

ORGANIZATION CHANGE AND SERVICE REDESIGN

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Frustrated about unsuccessful attempts at organizational change and service redesign efforts? You are not alone. Surveys suggest that only 25 – 35% of organizational change efforts deliver their promise. Why is that? One factor is inertia.

Inertia, both perceptual and psychological, is one of the root causes for the ineffectiveness of organizational change and service redesign efforts. Inertia impedes seeing the need for change, inhibits seeing potential directions for change and must be overcome to implement change.

This presentation will present a hospital service example to:

1. Explore some of the biological and social-biological bases for both perceptual and psychological inertia.
2. Illustrate how traditional responses tend to both complicate and compromise the system even more.
- 3 Show how focusing on hindrances, inadequacies and contradictions in the “as is” system results in substantial improvement in system performance.

INTRODUCTION

In his book, *Teaching the Elephant to Dance*, Jim Belasco (1990) describes how trainers shackle young elephants with heavy chains attached to deeply embedded stakes. The elephants pull and tug at the chains, but remain attached, fixed. They learn that they cannot move away. “An older elephant never tries to move farther, even though it has enough strength to pull up the stakes. Its conditioning limits its movement even though it has only a small metal bracelet

around its foot, sometimes attached to nothing.”

A survey of patents filed by Altshuller and colleagues between 1946 and 1971 noted that 95% of patents granted for new and innovative inventions involved the application of knowledge already available in another industry or discipline. (Terninko, Zusman and Zlotin, 1998). Altshuller also noted there was often a long lag time between the appearance of the knowledge in one industry and its reappearance in another. What then was the barrier to the adaptation and adoption of this knowledge? Altshuller called this barrier psychological inertia. Altshuller’s studies were carried out in mechanical or technical systems. However, his observations also apply to service industries. In this paper I will develop the claim that the barriers to innovation in service industries and to redesigning systems in which human being is a component are:

- Perceptual and psychological inertia
- Deployment of incomplete systems to catalyze necessary changes and
- Finally access to knowledge, know-how.

Through our interactions and experiences within the world, we construct conceptual maps. We are mapmakers. We act and when doing so, we use these conceptual maps as we navigate in our worlds. Life for us embodies processes of acting and mapping the results of our actions. This is the way of science.

Systems as well as our conceptual maps have structure, they have sets of relations,

they generate value, and they are interconnected to their environments. As you attempt to improve one aspect of a system, another aspect or function may be compromised and the system as a whole system may deteriorate.

Most inventive problems by their nature have an inherent conflict. If you improve the function of one component in the system, the function of another component deteriorates. For example young males who sustain a spinal cord injury continue to want to continue to be active and “athletic” after their injuries. Their activities caused breakage in the components of the traditional wheelchair. The traditional approach (Level 1 Solution) would be to make stronger wheelchairs by increasing the thickness of the material currently breaking. This makes the chair heavier, getting it in and out of cars is more difficult and mobility in competitive events is compromised. . Principle 40 suggests using composite materials. Resolution of this contradiction resulted in chairs that are stronger and lighter.

Our conceptual maps also contain contradictions and they are usually hidden from us. When we are learning to perform a new task or to grasp a new concept, we usually struggle grasping the details to get our actions in order. When we master the task, however, these details recede to the background. In our ordinary everyday way of living, we are usually blind to and we take for granted the background. We also tend to forget we are using metaphor to describe the relations and forces by which nature appears and operates. We come to believe the map as reality. When we do so, we constrain our natural innate capacities for creativity and change and we are blind to the potentiality of the resources all around us. We like the tethered elephant become shackled to our historically based maps. Our past successes and failures condition

how we see the world in the present and how we anticipate the future. For the most part, we do not question whether the barriers we see are truly limitations imposed by the world or are limitations we project onto the world.

PERCEPTUAL INERTIA

Our sense of our relationship to the environment has been shaped by Western science. We have come to depend on science to explain the world. Science employs theory, theory orders experience, and experiential observation and measurements generate feedback that modifies theory. The result is what we call reality.

Our notions of reality are based on three fundamental premises of empirical Western science:

1. *Realism*: We see the world objectively, without distortion;
2. *Separateness*: Events have local and separate causes;
3. *Inductive Prediction*: Logical conclusions can be predicted from consistent observations.

When faced with a problem, we separate ourselves from it; gather data; reduce the problem to its components; construct an accurate, objective representation; and predict what actions to take to obtain the desired results.

Hold Figure 1 at eye level, close your left eye, and stare at the circle in the middle of the grid with your right eye. Slowly move the paper along the line of your vision, until the star vanishes (about ten to fifteen inches in front of you). The star disappears when it is in your blind spot. If we have a blind spot, how is it we do not go around with a hole in our vision? Now open your left eye, close your right eye, and stare at the star. Move the figure until the circle in the middle of the grid

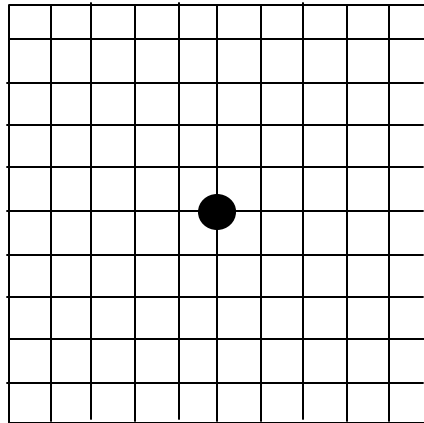


Figure 1

vanishes. When it does, notice that the lines of the grid remain intact.

Our brains fill in the blind spot. To prove this point, experimenters (Ramachandran 1993) had subjects with one eye open and one closed locate the blind spot and outline it ("a" in Figure 2.a). They then used a thick, colored ring ("b") sufficient in size to stimulate the reception around the margins of the blind spot but not the blind spot itself. When the ring was placed over the area of the blind spot, subjects reported seeing not a ring but a colored dot or disk such as "c." These experiments show that we fill in what our brains expect to be there.

Stimuli captured by the retina of the eye seem to interact upon a background of what we already expect from past experience. Learned expectations affect our perceptions. Look at Figure 3. Because we are accustomed to rectangular rooms, we see two people of different sizes, rather than a room with an unusual shape. In reality, the left corner of the far wall is farther away from the observer (as shown in the drawing). These are illusions of perspective. When such illusions are shown to people who did not grow up with rectangular rooms, e.g., an Australian aborigine, they see the room and the people the way they are (Gregory 1966). Such



experiments demonstrate that our past affects how we perceive the present.

Studies on placebos and nocebos indicate that subjects who think they are receiving a pain reliever or something that causes pain actually alter the physical chemistry of their bodies and that this physical alteration and the relief or production of pain that accompanies it can be reversed by other chemical agents; thinking shapes their reality (Chaplin and Terniko 2000).

When the above figures and experiments are taken separately they can be seen as peculiar anomalies, paradoxes. When taken together these examples indicate that our experience of the present is influenced by past

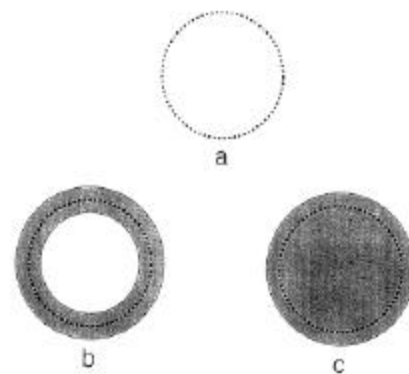


Figure 2

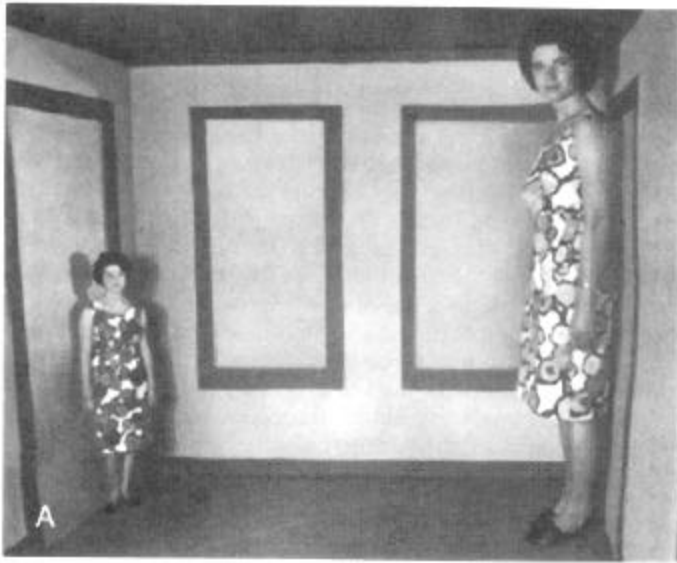


Figure 3

experiences. They also challenge the assumption that we see reality without distortion. They suggest that the world we perceived as our phenomenal awareness is highly processed. This ordering not only predisposes us to see the world conditioned by our past, it limits our capacity to change.

More recent theories in the cognitive sciences suggests that we do not compute or represent an external world rather we enact our experience of the world we interact with. Our experience emerges within the activities of ensembles of neurons (Varela 1999). This alternative view is more consistent with our biology than the common sense view based on the assumptions of realism, separateness, prediction and control. For example consider the cell. As systems, cells have structure, internal relationships, capacity for action and sets of relationships with their environment.

Structure: Anatomy

The knowledge stored in DNA is transcribed to RNA and then translated in proteins. Proteins as enzymes catalyze actions, converting resources (possibilities) into products (results).

DNA encodes the knowledge of what worked in the *past*. RNA is a template or field of potential of a *future* structure and *future* action. This juxtaposition of a future projected ahead of present and past generates a direction and calls forth, informs, and shapes the actions that unfold in the *present*, as shown in Figure 4. By generating direction and setting boundaries for actions, DNA shapes the very nature of the cell, which contains the nature of the whole, be it a lion or a lamb.

This simple pattern is repeated throughout all levels, from cells to bodies and from bodies to

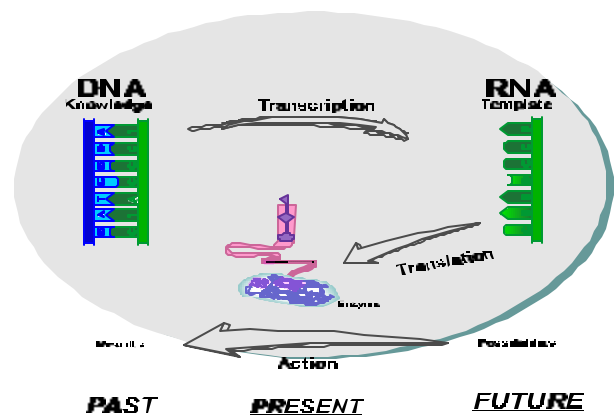


Figure 4

social units. The pattern is so basic to all levels of our being that it is transparent to us. Reach out and touch an object. How did you do that? When you reach for an object, a result--a template of the future is projected ahead in time

Internal Patterns of Functional Relations: Physiology

Enzymes are the structural basis for cell action. They constitute the processes that transform resources into more valued products. The results of enzymatic actions feed back as reinforcing or inhibiting forces that inform the parts (enzymes, processes, and the cell's genetic makeup), and automatically adjust actions as the system pursues its targets.

As your arm moves when you reached for an object, sensors in the muscles and joints provide information about the arm's position in space to the brain, which is then able to coordinate action so that you are able to reach the target. The mesh of interconnected processes and feedback from actions modifies these actions, generating a self-regulating, self-organizing whole. This network of feedback and automatic adjustments is the basis for the phenomenon we call homeostasis.

Generation and Exchange of Value: Biochemistry

At some point billions of years ago, the parts of the cell joined together to form larger wholes, generating more value as a whole than could be generated by parts alone. The exchange of value between the parts holds them together. Biochemistry maps the generation of a change of value within the cell as the flow of energy. There is no master gene in the cell, nor is there a master cell in the body. Processes are interconnected.

External Patterns of Relations: Ecology

The individual parts of living organisms are continuously sensitive to the environment for signals, which are then disseminated throughout the whole. The interplay of internal feedback and environmental signals generates minute-to-minute adjustments in enzymes and processes, while it also informs and shapes actions at the genetic level. Genetic activity, in turn, either adjusts targets or calls forth entirely new targets. New targets generate new structure that catalyze new actions. This self-organizing system seeks stability, but is simultaneously stimulated toward change by an ever-changing environment.

When you reach for an object, the target (future state) is juxtaposed ahead of your capacity to act (knowledge accumulated from past experience). This juxtaposition sets a direction and shapes the action that unfolds in the present. As your arm moves, sensors in the muscles and joints generate internal feedback that adjusts the activity of the muscles. Your eyes constantly capture signals from the environment. If the object moves, these signals trigger an adjustment in the target and the action the arm. In the language of systems thinking, targets are feed forward loops and measures of the results are the feedback loops.

The cell's capacity to change is limited by its structure. When living organizations are forced to perform beyond their capacity, feedback inhibits the organism's ability to perform. This is also true for the body. For example, a sprinter can only run at a very fast pace over a short distance because the muscles generate lactic acid at high speeds, inhibiting their capacity to work. Before the sprinter can go faster or longer, he or she must train. The repetitive activity of training is an outside demand, a stimulus to muscles to change their enzymatic structure to meet an environmental change.

We now have a model of the cell as a system. The juxtaposition of remembered past and projected future sets direction and generates actions; the mesh of interconnected processes and feedback from actions modifies future actions, generating a self-regulating, self-organizing whole. This network of feedback and automatic adjustments is the basis for the phenomenon we call homeostasis.

Homeostasis

Homeostasis is the tendency to maintain internally consist sets of relations. For example, consider the regulation of body temperature. Our body temperature is a function of the rate at which we lose heat and at which we produce heat. In the anterior hypothalamus of the brain there is a biological thermostat which senses the temperature of circulating blood just as the thermostat in your house senses temperature in the air around it. If the body temperature begins to fall, activity in the neurons of the hypothalamus cause vaso-constriction of blood vessels in the skin which reduces radiation heat loss and increased activity in muscles which generates heat. When the muscles' activity is marked, we call it shivering. The result is both conservation of heat and production of more heat which causes the temperature to rise. When the temperature rises, the activity in the thermostat of the anterior hypothalamus is reduced. The result of the activity of the system is to keep body temperature in a very narrow range which is not only comfortable to us but is a range in which most body systems tend to function best.

In classic physics, inertia states a body at rest remains at rest or a body in motion remains in motion until acted upon by another force. Imagine a ball being rolled along the floor. It rolls in the direction it rolls until its direction and speed are altered by outside forces, gravity, obstacles, etc. We are systems in consistent action. Our biology is inherently

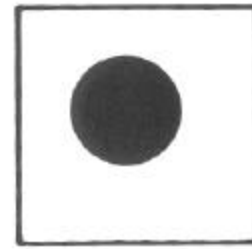


Figure 5

directional. We are inertial systems. Our homeostatic tendencies and our historical conditioning predispose us to live past based futures. These phenomena underlie our perceptual inertia.

The visual phenomena above happen before we are even aware of our world. Look at Figure 5. What do you immediately see? Most people respond that the disk is off-center or the figure is not balanced. The center towards which the disk seems to strive is not even an actual physical presence in the picture; yet it is very much present in our perceptual experience. In our everyday lives the effects of our conditioning are, for the most part, invisible to us.

As we go about our daily activities most of the sensory processing and motor responses are transparent to us. We become aware of them when the flow is disrupted or breaks down. Even then however as we reflect or contemplate appropriate actions we do so within the constraints of our already embodied assumptions and expectations. It is only when we encounter a paradox or an anomaly that we have an opportunity to question our initial assumptions.

The cell's responses are based on an assumption that what worked in the past will work again in the future. The process by which the cell responds to stimuli from the environment and by which we reach for an object is in a way similar to what

we call the scientific method. For example, when we reach for an object, we make an assumption about what actions are necessary. The actions, or experimental reach, begins. The sensors in the muscle and joints generate feedback data and we accept or modify our original assumptions about what actions are necessary. This strategy is repeated over and over throughout our bodies and within all aspects of our lives.

PSYCHOLOGICAL INERTIA

Like cells and bodies, our maps of the territory, our social spaces are complex, interconnected wholes. They have structure, internal relationships, patterns for generating and exchanging value, external relationships and patterns of change. Our mapped social spaces are parts of a system through which we interact with one another, creating new social organizations, communities and cultures (Chaplin and Terniko 2000).

The exchange of value and feedback (rewards and consequences) trigger minute-to-minute adaptations within our social networks, creating social homeostasis. When stimulation from the environment overwhelms us, we look to past experience for an effective actions. Like in the cell, this process keeps us tied to a past-based future. When we face a situation not experienced in the past, we must shift to being future-based (adapt) or we will suffer.

During our development, our experiences of the world becomes linked to the moods and emotions of the body. Planaria, a microscopic fresh water flatworms, can be seen to move away from noxious stimuli and toward nutritious stimuli. Our conceptual awareness arises within this same basic biological structure. When we become aware, our awareness is already pregnant with moods and emotions. When extreme, this provokes what we call fight and flight responses.

Moods and emotions open and close us to further actions and are thus feedback which like temperature sensors tend to keep us functioning with a range which we experience as conformable. This tendency generates a psychological inertia.

NARRATIVES; CONCEPTUAL MAPS OF THE WORLD

The linguistic ordering of experiences within narratives transforms a series of events into a unified whole. Within narratives, idealized destinations become purposes, discernible paths become maps, interconnections generate coherence, and feedback reveals models of acceptable and unacceptable behaviors (virtues and vices). Our memories of the past create expectations that guide our actions in the present. These memories also generate targets, direction, purpose and for the future. Within our conceptual maps and narratives the juxtaposition of expectations ahead of the present and past experiences generates dynamic tension and calls forth action.

We are prone to story telling and we listen to our stories as though they are facts. For once we have a story we usually do not re-examine the evidence for it let alone the assumptions it is based on. The more important or more successful the story, the less we examine its underlying assumptions. We tend to interpret new data in terms of what we already know. We tend to fit the data to our story rather than fully attend to what we directly perceive and the potential implications for our world views.

CASE STUDY: BACKGROUND

An acute rehabilitation hospital converted one half of its facility from an acute rehabilitation unit to a "transitional rehabilitation unit," licensed as a skilled nursing facility (SNF), (Chaplin et al 1997).

Shortly after opening this unit, a concern arose that the pattern of ordering and dispensing sleep medications, although judged medically appropriate, might be interpreted as a violation of Health Care Financial Administration (HCFA) regulations. These regulations were promulgated in the 1980s after a public outcry that residents in nursing homes were being sedated to control their behavior for convenience of the facility sometimes against the resident's wishes.

The regulations were operationally interpreted by surveyors in the field as requiring non-medication sleep measures such as quiet, warm milk, etc., be first exhausted before resorting to sedative hypnotics. Many people who enter skilled nursing facilities do so because they no longer can manage at home and the skilled nursing facility becomes their new home. These regulations were designed to protect these people. In the community many skilled nursing facilities had adopted a strategy of not prescribing sedative medication for a period of time after admission as a way of complying with the intent of the regulations. In contrast, the typical patient admitted to this facility was recovering from an acute medical illness, has spent time in an intensive care unit and is sleep deprived, or has had extensive surgery, is in pain and exhausted. In such people, three to four nights of restive sleep is extremely beneficial. Therefore a decision was made not to adopt a strategy to withhold sedative hypnotic medications as is employed by most skilled nursing facilities in our community.

Several efforts were made to educate physician and nursing staffs on importance and potential consequences of not documenting the necessity for use of such medications. These efforts produced no measurable improvements. Conversations and informal surveys indicated that the nurses and physicians verbally understood the

rationale and the appropriateness for the detailed documentation however the problem was not improving.

Like many industries, health care is undergoing a period of rapid environmental change. Economic pressures to reduce costs have resulted in progressive reduction of staff and increasing demands on the remaining staff. Documentation not uncommonly is triaged to a lower priority as the staff deals with ongoing and new problems that develop in patients during the course of delivering care. Rarely, however, is there sufficient time to go back and do complete and detailed documentation.

FORMULATING THE PROBLEM

Most problems arise out of an inadequacy or a breakdown in an existing system. So this functional analysis begins with new consequence which we will call the Primary Harmful Event (PHE1) (Figure 6). The Primary Useful Event (PUE1) here, i.e. the goal of the change initiative, would be "adequate documentation," however, for this presentation or a model for changing simple behaviors, PUE1 will be labeled *New habit*. The symbols used to build the functional analysis will be an adaptation to those previously presented by Terninko, Zusman and Zlotin, 1998. Useful events are circular and harmful events are rectangular.

When we experience a *New consequence* (PHE1), this experience is already feedback within the inertial system we are and it automatically triggers assessments relative to our pre-existing expectations and reward or consequences of the new event. Such assessments are, in general, useful events. *Assess need for change* (UE4), *Consequences* (UE6) and *Rewards* (UE5) are added to the figure. (Figure 6) The solid area signifies causes.

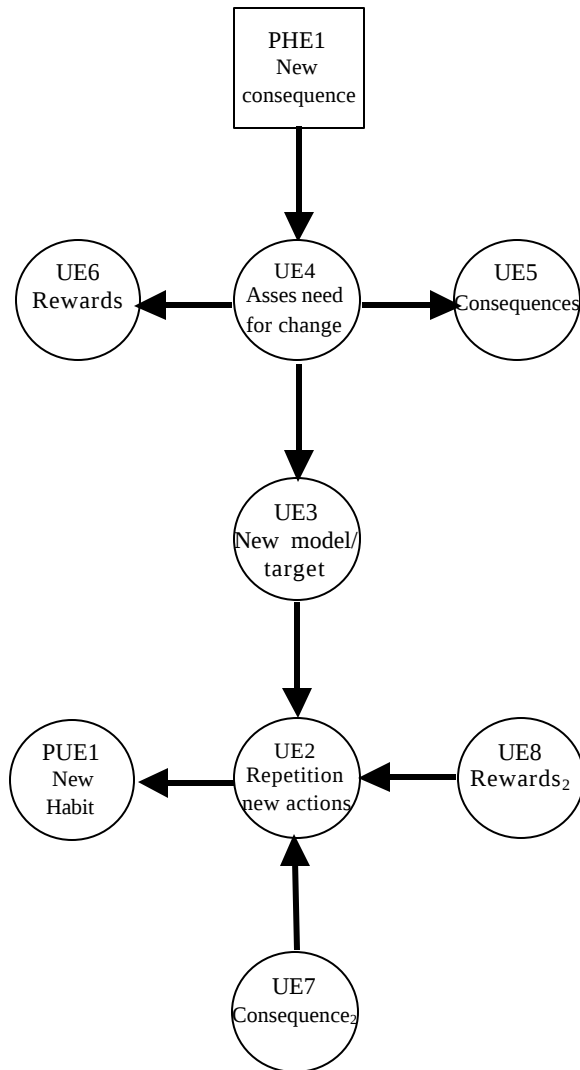


Figure 6

The response of the organization was an assessment of need to change. As noted above, for a change in actions, whether in cells, bodies or human social units, a target of the future state is critical. A target calls forth actions necessary from past experiences. Therefore a new target, *New model/target* (UE3), is added.

In the human being, as with all animals, learning occurs in the body. Encoding the new learning in the body requires repetition, *Repetition/new actions* (UE2). The perceived *Rewards₂* (UE8) and *Consequences₂* (UE7) for doing or not doing the new actions respectively influence motivation for repeating or not repeating the

new actions. No new skills were needed here. This map could be looked at as the underlying functional model or schema upon which the initial correction for the problem occurred. The organization identified the need for creating a new target, complete documentation, and to inform the staff of consequences for not doing so.

A key to adequately formulating any problem is a series of questions asked about each useful or harmful event to flush out other factors that may promote or hinder it. So, for *New habit* (PUE1), a question could be “Is this useful event hindered by any event(s)?” Barriers for the human being to incorporate new behaviors include both competence to execute the behavior and past successful behaviors. People were already performing actions around these events so *Undesirable old habits* (HE2) is added (Figure 7). An open arrow with a cross bar indicates HE2 hinders PUE1. The *Undesirable old habits* (HE2) became encoded as a result of *Past successes* (UE7). There is also a certain amount of comfort and efficiency in continuing to repeat old habits, *Comfortable and efficient* (UE10).

Our physical bodies have evolved over millions of years to respond to what is immediately before us. We are predisposed to focus on the short-term, quick fixes that have worked in past experience. In the busied, hurried environment of health care, the health care worker is focusing on the problems immediately before them and, as noted above, this commonly includes triaging the completing of documentation to a lower priority. In our ordinary, everyday activities, the world continues to show up in this way. Thus, the two additional factors or forces that need to be accounted for in any change effort involving living systems include *World shows up in old ways* (HE3) (this disk already shows up “off” center) and *Have to stop & reflect* (HE4) to change automatic habits. The open arrow indicates

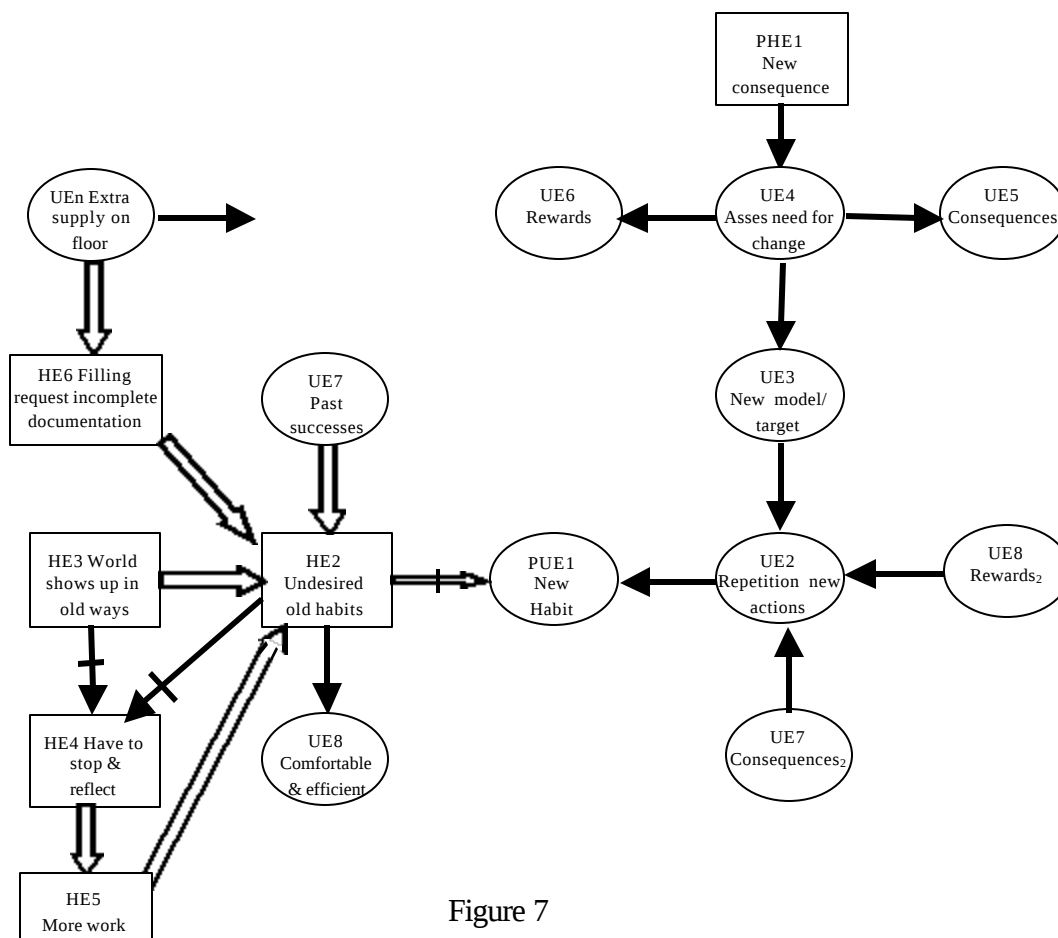


Figure 7

HE 3 causes HE2. The solid arrow with cross bar indicates HE3 eliminates the need for HE4 and HE2. Overcoming this inertial tendency *Creates more work* (HE5) which, in turn, reinforces (causes) continuation of *Undesired old habits* (HE2).

Functions do not happen in isolation. They are parts of the system which, in turn, is a part of a larger system, and so on. Ongoing systems have homeostatic tendencies. To flush out these aspects, we can use the model of the cell and a series of questions to add the dimension of homeostatic feedback. What homeostatic forces/factors/events already exist in the system that act in ways to maintain its stability?

When the physician or nurse initiates an order to the pharmacist who, in turn, delivers the medication, the delivery of the

medication without complete documentation is reinforcing the old behavior. *Filling requests, incomplete documentation* (HE6), reinforces the old behavior and is added to the model. (Figure 7)

Most new requests for medications occurred at night after the pharmacy was closed. As a part of another outside survey conducted by the Joint Commission on the Accreditation of Healthcare Organization, the number of entries by non-pharmacy personnel into the pharmacy is tracked. This is to reduce the chances for theft of addictive medications. For “efficiency” and not to be cited for too many entries into the pharmacy by nursing personnel after hours, an extra supply of sedative hypnotics had been made available on each floor so the pharmacy did not have to be entered. *Extra supply on floor* (UEn) is added to the model and this creates the

ability, which further facilitates, *Filling requests incomplete documentation* (HE6).

All this is happening in an environment where staff are being asked to do more for cost saving initiatives. The stress levels in health care organizations are rising. Changing habits required more work and adds to stress. When we look at expanded graphics, we see a contradiction between the harmful effect of *Undesired old habits* (HE2) hindering incorporation of a *New habit* (PUE) and the useful effects from the staff's and the organization's perspective of promoting *Comfort and efficiency* (UE10). *World shows up in old ways* (HE3) reinforces *Undesired old habits* (HE2). HF(2), HF(3) and HF(4) result from our embodied perceptual inertia. With this map, we can see why past educational efforts at communicating new targets did not in and of themselves reduce or eliminate harmful effects within the system and the organization remained open to the possibility of \$10,000 fines. Education merely communicates an awareness of the *New model/target* (UE3).

POSSIBLE SOLUTION

A typical way within the culture of hospitals to address this type of a problem is to add disincentives, *Consequences* (UE7), such as having supervisors, after-the-fact, based on retrospective chart review data, remind or counsel the staff on what behavior is warranted or add incentives, for example praise for the appropriate behaviors. Although this strategy might improve the function of the system, particularly if coupled to particularly adverse consequence, it adds a new set of actions, consumes more resources and makes the system that much more complicated. In addition, if the supervisor fails to perform the function, then the next step in this strategy is for the supervisor's supervisor to be brought into the system opening the possibility of an

infinite regress. This approach both complicates the system and has potential for further compromising the effectiveness of the hospital organization as a whole as it draws resources away from other areas.

TRIZ as a strategy looks at hindrances, inadequacies and contradictions as signposts for possible solutions. A series of generic questions as an algorithm identifies possible conceptual solutions to problems within the map. For example, one generic question is, "How can we eliminate, prevent or reduce (in that order) harmful actions using resources already in the environment?"

What are the harmful events in the system?

- PHE1, *new consequence*, which cause *Assess need for change* (UE4)(Primary Harmful Event)
- HE2, *Undesirable old habits*, which hinder PUE1, *New habit*
- HE6, *Filling requests with incomplete documentation*, which reinforces HE2, *Undesired old habits*
- HE3, *World shows up in old ways*, which reinforces HE2, *Undesired old habits*
- HE3, *World shows up in old ways*, in turn, reduces or eliminates the need to HE4, *Have to stop and reflect*
- HE5, *Perform more work*, which, in turn, can cause or reinforce HE2, *Undesired old habits*.

Filling requests with incomplete document (HE6) from *extra supply on floor* (UE_n) can be eliminated by removing the extra supply from the floor. This reduces the reinforcement of *filling requests with incomplete documentation* (HE6) but does not eliminate the problem.

In the present model a contradiction exists between *Undesired old habits* (HE2), *New habits* (PHE1) and *Comfortable and efficient* (UE10). Habits, by virtue of their nature,

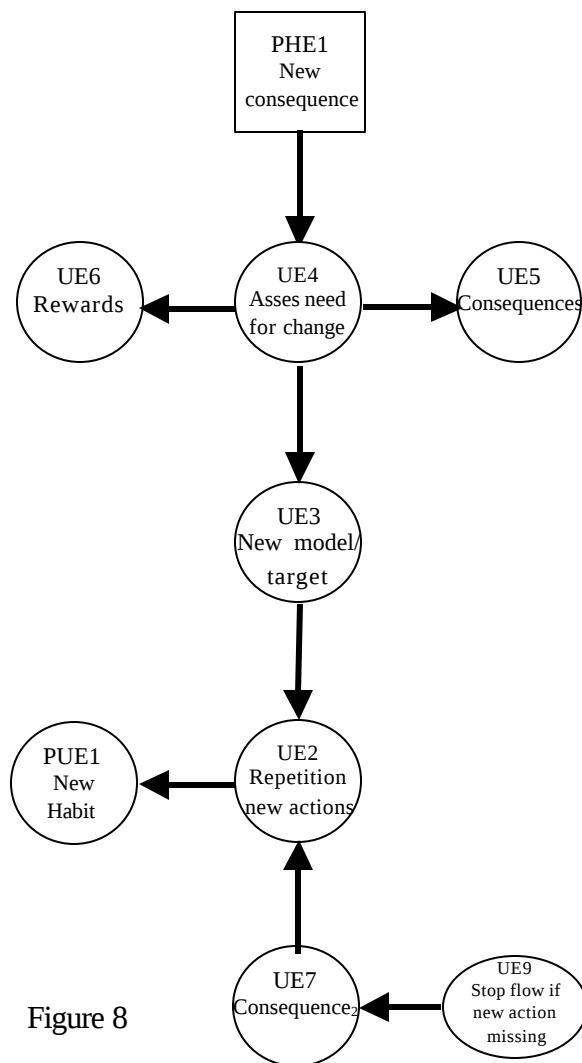


Figure 8

are performed rapidly and without more work from the perspective of staff, a part within a larger system of the hospital. This is a beneficial function in their hurried day-to-day activities. On the other hand, from the perspective of the organization, the habit was undesired and hindered incorporation of a new habit.

The solution the team in the example chose was *Stop flow if new action missing* (UE11) (Figure 8). Stopping the process without the appropriate documentation causes *Repetition of new actions* (UE2), encodes *New habit* (PUE1), eliminates *Undesired habits* (HE2) and eliminates filling requests with *Incomplete documentation* (HE6). It only

temporarily disrupts *Comfortable and efficient* (UE8) until a new habit is formed.

IMPLEMENTATION

The team assessed the point of greatest leverage to accomplish this was at the time the request was transcribed onto the chart. This particular step could be mapped out as follows: (Figure 9)

- The physician or nurse writing in the chart initiates a request.
- Clarification may or may not be required.
- The pharmacist performs the necessary actions to deliver, in this case, the sleeping medication to the floor, satisfying the request

The team defined a set of conditions that were judged appropriate for the use of the sedative hypnotics (and minor tranquilizers). A set of conditions for satisfactory documentation to justify their use was also defined. The two were linked by requiring written and complete documentation before the medication would be dispensed by the pharmacist. A tool, in the form of a one-page order form, was designed to facilitate the process. After review by the appropriate committees, the pharmacist was empowered to decline requests for sedative hypnotics and minor tranquilizers if both sets of conditions were not satisfactorily met. Empowering the pharmacist to decline the request and then requiring the pharmacist to immediately transmit this information back to the nurse resulted in the necessity of physician and nurse modifying the original request (Figure 9). The actions of the pharmacist stopped the process, provided immediate negative feedback within the process and generated a *Consequence* (UE7) to those making inadequate requests for more work

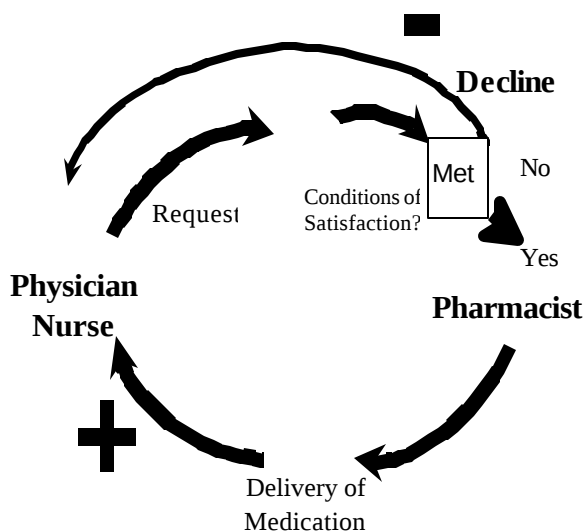


Figure 9

By shortening the timeframe for feedback and generating the feedback before the medication was actually delivered, the process was stopped if the new behavior was present thus eliminating PHE1 *New consequences*, here \$10,000 fines.

Within a matter of days old habits began to change and within a few weeks the number of incomplete orders that were being received by the pharmacy declined dramatically reducing the potential for regulatory infractions and the risk of fines to the organization. In addition, there was a marked decrease in the number of sedative hypnotics prescribed per thousand patient days per month (Figure 10). The reduction in use decreased costs and reduces the exposure of residents to potential side effects such as residual drowsiness, problems with balance and potentially falls. Consistency, i.e., reduction in variation reduced cost and improved care.

SUMMARY

Biologically, we are systems in constant action. Our biology is also inherently directional. We are inertial systems. We embody both a perceptual and a psychological inertia. The case example

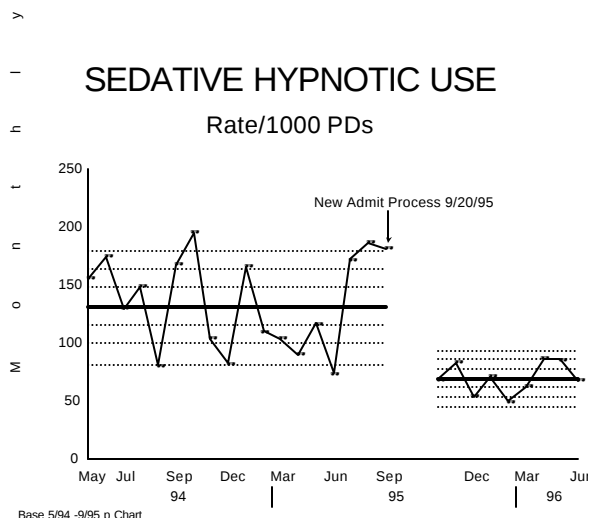


Figure 10

required overcoming the inertia of the “as is” system to eliminate a potentially harmful event. To do so, the process was stopped if the appropriate event did not occur. This is similar to Toyota’s stopping the line if defects were present.

The example is a relatively simple one but is presented to outline constitutive events to produce a “simple” change. Stopping the process disrupts the initial flow of the “as is” system, disrupts the inertia of the “as is” system, creates immediate feedback and a consequence, more work. To some readers the example may appear as having been made overly complex, to others overly simplistic. However, the team dealing with the problem initially viewed it as a relatively simple and straight forward problem but were unsuccessful in initiating change on their first go-around. This change involved little perceived direct risk by the staff. Change that involves risk to participants would need to account for not only perceptual but also psychological inertia with its associated moods and emotions.

Biographical Sketch

Ed Chaplin is a Diplomate of the American Board of Medical Managers and is currently

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