This material is based upon work supported by the National Science Foundation under Grant No. DDM-9320951. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation.

Loose Change Adds Up To Big Money

Rick Dove, Sr. Fellow, Agility Forum, dove@well.com, Paradigm Shift International, 505-586-1536

Big money is being spent today on loosely managed change activities. Downsizing and reengineering are two of the more visible and unpleasant examples. Unpleasant because they are painful, cost too much, take too long, and the results are often disappointing. Though there is a lot of both going on, there is very little proficiency at either being shown.

This lack of proficiency is equally true in many more types of current change activities; all adding up to real big money. We will look at a few examples to develop a working model of change and its currency. In the process, we want to show that Agility has significant advantages today, and is not a paradigm restricted to the custom configured products of tomorrow. We will also introduce a classification for types of change that will help us benchmark proficient practices later.

The current wave of downsizing is a technical adjustment that recognizes a decade or two of productivity gains; but that doesn't mean it won't happen again. On the contrary, fluctuations in a company's workforce capacity, both up and down, will be more frequent under Lean operating strategies as demand for any one product fluctuates. And demand fluctuation is on the increase -- old market drivers of seasonality and economic cycle are joined with new market-share drivers of technological obsolescence and customer opportunism.

"The principles of Agile systems enable and facilitate continuous improvement rather than simply mandating it."

Meeting production demand variation is another major issue today, whether we are talking about short term surge capacity or the ability to track longer term market demand changes. In the auto industry, for example, a high fixed break-even point for a car plant is an example of a downside barrier to capacity change, and the inability of one plant to make another plant's product is an upside barrier.

Business reengineering is another high profile change activity with poor general proficiency. Recent studies indicate that about 20% of these activities achieve desired ends, even though billions of dollars are involved on a national scale. Generally a company that is unsuccessful with a reengineering project will try again, and again, until it gets it right. Studies explain that this is part of the learning process; but the principle lesson seems to be that you can't stop until you're done, whereas a better lesson is the knowledge that you are never done. Unfortunately, companies feel successful when they have migrated from an old mode of operation to a new entrenched position.

Organizational learning is another vital but elusive capability today. It is the mechanism that develops new core competency. The knowledge base that is the substance of core competency is vulnerable to both personnel loss and rapid obsolescence. Captured and constantly renewed, an effective knowledge base will steadily migrate the organization's core competencies in synch with changing technologies.

Production changeover is a current issue in most industries. Major auto companies are moving from an 8-12 week plant shut-down for retooling to a targeted 1-3 week cycle over the next few years, driven by competitors who are already there. Semiconductor manufacturers with a higher frequency of new model introductions are trying to squeeze small prototype runs through their production facilities with minimal disruption to the revenue stream. Defense manufacturers often win or lose contracts on the basis of changeover costs and times. In its best form, changeover is a reconfiguration issue; taking existing resources and configuring them differently for a different purpose.

We can look at technology diffusion within an organization as another reconfiguration issue. Examples of proven process and product advantages that never get leveraged company-wide abound -- too much hand-wringing and discussion but little else.

Virtually all companies talk about training and continuous learning -- some are even doing a little. The value of serious skill training is even evident in white collar ranks, where office automation, decision support, and

AGILITY	CURRENT CHALLENGES
The Ability of an Organization to Adapt Proficiently (Thrive) in a Continuously Changing, Unpredictable Business Environment.	Product Realization Contract Agreement Staff Up/Downsizing Technology Diffusion Expedited Production Skill and Tool Training Demand/Surge Tracking Organizational Learning Production Changeover Computer Virus Cleanup Small-Lot Manufacturing Business Reengineering New Process Installation Continuous Improvement Software System Upgrade Process/Equipment Failure

This material is based upon work supported by the National Science Foundation under Grant No. DDM-9320951. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation.

engineering tools offer new productivity advantages each year. Most companies are doing better at training than they were before they started talking about it, but few will claim proficiency. Serious difficulties are arising in production equipment maintenance where technologies change faster than service knowledge. Though some training is simply improvement of existing skills, most adds new capability.

Adding a new capability in production is another key current issue, and generally involves the installation and commissioning of a new piece of production equipment, as well as the integration of that equipment into a larger production system. And all of it done while an impatient market waits. With increasing complexity from technology and integration effects, seamless equipment insertion is becoming more difficult and more necessary at the same time.

At this point we have discussed eight major Agility issues that manufacturers wrestle with today. They are issues precisely because there is big money involved and competitive positioning at stake. They are Agile issues because they are change-based. In this discussion these eight examples have been used to emphasize four inherently different types of change: Expansion/Contraction (Capacity), Addition/Subtraction (Capability), Reconfiguration, and Migration. There are an additional four types of change that we find useful to distinguish, which we call: Creation, Variation, Augmentation (Improvement), and Correction.

Creating a contract that defines and fosters a functioning business relationship is a hot issue today. Contract procedures and negotiations that outlive opportunity windows, inhibit opportunity consideration, or consume resources without value have been recognized as pernicious for some time now.

The process of creating a product is receiving the lion's share of attention in most industries today. Concurrent engineering has given way to "product realization", which encompasses the entire concept-to-cash process. This area gains in importance as the competitive focus moves from cost to innovation.

High variety, small-lot manufacturing and mass customization are issues popularly associated with Agility. Both are examples of real-time change-proficiency during the performance of production operations. Expedited production orders are another example of change during the performance of the production operation. Though all are major issues in defense industries where small quantity and job-shop practices prevail, mass producers are valuing the advantages of proficiency in the performance-time change area as well.

Continuous improvement seems at first blush to belong to other paradigms than Agility; but the principles of Agile systems enable and facilitate continuous improvement rather than simply mandating it. Software is taking an increasing role in the operation of our factories and the infrastructure of the company - yet making a simple upgrade or improvement is postponed as long as possible -- unpredictable disruption to service is all too inevitable.

Increasing process and equipment complexity along with increasing productivity has put a spotlight on the issue of process and equipment failure recovery. Perhaps a more crippling recovery issue, however, is the nightmare of computer virus.

The sixteen current challenges we chose to exemplify our eight change types are not meant to be comprehensive -- but look at the list in the figure and guess how much money and time in your company is devoted to the issues shown. Ask yourself how much of your company's competitive position is defined in that list. And ask how proficient your company is at each of these challenges. Agility is today's priority.

This column has built a foundation in four monthly installments that will now let us explore the construction of change-proficiency. We will talk next about utilizing **reusable** resources in a **reconfigurable**, **scaleable** framework to achieve Agility.

EXAMPLE	TYPE OF CHANGE
Product Realization Contract Agreement	Creation/Deletion: Make (or eliminate) something.
Continuous Improvement Software System Upgrade	Augmentation (Improvement): Minor incremental change.
Organizational Learning Business Reengineering	Migration: Major fundamental change.
Skill and Tool Training New Process Installation	Addition/Subtraction: Add/subtract unique capability.
Computer Virus Cleanup Process/Equipment Failure	Correction: Rectify dysfunctional resource.
Expedited Production Small-Lot Manufacturing	Variation: Real-time operating change.
Staff Up/Downsizing Demand/Surge Tracking	Expansion/Contraction: Increase/decrease existing capacity.
Technology Diffusion Production Changeover	Reconfiguration: Change resource relationships.

FRAMEWORK FOR ANALYZING CHANGE PROFICIENCY