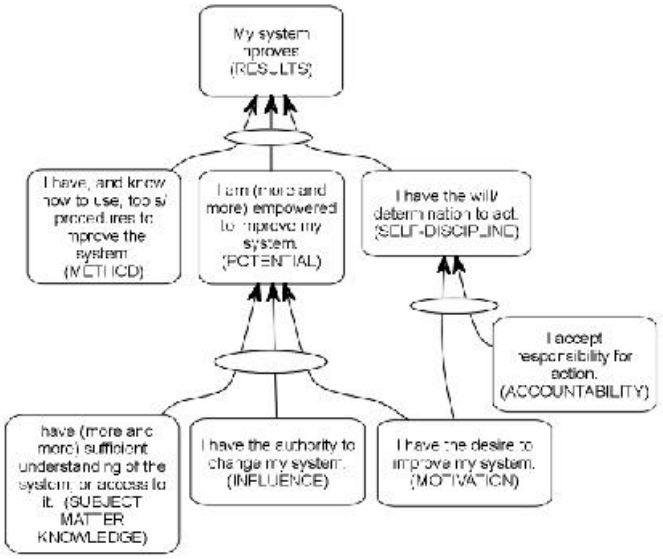

Figure 3. The Route to Continuous Improvement

Absence of any one of these elements is enough to render any change effort dead in the water. The first three of these factors reside in the realm of technical feasibility. The last two are unquestionably psychological factors inextricably interwoven with political feasibility.

People who have applied the thinking process usually use it to define the problem, design the change, and lay out the technical and economic implementation. But it can also be used to overcome resistance, instill the desire to see the change succeed, and motivate accountability for action. Unfortunately, many organizations overlook the latter two factors in planning for change, and in doing so, they increase the risk that their change will fail—or at least not live up to the expectations for it. Motivation and accountability for action are clearly in the domain of psychology and human behavior; however, there are few, if any, documented examples of the thinking process being used to address these critical success factors.

What might happen if we were to overlay the thinking process—like a template—on top of a comprehensive understanding of organizational psychology? The result would be a powerful tool for addressing the political feasibility of the changes needed to break system constraints. What would this combination look like? Figure 4 is a type of current reality tree. While it doesn't address a specific situation, it does show how a known body of psychological knowledge might be arranged to explain the unfavorable outcomes of change efforts. Notice that the root causes in this tree are the change agent's failure to consider the

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status, authority, security, and satisfaction needs of the people whose cooperation is critical to successful execution. These are psychological needs that can't be satisfied by financial compensation alone.[4] ⌗

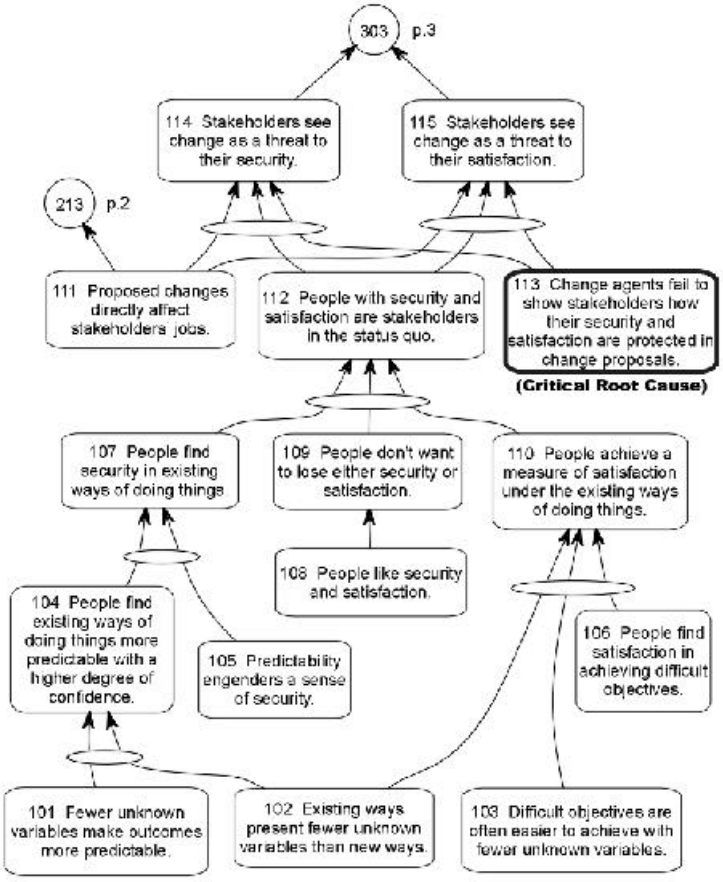

Figure 4a. Why Stakeholders Resist Change

Figure 4 effectively illustrates the "pegboard" concept of the thinking process. By "hanging" known elements of organizational psychology on the thinking process pegboard, we see a more complete picture of our knowledge about resistance to change. Our attention is also drawn immediately to those root causes that must be addressed if our change is to succeed. In terms of Deming's profound knowledge concept, this integration of both psychology *and* the theory of knowledge is most powerful indeed.

Perhaps the most revealing thing about this tree is that even if we foreclose all stated objections (the "excuses" shown at the top of Fig. 4c) based on logical grounds, we might be lulled into a false sense of security, thinking that we've taken care of all the obstacles in our path. In fact, all we've done is eliminate the "wiggle room" for people whose resistance is emotional, but whose circumstances make it "politically incorrect" to voice objections on that basis. So what do they do? They quietly resist. And as Gandhi so clearly demonstrated, passive resistance can be a most powerful weapon.

⌗ The satisfaction of psychological needs is a more powerful motivator of human behavior for many people than the satisfaction of material needs. What person in their right mind, for example, would seek the Presidency of the United States because of the pay? There isn't enough money in it to compensate most qualified people for the stress they would have to endure in attaining the job and discharging the duties. Clearly, they're in the game to satisfy other (psychological) needs.

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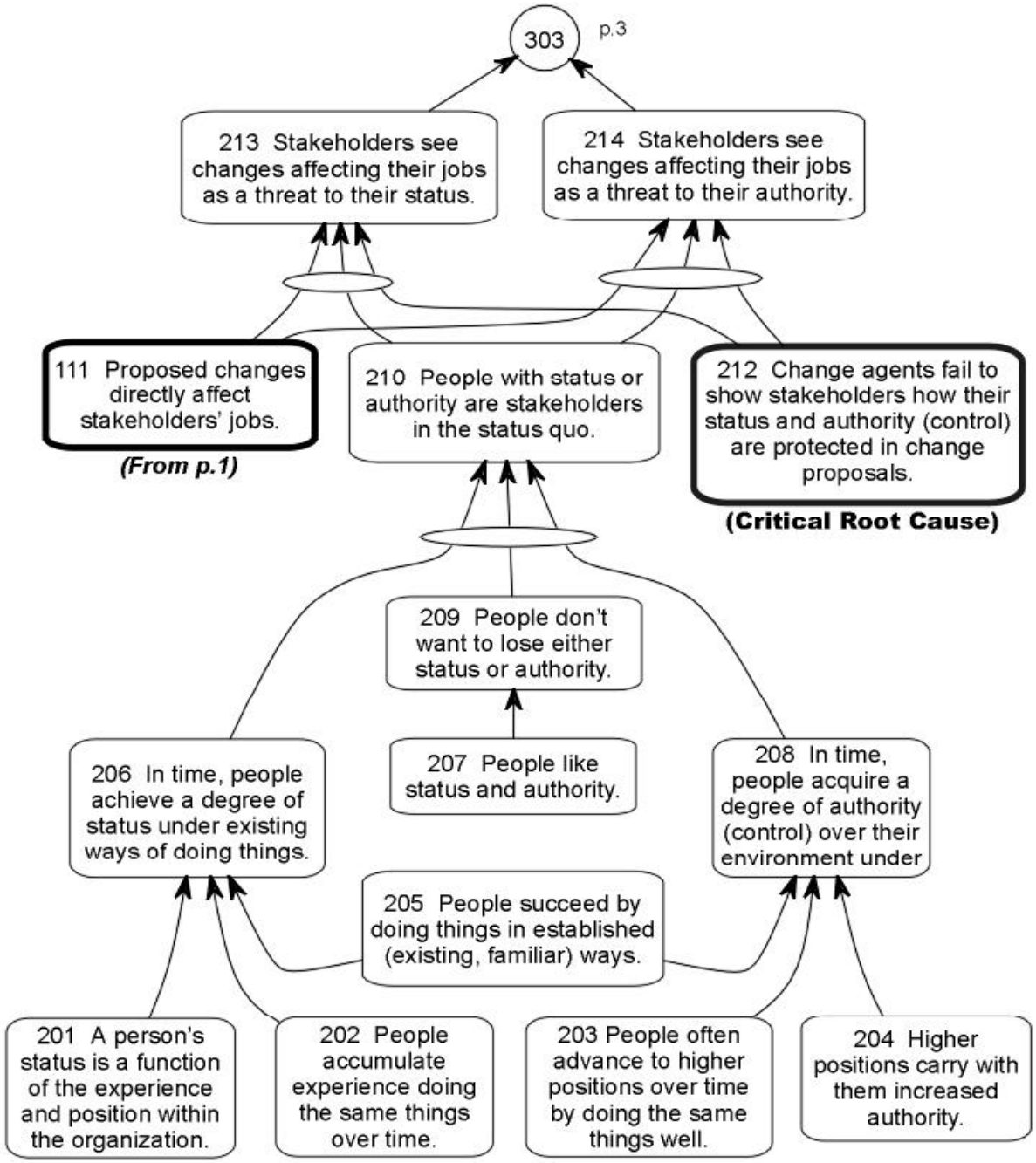

Figure 4b. Why Stakeholders Resist Change

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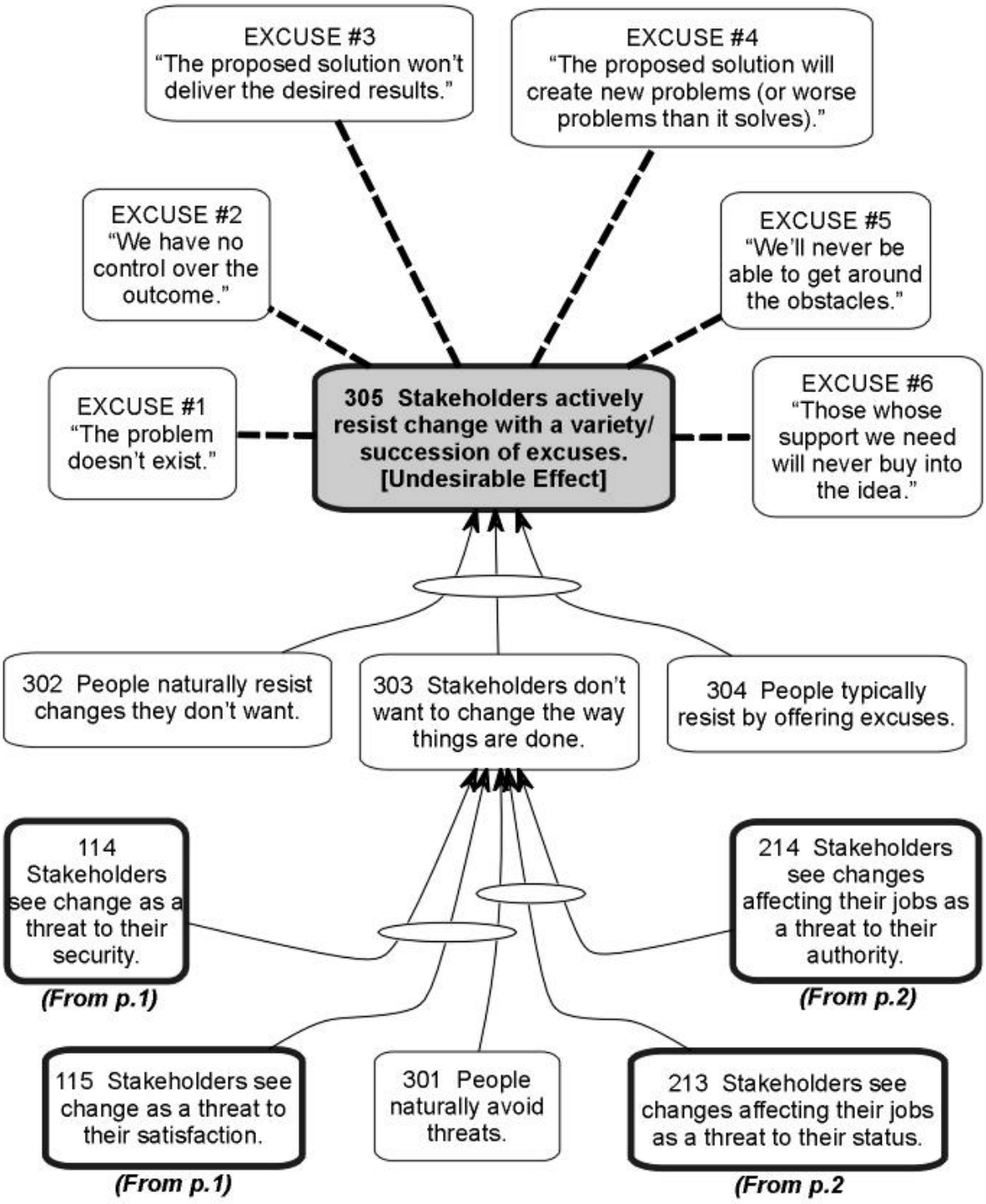

Figure 4c. Why Stakeholders Resist Change

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Figure 5 is a continuation of the tree begun in Fig. 4. It starts with the undesirable effect from the first current reality tree. The second tree presumes that the change agents have used this powerful methodology called the thinking process to analyze the system, determine the constraint, and construct a logical solution that is technically and economically feasible. In doing so, they have deliberately developed persuasive responses to any technical or economic objections that anyone could raise. But they've forgotten something important—something *critical* to success. They never considered the political feasibility of the proposal. And so their "air tight" logical case for technical and economic feasibility has unwittingly "boxed in" resisters, whose only refuge now is an emotional objection.

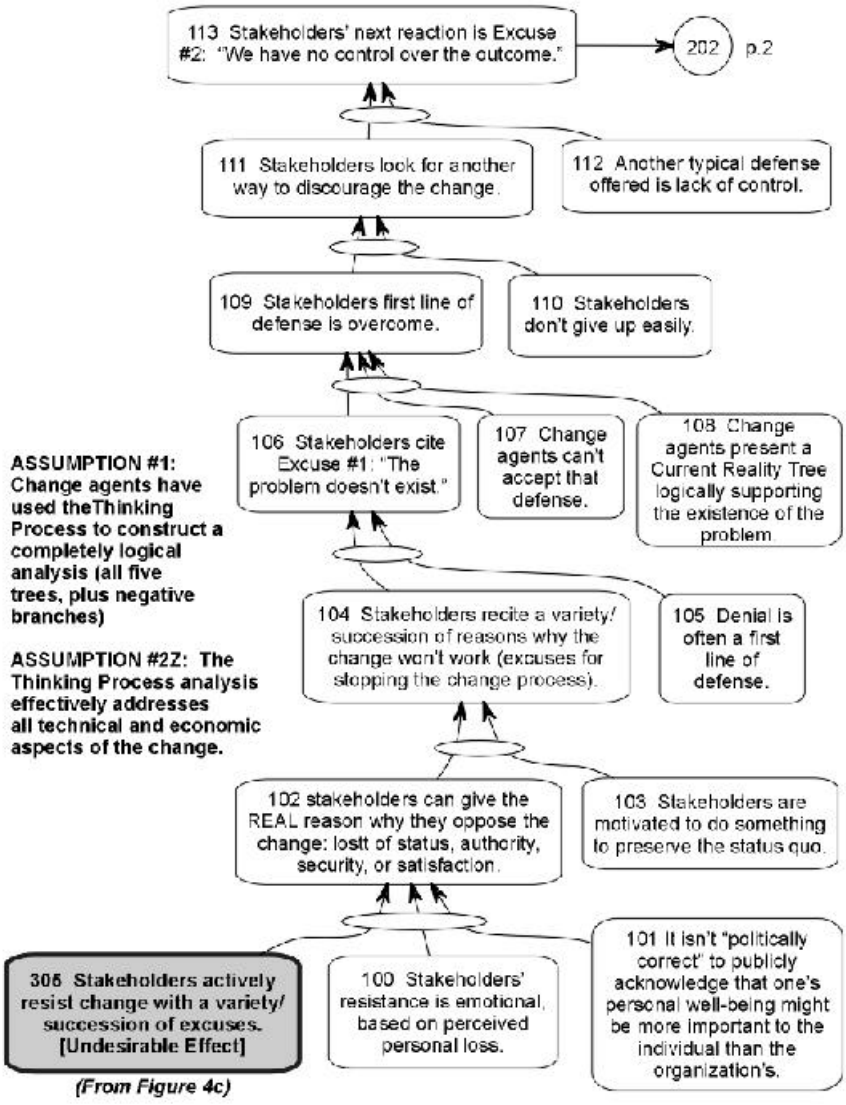

Figure 5a. How Efforts to Force Change Unfold

From Fig. 4, we know that some important players in the execution of the change have serious reservations about it because the change will have a negative impact on them personally. But it's clearly not "good form" to openly cite personal loss as a reason for objecting to a change that demonstrably benefits the whole organization. Consequently, as the change agents methodically shoot down all the technical objections to the plan, they leave those who will suffer under the change no recourse but to quietly torpedo the improvement effort through passive resistance.

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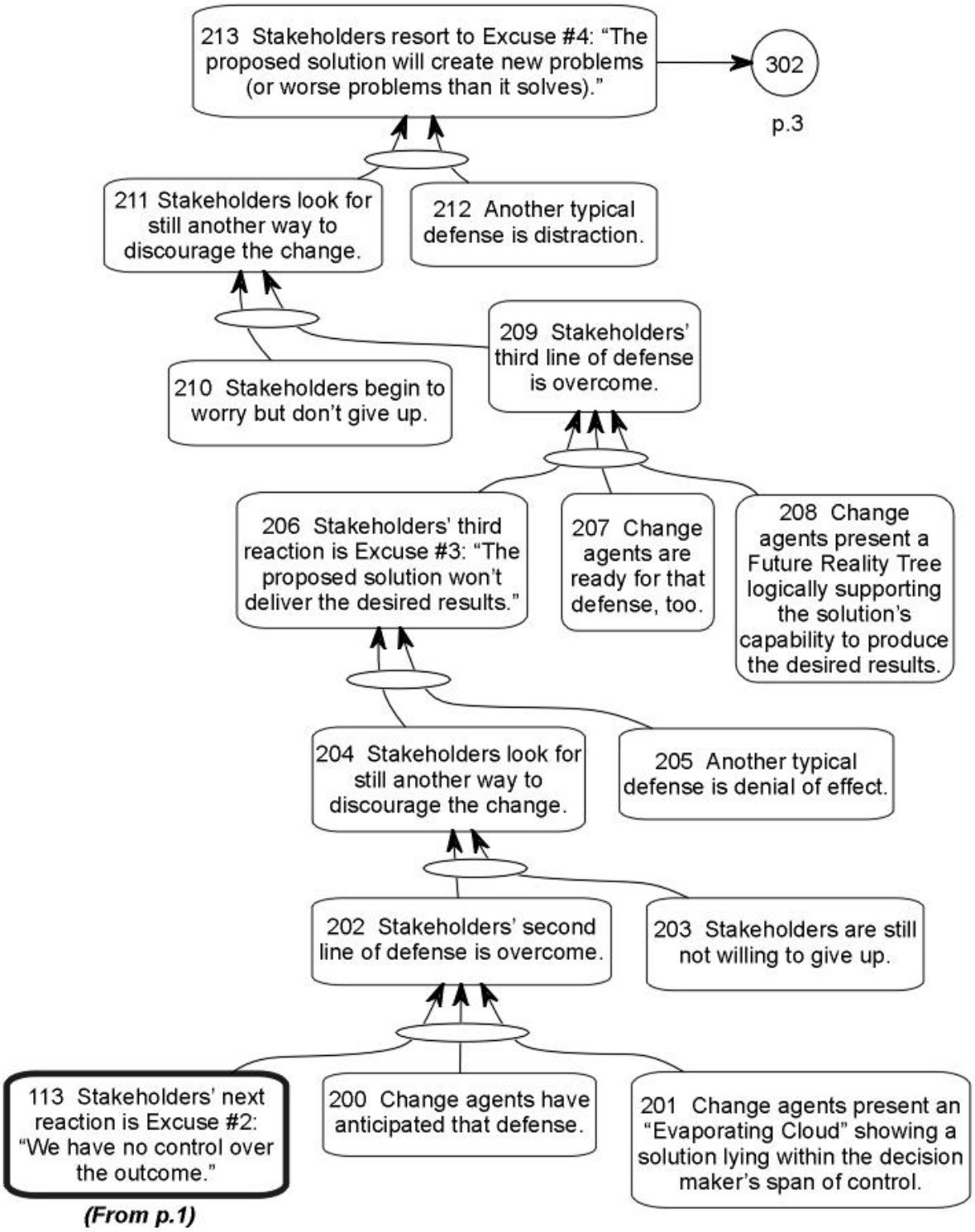

Figure 5b. How Efforts to Force Change Unfold

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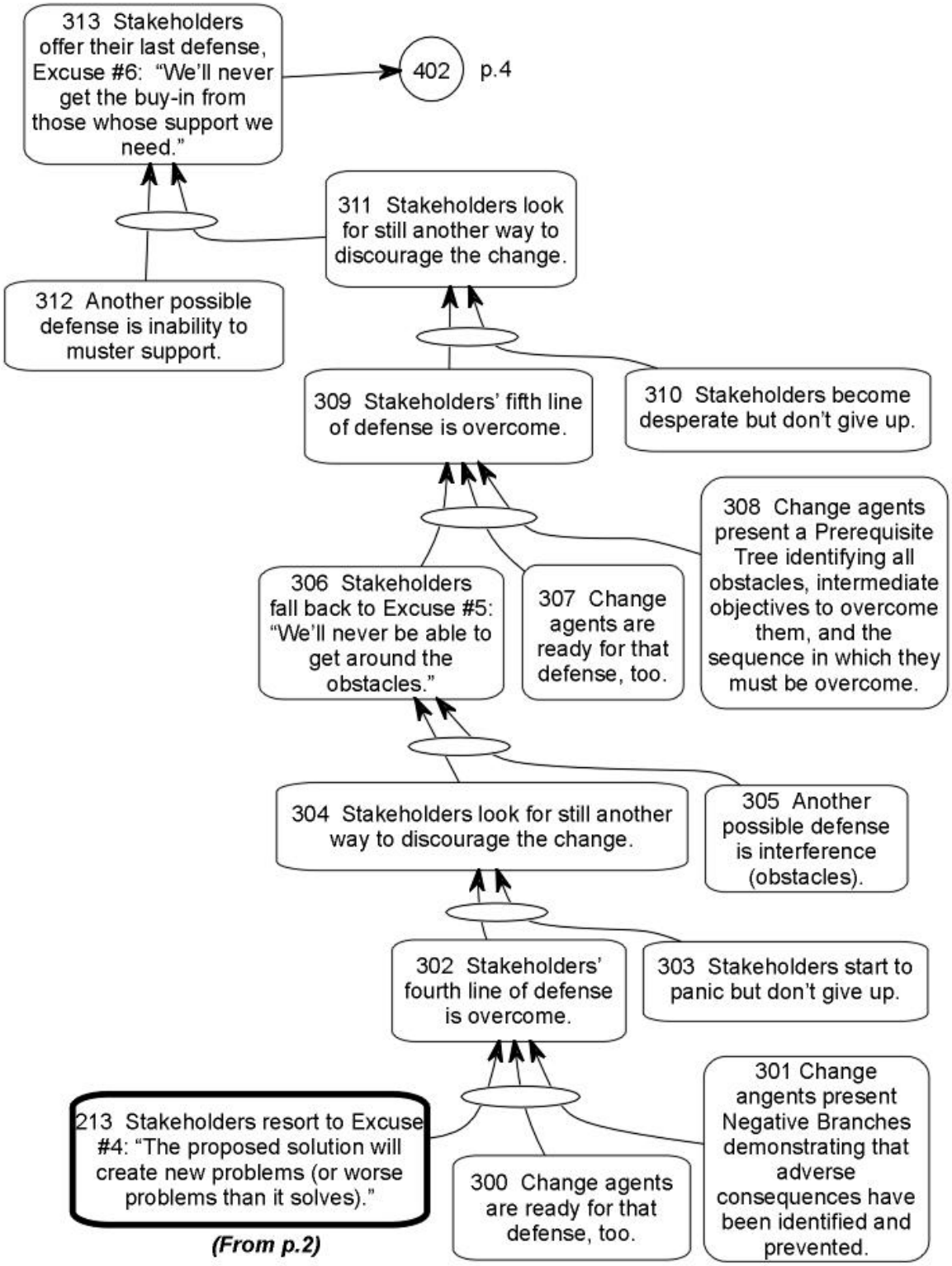

Figure 5c. How Efforts to Force Change Unfold

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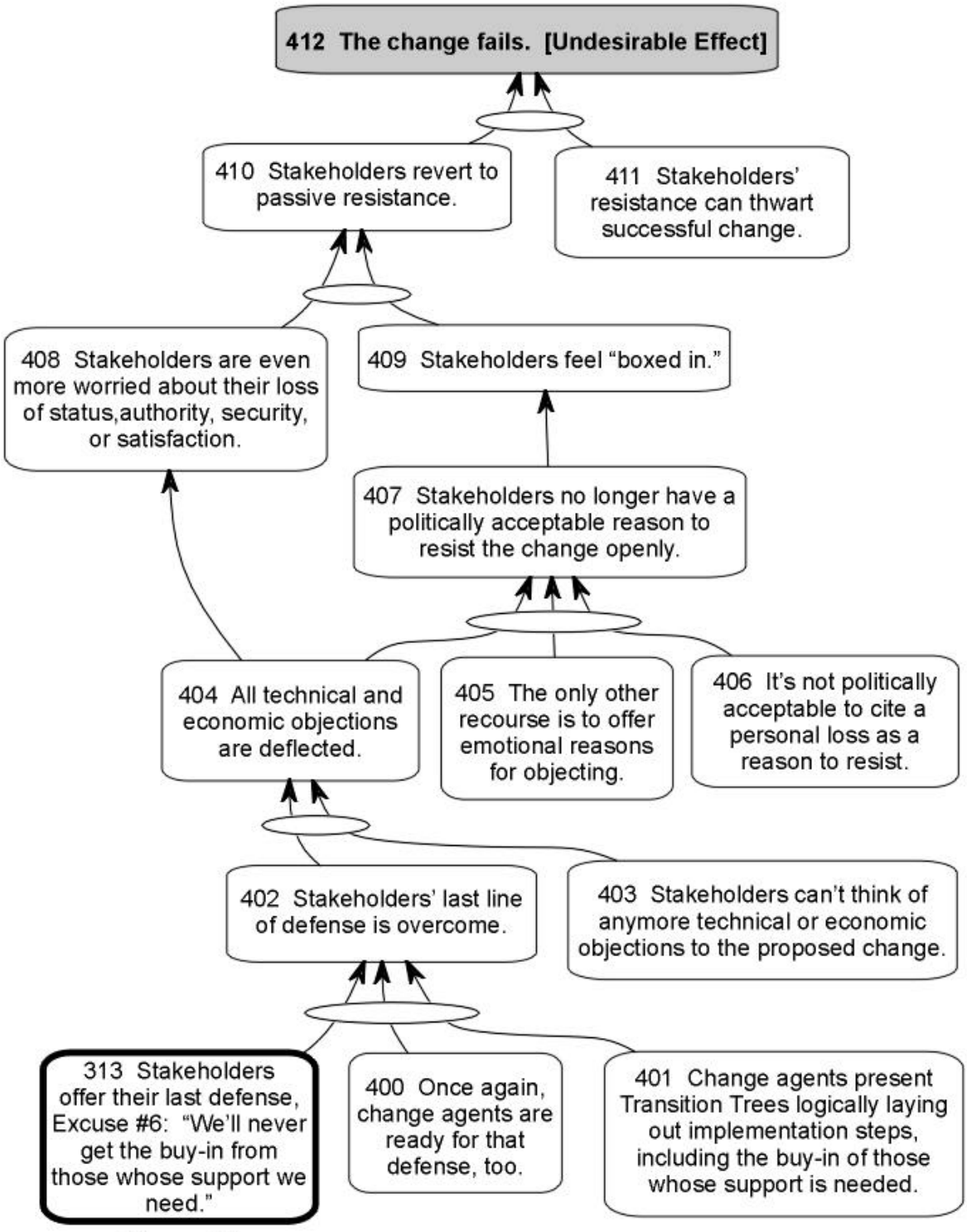

(From p.3)

Figure 5d. How Efforts to Force Change Unfold

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Using the Thinking Process to Create Political Feasibility

Figures 4 and 5 are clearly bad news. But then aren't most current reality trees? Yet buried in the bad news is the seed of possible good news later on—the core problem we can attack. And in this case, the core problem is clearly identified in Fig. 4—entities #113/212:

> "*Change agents fail to show stakeholders how their security, satisfaction, status, and authority are protected in change proposals*."

We can use the same thinking process that created the change proposal in the first place to solve this political feasibility problem as well.

There might be a potential disaster brewing, but at least we have a good idea where the root of the problem lies. Notice that if we *reverse* the meaning of entities #113 and 212, none of the subsequent "dominoes" in either Fig. 4 or 5 fall. The undesirable effects never happen. All we have to do is ensure the security, satisfaction, status and authority of those whose cooperation we need, and we'll stand a much better chance that those people will support the change. In some situations, all we need do is relieve their concern enough so that their attention turns from their own agenda to the organization's. (And let's not fool ourselves—very few people's personal agendas coincide with the organization's!)

A Strategy for Selling the Idea of Change

Now that we have the core problem identified, what do we do next? Normally, we'd see if there was a conflict preventing us from ensuring the security, satisfaction, status, or authority of the key stakeholders. Then we'd break that conflict with an injection, and test the injection with a future reality tree and negative branches. Lastly, we'd execute that injection with a prerequisite or transition tree. However, for the purposes of this discussion, let's assume there is no conflict preventing us from accommodating stakeholders psychological needs. Let's assume that doing so will, in fact, elicit their cooperation, so no conflict diagram or future reality tree are needed at this level of the problem.

Instead, let's focus on how we might go about making the change proposal more palatable to the stakeholders. We need a strategy. As a starting point, we might try answering the question, "Whose cooperation is critical to our success?" This will help us define the power groups or influence centers that can make or break the idea. Avoid the temptation to answer, "Everybody's cooperation is critical!" This is rarely true. While realizing the idea's full potential might eventually require everyone's motivated effort, a threshold level of success usually demands satisfying only a limited number of necessary conditions. And those conditions are usually under the control or influence of

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key people or departments.

Goldratt has classified organizational players into one of three categories:[5]

Outside people - those whose role is so limited as to not affect, or be affected by, the change very much.

Intimately involved people - those for whom the change poses a significant difference in the way business is done. These are people who must revise the way they do their jobs for the idea to succeed. They are also those who might be negatively affected by it (more work load, new tasks to learn, etc,).

Directly responsible people - those who will have responsibility and accountability for the organizational functions in which the changes must take place. Usually, these are department heads, managers, or executives with nearly unilateral control of their areas. They are also likely to be the bosses of the intimately involved people,

For our purposes, we'll focus primarily on the directly responsible and intimately involved people. If we can identify who these people are in our environment, we'll have a narrower range upon which to focus.

The second question to answer is, "Among the directly responsible and intimately involved people, who might resist this idea?" We need to know, specifically, which people or departments might not like our idea. In essence, we're trying to determine "whose ox will be gored" as a result of the change. Figure 6 provides a list of leading questions that can help us determine the answer.

1. Who stands to LOSE from the change?
2. Who stands to GAIN from the change?
3. Whose STATUS might change?
4. Whose AUTHORITY might be redefined?
5. Whose SECURITY might be threatened?
6. Whose SATISFACTION might be compromised?

Figure 6. Who Might Resist the Change?

The next step is to identify the *indications* of resistance. Figure 4c shows the various objections people might interpose. All of these "excuses" appear to be technical in nature, except for the last one ("Those whose support we need will never buy in."). Having already determined *who* might resist, these indica-

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tors should be easier to anticipate.

The third step is to determine the real reasons for the objections. We must not overlook the possibility that someone's objection is truly based on the conviction that the idea is not technically or economically feasible. It would be stupid to ignore "legitimate reservations" only because we suspect deeper hidden personal motives. When one of the first five "excuses" is raised, we must make a concerted effort to re-evaluate our thinking, and even solicit suggestions that might improve the technical or economic feasibility of the idea. The categories of legitimate reservation are invaluable in objectively assessing our own—and others'—logic.

But at the same time, we must also be open to the idea that the technical objection might be a smokescreen for a more personal reason to resist. And if we're reasonably sure that this is the case, we must address the underlying, unspoken reasons for resistance (status, authority, security, or satisfaction). In many instances, this might require personal knowledge of the values, ethics, personality, and leadership style of the person who might resist. Don't be reluctant to seek out this information. There are undoubtedly people in the organization who can provide insight on the motivations of directly responsible and intimately involved people. Be aware, however, that such inquiries themselves can be highly sensitive, so conduct your information search with caution.

Once we're reasonably confident we know the real reasons why people might resist the idea, we can set about turning that resistance into cooperation, and incorporating the actions we'll need to take to do that into the original plan.

The Political Feasibility Conflict

Turning resistance into cooperation is quintessential conflict resolution, so the logical next step is to build a conflict resolution diagram around the real resistance issue. Figure 7 shows a typical template for such a diagram. Obviously, the specific content of each of

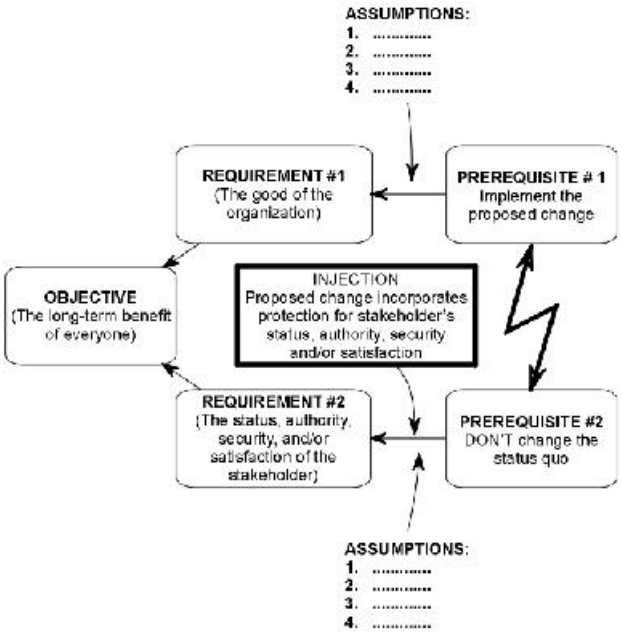

Figure 7. Conflict Resolution
Stakeholders' Needs Are Met in the Change

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the boxes will vary depending on the circumstances. But the conflicting prerequisites are fairly immutable: "Change vs. Don't change". The top requirement is a statement of the desired effects that the change is expected to realize. The bottom requirement is the personal psychological need the stakeholder is trying to protect by resisting the change. And the objective is the well-being of all.

The assumptions underlying the arrows between the prerequisites and the requirements are the keys to breaking the conflict. By identifying invalid assumptions that apply to each specific conflict, we can come up with an injection that will enable us to make precisely focused modifications to the original idea. These modifications will preserve the original purpose of the change, but accommodate the psychological needs of the stakeholder as well—a true "win-win" resolution. What might such an injection look like?

A Hypothetical Example

Let's say the originally proposed change was to phase out an existing product line (a waning "cash cow", looking more and more like a "dog", according to the widely used classification of the Boston Consulting Group).[6] To replace the old product line, the strategic planning committee has proposed penetrating a completely new market segment with a leading-edge product (a "question mark" that might prove to be a potential "star", according to the same classification). The new idea promises great changes for the company, not the least of which is a complete reorganization of responsibilities in both the production and marketing departments. The directly responsible people in each of these departments, either of whom could "slow-roll" this idea to death, are not really enthused about it.

The marketing manager sees the potential dissolution of a large branch under her control, to be replaced by a more high-tech but smaller staff ("leaner and meaner") for the new product line. The net result will be a decrease in the size of her organization, which she interprets as a diminution of authority. And from what people tell us about the marketing manager, it's clear that she is sensitive to threats to her authority.

The production manager realizes that the new technology needed to assemble this leading edge product is so different from the existing hardware currently used on the production floor that his 30 years of traditional production knowledge will be rendered largely useless. As he has enjoyed a long-standing reputation as an "expert" in his field, even outside the company, he foresees his status waning. Also, because of the unknown variables involved in ramping up the new line, success is anything but certain. The production manager thinks that if the new production process doesn't meet expectations,

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he'll be blamed, and the CEO will look for someone with more current experience in the new technology to replace him. So the production manager has a security concern, too.

The strategic planning committee, mindful of the risks in trying to ram this proposal down the throats of the two people most important to the idea's success, prefers to have both on board when they brief the CEO. Between their own personal knowledge of the managers involved and the "grapevine", they have identified the psychological needs (authority, status and security) that seem to be threatened. They also have a sense of the technical and economic objections the two managers are likely to raise as a smokescreen.

The committee knows that their thinking process analysis has already disposed of the technical and economic objections likely to be raised, but they are also well aware that they haven't addressed the authority, status and security issues. Several members of the strategic planning committee construct three similar conflict resolution diagrams. The only difference is that in each one, the stakeholder's requirement (R2) is different. In one it's "status", in the second it's "security", and in the third it's "authority". Naturally, the assumptions underlying the bottom arrow are different in each one too. Under the top arrow, some assumptions remain the same, but others differ between diagrams.

The strategic planning committee arrives at three different injections (modifications they can make to the original proposal) to alleviate the two managers' concerns. The first one adds geographic scope to the marketing effort for existing products, allowing the marketing department to reassign people rather than "down-size". The net result is a new product marketing effort with no decrease in staff—a net "gain" perceived by the marketing manager.

The second injection is a promotion for the production manager to a newly established position of vice-president for operations. In this capacity, he will supervise two other people, one responsible for managing the existing product line (his old job) and the other newly hired to bring the new production technology on line. Besides training the new hire in the ways of the company and the other manager to assume his former duties, the production manager will now be responsible for planning and developing the production advancements of the future for the company. The third injection is the hiring of the new manager to install and supervise the modern production technology.

The final political feasibility strategy: three injections, all technical in nature, but each one designed to overcome a political feasibility obstacle while simultaneously benefitting the company as a whole... "a rising tide floats all

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ships."

The strategic planning committee then goes back to the original future reality tree—the one that validated the idea to develop the new product line in the first place—and incorporates these new injections to "trim" the negative branches posed by the marketing and production managers' resistance. The injections are folded in seamlessly, so that it appears they were part of the plan all along. And since they do, in fact, lead to new company-level desired effects, the fact that they were inserted to overcome political feasibility problems is virtually invisible to anyone who reads the tree. Only the change agents know for sure...

By now it should be obvious that the thinking process is useful for more than just technical problem solving. We can *construct* common sense with it, but we can also use it to *communicate* that sense to others. The thinking process, as a formal analysis tool kit, has been "on the street" since 1992, but so far its use has been confined largely to the technical and economic aspects of problem solving. Its use for enhancing political feasibility has barely scratched the surface, yet this is the arena in which the thinking process might realize the most power and influence.

> *Man is a wanting animal— as soon as one of his needs is satisfied, another appears to take its place. This process is unending. It continues from birth to death. Man continually puts forth effort—works, if you please—to satisfy his needs.*
>
> *—Douglas MacGregor*

ABOUT THE AUTHOR

Bill Dettmer is senior partner at Goal Systems International, a consortium of management professionals whose mission is the widespread application of constraint theory in all types of systems. Bill was formerly adjunct professor at the Institute of Safety and Systems Management, University of Southern California. He studied constraint theory and the thinking process at the Goldratt Institute in 1993 and wrote the first comprehensive text on how to apply the thinking process (*Goldratt's Theory of Constraints: A Systems Approach to Continuous Improvement*, ASQ Quality Press, 1995). His book, *Breaking the Constraints to World-Class Performance*, was published in 1998 (ASQ Quality Press). Bill has applied the Theory of Constraints and the thinking process in organizations such as Lucent Technologies, NEC America, Kendall Health Care Products, Sealord, Ltd., and the South Carolina Manufacturing Extension Partnership.

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