ABSTRACT
Most technology-adoption projects fail within the first year of their implementation. Millions of dollars are spent acquiring or developing technologies, yet they are never fully institutionalized within an organization. As a solutions provider, PharmaHealth Technologies™, a business unit of SAS Institute Inc. is very concerned about this problem and practices Technology Change Management (TCM) techniques to minimize the risks associated with implementing technology. TCM is the process of identifying, selecting, and evaluating new technologies and incorporating effective technologies into the organization. One of the major obstacles for successfully implementing technology is the implementers’ inability to identify and manage resistance to the changes that the new technology will almost inevitably bring.

The purpose of this paper is first to understand that resistance is a natural, human response to change and that resistance will happen. It provides a strategy for dealing with resistance, including tips for recognizing and identifying the resistance, understanding the underlying concerns and planning for the resistance.

UNDERSTANDING RESISTANCE
Webster’s Dictionary defines resistance as the act of:

- withstanding, striving against, or opposing
- withstanding the action or effect of
- acting or making efforts in opposition

Most definitions of resistance include the idea that resistance is a force or energy directed against something. Resistance is a natural behavior of human beings. The key to understanding resistance is to realize that it is a reaction to an emotional process.

Resistance does not always happen. However, when it does, we often consider the resisters to be unreasonable and stubborn. As a result, we tend to support the technology change with data and logical arguments and pronounce the change more loudly and forcibly. We try to overcome the resistance as if it were an enemy to be conquered. This approach does not work with the emotional energy of resistance. If we try to overcome resistance, we will only succeed in driving it underground, which may cause it to manifest itself at the most inopportune times and in the worst possible ways.

IDENTIFYING RESISTANCE
There is no quantitative way to identify resistance. However, here are some common behavioral characteristics that can help us recognize resistance among employees:

- REQUESTS FOR MORE DETAIL
  Ask for more and more information about the change and never seem to get enough. No matter how much information you give them, they need more data.

- TIME
  Say they would really like to get involved in the effort, but the timing is really bad. They are so busy that they barely have time to do their current work. This is most often resistance to having to tell you what they really think about the change.

- IMPRACTICABILITY
  Keep reminding you that they live in the “real world” and face “real world problems.” Although the change sounds good in theory, it’s impractical in the “real world” in which they work.

- ATTACK
  Attack with angry, loud words. They pound on their desks, point fingers in your face, and punctuate the end of every sentence with exclamations.

- CONFUSION
  Continually act confused no matter how much information you provide.

- SILENCE
  Display passive behavior. They do not react or respond, even if you push hard for a reaction. Silence often means the reaction is being blocked. For some people, the silent treatment is a fight style that says, “I am holding on so tightly to my position and my feelings that I won’t even give you words.” The silent resister is one of the most difficult resisters to deal with.

- INTELLECTUALIZING
  Discuss theory after theory about why current things are the way they are. Spending a lot of energy in theories is a way of taking the pain out of a situation.

- COMPLIANCE
  Totally agree with you and eagerly want to know what they can do next to help. Compliance is one of the more difficult resistance forms to identify. It is hard to determine whether it is resistance, or whether they are really on board with the change.

- METHODOLOGY
  Want to know every detail about the methodology used.
UNDERSTANDING UNDERLYING CONCERNS

Once we have identified resistance, it is important to understand where the resistance is coming from. Following are some common underlying concerns that may cause resistance:

LACK OF CONTROL
Many organizations reward the amount of control you have over the bottom line, staff, processes, and so on. Being in control is a good thing. Change can be a short-lived time of chaos in which you are not in complete control. Loss of control often causes anxiety.

VULNERABILITY
To be vulnerable is to be unprotected from danger, susceptible to attack, insufficiently defended. As with control, when change occurs, many areas of the organization are vulnerable. People’s roles and responsibilities are changing. Their comfortable state is being disrupted. This makes them feel unsafe.

LACK OF VISION
Organizational vision is a picture of the future. Vision plays a critical role in successful change efforts. People need to understand how the changes at hand are critical to the future state. A well-communicated vision provides the alignment of people with the business objectives.

When those sponsoring the change do not effectively communicate the vision, people will often resist. They do not understand how the change supports the business. The answer to one simple question—is this change in line with our strategy—can often eliminate unproductive time in torturous discussions.

CULTURAL CONFLICTS
Culture is a pattern of shared basic assumptions that a group has learned over time. These assumptions have worked well enough to be considered valid and are therefore taught to new members as the correct way to perceive, think, and feel. All the phenomena seen, heard, and felt in an organization are products of culture. They include physical environment, language used, technology and products, style (e.g., clothing, manner of address, myths, and stories), published values, and observable rituals and ceremonies. They are easy to observe, but hard to decipher.

Changes that conflict with the basic culture of an organization will almost always cause major resistance.

IDENTIFY AND DESCRIBE TARGET GROUPS
One of the first steps in the assessment is to identify and describe the target groups affected by the change effort. Those groups that will be impacted directly and with a high level of disruption will most likely demonstrate the most resistance to the change and will require the most attention. For each target group, determine the level of disruption (high, medium or low) and type of impact (indirect or direct).

DETERMINE PERCEPTION OF CHANGE
Different strategies are required for dealing with resistance, depending on how the target groups perceive the change.

Figure 1: Reaction to Change Viewed as Positive

When a change associated with new technology is introduced and the change is viewed as a positive one, there still may be periods of resistance (Figure 1). When the change is announced, there is Uninformed Certainty: a high confidence that the change is needed and will succeed. There are not many details yet about the change, but in theory, it sounds great. Once people understand more about the change and the potential impact, they move to Informed Doubt and may become pessimistic. This is the point at which resistance may surface. Hopefully the resistance is overt (out in the open). This is easier to identify and manage than when the resistance is covert (secret). For covert resistance, create as safe an environment as possible to allow people to surface issues. Those who have surfaced the resistance and have worked through the issues associated with the change may move on to Realistic Concern. They are beginning to accept the change but are still concerned about the impact. At some point, they reach Informed Certainty, in which they begin to prepare for the change and are excited about it.

PLANNING FOR RESISTANCE
In the early stages of any new technology-adoption project, a resistance assessment should be performed and a plan developed to deal with the resistance.

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Most resistance will occur when the change is viewed as a negative one (Figure 2). The initial reaction is stunned paralysis: "Oh my goodness!" This passes almost immediately. Then denial kicks in: "No. This can’t be happening." Anger follows with: "I can’t believe they’re doing this to us. #$@%!" Once people calm down, they begin to bargain: "Come on. Isn’t there something we can do to keep this from happening? Just name your price." Then they become afraid: "They’re going to ruin everything." Depression sets in: "Oh. I’ll never make it through this." Then over time, if the resistance is managed, they began exploration: "Maybe it won’t be too bad. At least I should take a look at it." And finally comes acceptance: "You know, it’s not so bad. Actually it’s kind of nice."

**ASSESS CULTURAL IMPLICATIONS**
Assess the cultural impact of the change on each target group. When considering the culture of an organization, it is best to try to avoid direct confrontation with the culture, which is the major source of its value system. If you do directly confront the culture, in almost every case, failure will occur.

**ASSESS TECHNOLOGY ADOPTION TENDENCIES**
Determine where the target groups fit within the Technology Adoption Lifecycle (Figure 3).

The Technology Adoption Lifecycle is a model for understanding the acceptance of new technologies. The model is a bell-shaped curve divided into five categories of groups that are distinguished from each other by their response to new technologies.

The Innovators aggressively pursue new technologies and changes associated with the technologies. They are often testing new tools before they are in production. Curiosity and love for technology drive them.

The Early Adopters buy into new changes very early in the lifecycle, but they are usually not technologists. They are the visionaries that can picture how the technology will benefit the organization.

The Early Majority share some of the early adopters’ ability to relate to the technology but are much more pragmatic. They can appreciate the technology but are constantly saying, "Sounds good, but how will it help me do my job?"

The Late Majority share the same concerns as the early majority but have one additional characteristic. Whereas the early majority are fairly comfortable with technology once they realize what it will do for them, the late majority are not. These people tend to wait to adopt new technology until the old technology is no longer available or they are forced to change.

Laggards simply do not and will not adopt the technology.

**DEVELOP STRATEGIES**
Once the target groups are identified and the resistance assessed develop strategies for dealing with each of the target groups. Following are some common strategies:
- Communicate, communicate, and communicate, preferably in as many face-to-face situations as possible.
- Provide multiple mechanisms for surfacing resistance. Examples include a suggestion box and group meetings asking for feedback.
- Involve the people who are affected to gain their buy-in and confidence.
- Gain and maintain active sponsorship from management.
DEALING WITH RESISTANCE
Resistance is an emotional response based on feelings. You cannot talk people out of their emotions. In fact, their emotions become fiercer when they sense that their feelings are being challenged. The most common response to resistance is to continue to defend your position, thus increasing the resistance to it. An alternative and more effective approach is to ask about the concerns regarding the change. Get the resisters to talk about why they feel as they do. As feelings are expressed directly, they can often pass or change. Once the dialog has begun, there are some basic principles that those responsible for the change can use to help people express resistance directly. Listen carefully. Do not monopolize the conversation. Be empathetic and patient and provide support. Try not to take the resistance personally.

CONCLUSION
“Resistance is something we do when we do not feel safe” (Klauser). It is an emotional response that is a natural reaction to change associated with technology adoption. Realizing that resistance will occur, it is critical for those responsible for the implementation of new technology to practice Technology Change Management techniques to manage the resistance, so that the energy that is inherent in resistance can be used to support, rather than cripple, the technology adoption.

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