Adaptive Leadership

Accelerating Enterprise Agility

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Enterprise Agility

The agile movement has made enormous strides in the last decade, greatly improving software delivery and creating more satisfactory work environments in many organizations. The next horizon is extending agility from basic software delivery to continuous delivery and into the business itself, utilizing the advances in delivering software features early and often into a transformation of businesses to deliver complete solutions early and often. The drivers for this, as we will see, come from a growing focus of CEOs on trying to survive and thrive in a world of growing complexity, complication and fast moving competition.

However, achieving enterprise agility requires a different style of management—an adaptive leadership style. This paper is therefore divided into three main topics—describing the need for enterprise agility; identifying what adaptive leaders need to be doing (actions); and identifying what being (mindset)an adaptive leader means.

CEOs & CIOs focus on Agility

Enterprise agility may be at a tipping point; much like Agile delivery was in 2001. In 2010 IBM interviewed over 1,500 CEOs and published an in-depth study of their findings. "Capitalizing on Complexity" focused on what CEOs saw as the marketplace challenges and the key strategies for surviving and thriving in that marketplace.

"Our interviews revealed that CEOs are now confronted with a "complexity gap" that poses a bigger challenge than any factor we've measured in eight years of CEO research. Eight in ten CEOs expect their environment to grow significantly more complex, and fewer than half believe they know how to deal with it successfully." (IBM, 2010)

The CEOs cited three key factors to succeeding in this turbulent environment:
• Embody creative leadership
• Build operating dexterity
• Reinvent customer relationships

Creative leadership includes embracing ambiguity, taking risks that disrupt the status quo, instituting new management styles, and faster decision making. Building operating dexterity includes simplifying whenever possible, managing systemic complexity (standardization in some cases), and promoting a fast and flexible mindset. Reinventing customer relationships includes honoring customers, using two-way communications (increasing the use of business social networking), and profiting from the information explosion (taking advantage of new data analytics).

"To create a profile of dexterous organizations, we grouped those CEOs who recognized the value of fast decisions, an iterative approach to strategy and the ability to execute with speed." (IBM, 2010)

One of the key questions looking at these factors is "how do we train people to do these things?" In Connecting the Dots, Harvard Business School professor Warren McFarlan and consultant Cathleen Benko (McFarlan & Benko, 2003), use three criteria for prioritizing projects: short-term objectives, long-term objectives, and trait objectives. The last of these, trait objectives, is not about capabilities but mind-set or mental models. They speak to the future and the personal and managerial mental models that will power organizations into the future. Agile projects and adaptive leadership are more about altering mental models than practices and processes. Agility is a trait objective that will help organizations respond to business complexity and complication. Agile delivery projects and their impact on the wider organization can fuel the mental model changes required to build entirely dexterous organizations.

Business Agility Needed in Turbulent Times

Agility is a business imperative, not just a technological one. Agile software development has had great success over the past 10 years and Agile project management has made inroads into the project management community, but there is a long way to go. Many companies relegate Agile methods to just another in a long line of software engineering techniques while in others the transition to Agile stalls after a few projects, even though those projects are successful. Too few Agile transitions make an impact outside of software delivery groups.

What is missing? The Agile movement has the potential to be absolutely strategic to businesses, particularly those whose overall strategy focuses on responsiveness over efficiency. We are selling ourselves short! We have the potential to energize new business models, engage middle and upper management in becoming Agile, and change the way product and project managers connect Agile concepts and practices with upper management.

"How in the age of rapid change do you create organizations that are as adaptable and resilient as they are focused and efficient?" (Hamel, 2009)

Two factors that create turbulence in business environments are: complication and complexity. Something that is complicated has many parts and is hard to understand. Something that is complex is unpredictable (or at least less predictable). A Boeing 767 is complicated (many parts) but not complex. However, the process of designing a 767 would be both—complex and complicated—since there are many uncertainties that arise during the design process. Furthermore, complexity can be further defined by volatility (speed, magnitude) and ambiguity (the haziness of reality), as well as uncertainty (lack of predictability). Donald Sull (The Upside of Turbulence) points out that turbulence has an upside—opportunities for those who can weather the dynamism and complexity, "Companies don't pass through life cycles, opportunities do (Sull, 2009)."

Responsiveness and Efficiency
The previously cited IBM CEO study focused on the strategic issues of complexity and complication. Whether the name used to tackle these problems is agility, adaptability, dexterity or responsiveness, the capability is critical to success. For the purposes of this paper I'll use the term responsiveness and call the opposite strategy efficiency. While companies will strive to do both, one must be the driver, the objective, and the other a constraint. Constraints help guide, but they are different from objectives and the two shouldn't be confused. Responsiveness is a business strategy. Agility and adaptability achieve that strategy.

Take two companies for example—Google and Wal-Mart—both very successful, but each coming from a different perspective. Google focuses on responsiveness, creating new products at a prodigious rate. Does Google's management have an interest in efficiency—of course—but the goal is responsiveness and efficiency is a constraint. Wal-Mart is the opposite. Obviously Google's strength and competitive edge comes from responsiveness—being able to create new service offerings quickly, to deploy new features early and often, and to take advantage of new opportunities quickly. Does Google worry about efficiencies and cost? Of course, but as constraints that are kept within reason, not as an objective. On the other hand, Wal-Mart's strategy focuses on efficiency and driving costs down in every way possible. Does Wal-Mart need responsiveness in some of its operations? Of course, but they don't confuse which is the objective and which is the constraint.

Not all businesses need the same degree of responsiveness, but improving response can often pay big dividends. A large retail company recently was able to add a major new brand to their offerings in a matter of a few months—impressive, but not extraordinary, for a new online presence. However, the next step was extraordinary; the IT organization—the bits and

bytes people not the bricks and mortar ones—built the first actual store. And, they accomplished that many months sooner than estimated by the bricks and mortar department! The IT group's agility mindset and practices extended beyond software development, they prototyped, they took shortcuts (not hooking up to all corporate systems for example), they improvised—but they got the store up and running fast and allowed the company to confirm a decision to build additional stores.

Agility Generates 30% Higher Profits

"An overwhelming majority of executives (88%) cite organisational agility as key to global success. Other studies support this idea as well: research conducted at MIT suggests that agile firms grow revenue 37% faster and generate 30% higher profits than non-agile.

Yet most companies admit they are not flexible enough to compete successfully.

Internal barriers stall agile change efforts.

The main obstacles to improved business responsiveness are slow decision-making, conflicting departmental goals and priorities, risk-averse cultures and silo-based information.

Technology can play an important supporting role in enabling organisations to become more agile companies."

Report by The Economist magazine

Continuous Design and delivery & strategic impact
Continuous delivery, (Humble & Farley, 2011), is one of the exciting new trends in software development. The purpose of the practices and principles of continuous delivery is to encourage "greater collaboration between everyone involved in software delivery in order to release valuable software faster and more reliably (Humble & Farley, 2011)." Continuous delivery is an extension of the Agile practices that deliver value to customers early and often. As shown in Figure1, continuous design and delivery combine: a front-end of customer experience and technical design in an iterative process; continuous integration (characterized by comprehensive automated testing); and continuous delivery (the ability to deploy new releases to production frequently). This enterprise value creation model extends over the entire application development lifecycle— from inception to deployment, with high levels of automation throughout.
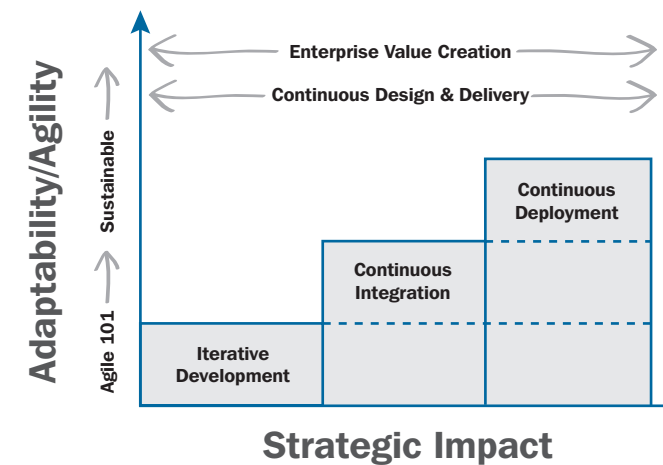

Figure 1: The Strategic Impact of Continuous Design & Delivery

Jez Humble (via email) reiterates that there are three strands to continuous delivery: one concerned with automation of build, test, deployment, database migrations, and infrastructure; one concerned with practices, such as continuous integration, good configuration management, and testing; and a third concerned with people, having everyone involved work together throughout the software delivery lifecycle. While these appear to be technical issues, continuous delivery involves critical organizational collaboration (development and operations, for example) and business process changes.

Flickr was last deployed 26 minutes ago, including 8 changes by 3 people. In the last week there were 47 deploys of 364 changes by 19 people. From the Flickr web site (code.flickr.com), 2/22/11 @ 10:30 AM

Flickr releases new changes to their web site multiple times per day. How would the capability to release new features—monthly, weekly, daily, hourly—impact your business? If your business is SaaS (software as a service), the impact could be strategic, but every business can benefit from fast and flexible releases in some ways. The real questions revolve around business process changes and management's ability to find innovative ways to take advantage of continuous delivery.

There are two associated issues in gaining business value from continuous design and delivery—strategic impact and agility. First, as a company progresses further to the right on the horizontal axis of Figure1, additional investment and organizational collaboration are required. Therefore, from a business value perspective, companies need to assess the

strategic impact of the progression. While continuous delivery can reduce cost and risk also (through more automation), the most significant benefits arise from frequent release of new software functionality. The key question then becomes, "How can we benefit from releasing new functionality monthly, weekly, or even daily?" Furthermore, "How will our organization and business processes need to change?"

In large organizations, IT applications support a variety of business areas. For some applications the benefits of continuous delivery may be revenue enhancing, while in others it may be cost and risk reduction. In thinking about implementing continuous delivery across an application portfolio, companies should begin with those that have the biggest strategic impact, those with revenue enhancing prospects.

The second issue in gaining the benefits of continuous delivery is the organization's Agile or adaptive maturity. Many organizations seem to be stuck at Agile 101, the rule-based approach to Agile (do this, don't do that) that is a necessary first step towards becoming Agile, but it's only a first step. To take advantage of the fast-paced responsiveness of a continuous delivery environment, the entire organization—from delivery teams to executive management—needs to embrace the process changes required to respond rapidly, collaborate effectively between development and operations, and embrace an adaptive, exploratory mindset.

Continuous delivery has the potential to change the competitive landscape, but only for those companies bold enough to take enterprise agility seriously. It may be the next big step in delivering strategic business value to clients quickly, with lower risk and possibly lower cost. However, it won't happen unless managers understand its potential strategic impact and the enterprise agility and adaptive leadership necessary to implement it.

Levels of Agility: Strategic, Portfolio, Operational

One reason organizations have difficulty implementing Agile and lean methods is that they fail to tie the reasons for implementation to business strategy. "Agility is the ability to both create and respond to change in order to profit in a turbulent business environment (Highsmith J. , 2009)." The degree of agility required by the business then indicates what level of Agile transformation may be viable.
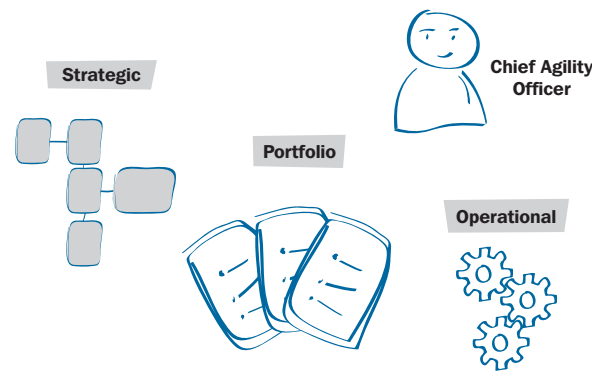

Figure 2: Levels of Agility

Figure 2 shows three levels of agility that organizations may strive to achieve—operational, portfolio, and strategic. Organizations need to be very clear about what level they aspire to and whether that level corresponds both to their business strategy and the benefits they want to achieve.

The operational level focuses on improving the delivery of software projects. Regardless of the long-term goals, every effective agile transition begins at this level. IT projects are enhanced, but no wider organizational change takes place. If there isn't a driving business need for responsiveness, then operational agility may be all that is reasonably achievable. There will, therefore, always be tension between delivery staffs who are Agile and upper level project and line managers who operate as they did before.

The strategic level focuses on achieving responsiveness throughout the organization: within IT, in other functional areas, and spreading up into management and leadership positions. There are a number of software companies and a few others who have achieved this strategic level of agility.

The portfolio level is in between the strategic and operational levels. At this level Agile practices have moved up somewhat in the IT or software development organizations, but have not been fully embraced at the top and haven't spread outside IT. Projects that have certain characteristics are slated for

Agile development, but traditional development projects still exist within the company. The portfolio level actually holds tremendous opportunity—to focus on high-value projects, to radically reduce the scope of projects, to reduce work-in-process bottlenecks, and to reduce the amount of time spent doing project analysis and estimates. Agile portfolio management is the bridge between enterprise agility and successful execution of Agile projects.

While organizations can move from operational to strategic agility over time, there isn't a right level—only a level that matches an organization's responsiveness strategy and business goals.

The Challenge of Adaptive leadership

Leaders often forget or don't understand the difficulty staff has in transitioning to an Agile delivery model. Programmers have to change the way they do testing (a technical change) and how they interact more collaboratively with others (a social change). Product managers have to change their interactions with delivery teams—increasing their availability, managing backlogs and engaging with the delivery team. These are often challenging changes.
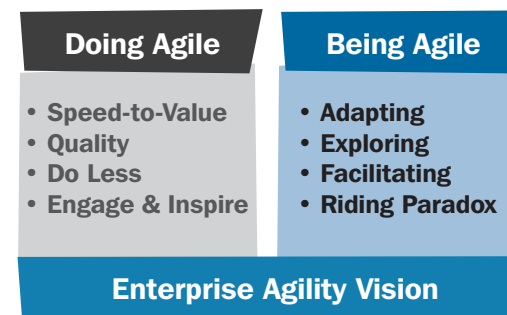

Figure 3: Core Adaptive Leadership Model

Adaptive leadership is the work of energizing, empowering and enabling teams to rapidly and reliably deliver business value by engaging customers and continuously learning and adapting to a continually changing environment.

What many agilists, or their executives and managers, haven't realized is that the changes that leaders face are just as wrenching. Leaders face the same two challenges as delivery teams: doing different things, and behaving differently—changing their mental models about how best to improve performance. For example, just a few of the things adaptive leaders need to do include:

- Create an Agile performance management system
- Align agile transformation efforts to business strategy
- Determine operational, portfolio, and strategic agility aims
- Facilitate a decentralized, empowered, collaborative workplace
- Foster adaptable IT, product line, and product architectures
- Create an Agile proficiency evaluation framework.

This list could be greatly expanded upon as could one that listed adaptive mindset characteristics. However, this paper concentrates on the critical aspects of being Agile and doing Agile that managers and executives need to focus on first, the most critical aspects of being adaptive leaders. These are outlined in Figure 3. It bears re-emphasizing that this model is a starting place, a core on which to expand. Just as asking programmers to collaborate for the first time may be difficult for them; the tasks in this model may be difficult for leaders. "Doing less," for example, isn't usually in a manager's lexicon—they want to do more and more. But figuring out the primary focus and eliminating marginal and low-value work can bring substantial benefits. If these things were easy, they probably would not be worth doing.

Growing adaptive organizations requires managers and executives who can lead, who can take risks, who can seize opportunities, and who ultimately are courageous.

Adaptive Leader Actions

While the activities of an adaptive leader seem endless, there are four critical actions that should be embraced: improving speed-to-value, having a passion for quality, doing less, engaging and inspiring staff.

Speed-to-Value

For our purposes, speed and value both merit further explanation. However, the first order of business is to examine our long-held beliefs about what constitutes performance in both business and projects. If our business objectives are to be responsive and agile then we should start with a look at how we measure success.

The Agile Triangle

If enterprises are to focus on value, then traditional performance measures have to change. For managers who have risen in their careers focusing on time and cost the switch to a value orientation can be difficult.

Agile teams face a similar paradox of being asked by management or customers to be "adaptive, flexible, or agile," while at the same time being asked to "conform to plan," where the "plan" is a traditional Iron Triangle plan based on scope, schedule, and cost. We ask teams to be expansive, to work closely with customers and respond to them, to seek value—but then we penalize them for being 10% over budget.
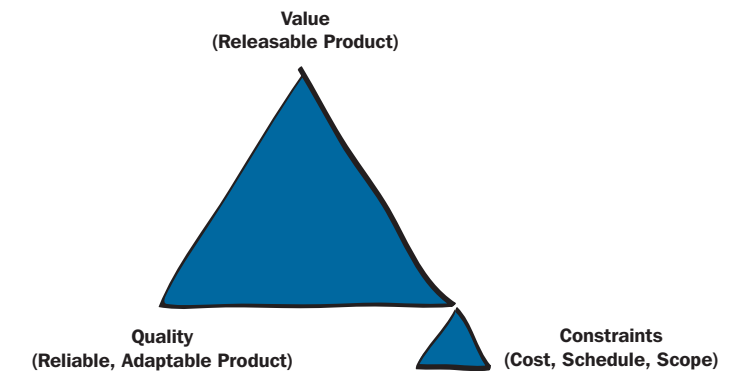

Figure 4: The Agile Triangle

The Agile Triangle, shown in the Figure 4 and introduced in Agile Project Management (Highsmith J. , 2009), addresses the real goals of projects—producing value that delights customers, building in quality that speeds the development process and creates a viable platform for future enhancements, and delivering within constraints (which are scope, schedule, and cost). The Agile Triangle alters how we view success.

Value

First, let's look at value. A number of studies (see the "Do Less" section) have shown that 50% or more of functionality delivered is rarely or never used. Even if some of that functionality is necessary, for example the functionality for year-end accounting close, there is still a huge percentage of unused functionality in most software systems. This leads to the conclusion that scope is a very poor project control mechanism—we should be using value. Furthermore, rather than asking, "Did we implement all the requirements?" the question should be "Can we release this product now?" I've known projects that were deemed releasable with 20-30% of the originally anticipated functionality—and the customers were delighted. They got their fundamental needs met—very fast!

The Agile Triangle also elevates the critical role of quality. If we are serious about quality then it deserves a primary place in any measurement program. Quality comes in two flavors—today and tomorrow. "Today" quality addresses the current iteration or release of a product. It measures the reliability of the product— "Does it operate correctly (both functional and operational requirements)?" If a product operates reliably, it delivers value to the customer in the form of implemented features. Products that are un-reliable, ones that give incorrect answers or periodically fail completely will fail to deliver current value.

The second dimension is "tomorrow" quality—"Can the product continue to deliver value in the future?" The ability to deliver in the future tests an application's ability to respond to business changes, both anticipated and unanticipated. While we can often use flexible designs for anticipated changes, allowing for tax table changes for example, the strategy to deal with unanticipated changes is different. Responding to the unanticipated future requires adaptability, and the key to adaptability is keeping technical debt low.

The final piece of the Agile Triangle is the set of constraints—scope, schedule, and cost. These are important, but they are not the goals of a project. Constraints are critical to the delivery process; they establish clear boundaries within which the team must operate. However, only one of the three can be paramount, and on agile projects this is normally schedule.

The Agile Triangle gives us a different way of looking at success, a way that resolves the paradox of adaptability versus conformance to plan. Some may argue the difficulties in measuring value, however, it seems to me that it's better to have fuzzy numbers for things that are important rather than precise numbers for things that aren't.

Speed
Both speed and value are important. Delivering value early and often (every iteration or set of iterations) can improve ROI substantially over delivering value at the end of a 12-18 month serial project. But speed needs to incorporate not just engineering, creating features that are ready for deployment, but business organizations that actually deploy and use the features. Speed might measure the time between order input and order fulfillment, or the time between release of a feature into development and its deployment. One is a measure of business results speed and the latter of software features that support that business process.

Speed measurements in Kanban projects—time from release off a backlog into development until feature complete (tested, accepted)—are being used in service level agreements. Because of the strict work-in-process limits, agreements such as "we agree to deliver new features within 21 days with a 95% confidence limit" can be made. These SLAs work best for continuous delivery maintenance and enhancement projects.

Speed is also about perception, and the elapsed time of a project can be more about perception than reality. When some people declare—"The project is late,"—they actually mean the project is taking too long, irrespective of the planned schedule. The potential negative perspective grows as projects lengthen. For example, even though a project is planned for 2 years and is on schedule, the perception is often negative just because of the overall length of time (however, 2 year plans

are almost never accurate). On the other hand, a project that delivers results in 3-6 months will usually be well perceived. To some extent regardless of plans, results in a short period are considered successful while longer periods are considered not successful. Reducing project timeframes can, by itself, improve the perception of success—greater speed.

Adaptive leaders need to first determine which business processes need to be speeded up and then which IT processes and projects are needed to support them.

Quality
The more I visit companies and see mangled Agile implementations, the more I'm convinced that quality, or lack thereof, remains the central issue to effective agility. Organizations begin Agile implementations with higher quality as the goal, but then too frequently don't carry through with the discipline to achieve the goals they have established. There are goals and desires, but not enough engagement and commitment. Admittedly, a critical problem is often the relentless pressure on delivery, but managers must step up and begin to transition from the vicious cycle, depicted in Figure 5, of "incur technical debt, slow delivery, increase pressure, fail to repay debt, incur more technical debt" to a virtuous cycle of "build high quality, speed delivery, decrease pressure, and repay debt."

Figure 5: Technical Debt's Vicious Cycle

Some may ask if management really has an impact on quality. After all, the perception is that quality is up to developers and testers. This next story shows that management can have a dramatic impact. A large project team that was regularly measuring code toxicity (a combination of several measures) noticed a spike in that toxicity. Tracing back to the time the increased toxicity started, they determined that the cause was

a change in managers. When managers talk about quality being a priority, but then fail to allocate money to acquire adequate testing expertise and tools, or fail to emphasize quality with their teams, or fail to allocate time to creating and maintaining test suites, their real commitment to quality begins to show.

When you are caught in the bowels of a vicious cycle, turning it around is a management issue. Of course, the technical teams must embrace the requisite practices and discipline, but without managers and executives who are engaged in seeing that quality is critical to the turnaround, teams will have a very difficult time delivering quality products. The strategy needs to move from more features, more features to fewer features, higher quality, then more features.

But what does engagement in quality mean? Probably the most difficult task is for managers to really commit to the short-term pain required to deliver long-term gain. The gain may take only months to achieve, but there is always the pain of short-term performance loss (and the investment) while people learn new practices. Unfortunately, this pain leads to lack of full commitment, where managers fail to push their teams to full Agile implementation—they get the pain, without the gain. This lack of commitment comes from lack of real understanding of how quality impacts speed, lack of understanding of how technical practices fit together (e.g. refactoring, test first and simple design), and lack of understanding appropriate investment tradeoffs.

For example, under pressure many managers succumb to feature delivery over quality because they think quality shortcuts are detrimental long term, while feature delivery is short term (short term gain for long term pain). However, what we now know from effective Agile teams is that inattention to quality begins to degrade delivery velocity in only a few iterations. The road to fast, productive software development goes through quality—which has been proven again and again by metrics gurus like Capers Jones (Jones, 2008) and Michael Mah (http://www.qsma.com/about_background.html)—but which is still not embraced by many.

Managers are often caught in a perceived dilemma between perfection and "nice to have." On one side they are often skeptical of what they perceive as the technical team's desire for perfection. They can't discern the difference between perfection and excellence, so they fail to support adequate quality measures. They know whether or not a feature gets delivered to the customer, but they don't really know its quality. They also need to understand the difference between the two aspects of quality—reliability and adaptability—and how to achieve both.

Quality software requires engagement and execution. Execution is the realm of the technical team. Engagement is the management side. Managers must do more than say "quality is job 1" every two months. They must understand the right quality framework; they must understand consequences to customers of poor software; they must find the appropriate balance between features and adaptability; they must recognize the impact of technical debt; they must invest in training, tools, and time; and they must have the commitment and discipline to deliver quality products in the face of feature pressure.

Do less
Many managers use the mantra, "Do more with less." At the Agile 2010 conference, Pat Reed, Sr. Director from the GAP, shortened this mantra to "Do Less." Her theme of value optimization, and eliminating marginal value work, included: creating a culture of value, determining value calculations at the portfolio level, allocating value to software features, and determining the highest value chunks of functionality to implement next—whether those chunks were projects in a portfolio or stories in an iteration planning session. By developing in an Agile fashion and deploying features frequently (continuously) value can be recognized by the business early and often.

"Everyone tries to do too much: solve too many problems, build products with too many features. We say 'no' to almost everything. If you include every decent idea that comes along, you'll just wind up with a half-assed version of your product. What you want to do is build half a product that kicks ass."
Quotes from the founders of 37signals in (Taylor, 2011).

In an Agile project the team always tries to work on the highest-valued story. But what about when the highest-valued story is from the next project in the development queue? Towards the end of a project, or even earlier, the highest-valued story or feature may be on the next project, which means it may be time to stop the current project, and move on. The Agile Triangle emphasized the idea of a "releasable product," when the product delights the customer but may not have all the functionality originally considered.

Three studies conducted by The Standish Group (Jim Johnson, CEO The Standish Group International, XP2002 conference), the DOD (Crosstalk Journal 2002), and reported by IEEE (IEEE conference 2002) in the early part of this decade indicate that far more than 50% of functionality in software is rarely or never used. These aren't just marginally valued features; many are no-value features. Think of the cost of these features. . Think of the benefits from doing less, from eliminating these features. A CIO friend of mine once delivered a CRM application with 25% of the originally requested functionality—and the customer was delighted. In fact, the customer cut off development! The other

75% of features proved to be "nice to have" but not significant contributors to business value. Delighting customers has both a content and a timing dimension. Fifty percent of the features delivered in 6 months may be far more "delighting" that 100% delivered in 18 months.

Doing less should operate at all levels. The practice of allocating value to features (see (Highsmith J. , 2009) for more details on how to calculate) is to both "Do the highest valued chunk of work," but also to "Do Less," to eliminate marginal valued features and cut functionality on those features with lower value. "Do Less" has other connotations. Reducing work-in-process, for example, increases throughput by cutting down on time-wasting multi-tasking. Value stream mapping show us where to cut out non-value adding activities.

In looking at value capture, Agile managers need to examine cumulative value delivered versus cumulative cost incurred on a project. Then questions can be posed such as, "do we want 100% of the planned value for 100% of the planned cost, or would we prefer stopping at 90% of the value for 70% of the cost?" Since Agile development delivers highest-valued features early, this type of management trade off becomes reasonable, even imperative, to think about. Furthermore, the reason it's such an important question is the one raised earlier—other projects with higher value need to start sooner. Developing the last 10-20% of marginal functionality on one project delays capturing the higher value on the next. So it's not just development cost but opportunity cost that managers have to evaluate.

Do less: cut out or cut down projects, cut out overhead that doesn't deliver customer value, cut out or cut down features during release planning, cut out or cut down stories during iteration planning, cut down work-in-process to improve throughput. At the same time, focus on delighting the customer by frequent delivery of value.

In an Agile organization the mantra should be "Do Less", and maybe use the time and money saved for reducing technical debt, new innovation, and improvement initiatives.

Engage and Inspire
Transforming an organization to enterprise agility involves everyone, from delivery staff to project managers, to functional managers, and to executives. One of the key leadership tasks is to inspire others to achieve the goals of the transformation and to effectively engage them in the process. According to a Towers Perrin Global Workforce study published in 2007-08, "Only one in five of the global workforce is fully engaged." One in five isn't enough to power a critical transformation.

The Agile community has focused on engagement and motivation by advocating self-organizing teams, collaborative interactions, technical excellence, participatory decision making, and adaptive (non command-control) leadership. A recent book, Drive by Dan Pink, provides a look at the research that supports and enhances the Agile approach to engagement.

Pink says that management has been ignoring research into motivation for many years. The motivation myth is that more stuff (extrinsic factors like money) yields more productivity. The research show that except for routine jobs that require very little cognitive ability, motivation is driven by intrinsic factors: autonomy, mastery, and purpose.

"Human beings have an innate inner drive to be autonomous, self-determined, and connected to one another. And when that drive is liberated, people achieve more and live richer lives," (Pink, 2009).

Research gathered by Pink backs up his claims, "for example, researchers at Cornell University studied 320 small businesses, half of which granted workers autonomy, the other half relying on top-down direction. The businesses that offered autonomy grew at four times the rate of the control-oriented firms and had one-third the turnover." In the Agile community this need for autonomy has been met by the push to implement self-organizing teams, teams whose members have a degree of autonomy over how they work and how decisions are made.

Intrinsic needs come from within, they convey belonging. Extrinsic things comes from without, they are the result of external forces. When a manager attempts to motivate a person or a team, they are trying to influence behavior by offering incentives. When a manager attempts to inspire a person or a team, they are trying to influence behavior by offering purpose.

Money is an incentive. Saving the environment is a purpose. Inspiration is bigger and longer-lasting than extrinsic motivators; it speaks to the heart as well as the head. Leaders can inspire others to greatness; they can't motivate them to it. The historical context of motivation tends to convey short-term, rewards, narrow focus, and control. Inspiration tends to convey longer-term, internal feelings of satisfaction, broader purpose, wider focus, and is visionary rather than controlling.

So, as Agile leaders, at all levels of an organization, we should strive to inspire rather than to motivate, to engage people in the transformation process. If we want people to be innovative and creative in coming up with new products and services, we need to inspire them to greatness rather than motivate them to mediocrity.

An Adaptive Leader Mindset
As I've quipped for other areas, "there is more written about organizational change than is known." That said, the single greatest barrier to effective Agile transformations is focusing on practices and ignoring the changes in mindset that come from embracing Agile and lean values and principles (I use the term mindset rather than behavior or characteristic, such as empathy, because it is more actionable). Behaviors are more ingrained—it's difficult to learn to be more empathetic. It's not easy, but easier, to learn to be more adaptive. Again, there are extensive lists of mindsets that have been identified with adaptive leaders, but there are four that are core: Adapting, Exploring, Facilitating, and Riding Paradox (as shown in Figure 6).
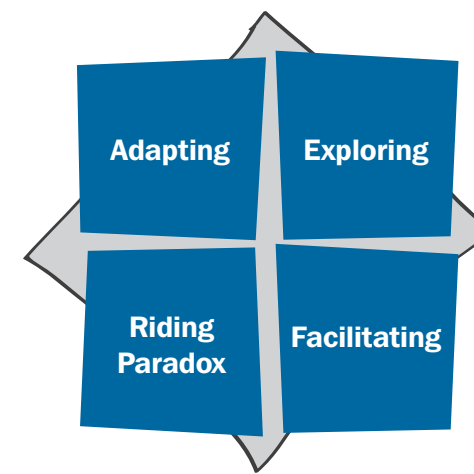

Figure 6: Being an Agile Leader

"In the Chaordic Age, success will depend less on rote and more on reason; less on the authority of the few and more on the judgment of the many; less on compulsion and more on motivation; less on external control of people and more on internal discipline." (Hock, 1999)

Adapting
"A traditional manager focuses on following the plan with minimal changes, whereas an agile leader focuses on adapting successfully to inevitable changes," (Highsmith J. , 2009). Change is inevitable, what we can manage is how we respond to change. In an environment of volatility, ambiguity, and uncertainty, how can leaders expect to conform to a plan, in particular one that predicts results a year or more in the future? While most managers would agree that change is inevitable, those same managers often fail to put appropriate adaptation mechanisms in place.

Adaptive leaders emphasize "articulating goals, facilitating interactions, improving team dynamics, supporting collaboration, and encouraging experimentation and innovation." (Highsmith J. 2009)

In most organizations of any size we encourage conformity and optimization. To be Agile and adaptive, we need to encourage risk taking and quirkiness. Having an adaptive mindset means that someone is open to change and understands the change process—opening individuals to see reality as it is, not as they think it should be; realizing that adaptation is a natural process that can be goal directed, but not controlled; grasping that adaptation is driven by emergent (innovative) results that are generated by collaborative processes operating at the edge-of-chaos (minimal structure); organizing for rapid decision making; and acting for change.

Having an adaptive mindset also means understanding the change process and how people and organizations are apt to change, and how they are apt to resist change.

Experimentation matters because it is through learning equally what works and what doesn't that people develop great new products, services, and entire businesses. But in spite of the lip service that is paid to "testing" and "learning from failure," today's organizations, processes, and management of innovation often impede experimentation. (Thomke, 2003)

And, I might add, today's organizations, processes, and management often impede successful adaptation to business turbulence. Changing and adapting are not the same and the difference between them is important. There is no goal inherent in change—as the quip says, "stuff happens." Adaptation, on the other hand, is directed towards a goal (suitability). Change is mindless; adaptation is mindful. Adaptation can be considered a mindful response to change.

Success asks us to alter our mindset to "embrace change" (Beck, 2000) by being "focused, fast, and flexible" (Horney, 2007) and use appropriate models. It's one thing to say "be adaptive," but we need to go further, we need to offer leaders concrete practices or models to assist them. The following models help become focused, fast, and flexible, but they are

merely starting points. Each leader needs to adapt these to their unique situation, or find useful substitutes. These four models that can assist in learning how to adapt are Purpose Alignment, Short-Horizon, the OODA Loop, and the Satir Change Model.

Purpose Alignment Model
The first question in responding to turbulent change is "what's important?" The question is easy to ask, hard to answer. One effective tool for doing so is the Purpose-Alignment Model (Pixton, Nickolaisen, Little, & McDonald, 2009). This model can be used at any level—strategy, project, and feature. The two dimensions are market differentiation (does this really make a difference) and mission criticality (is it something we have to do to succeed). For example, in most businesses billing is mission critical (must be done) but not differentiating (having the best billing system won't scare the competition). Usually you only need to match competitors billing systems (parity). In looking at potential adaptation initiatives, it's important to first ask why and how it matters.

Figure 7: Purpose Alignment Model
(Pixton, Nickolaisen, Little, & McDonald, 2009)

One of the hardest things leaders do is choose. There are so many options today—this product, that product; onshore, offshore, bricks and mortar, internet, extensive marketing, word-of-mouth marketing; social networking, traditional networking; data center, cloud—the list of possibilities is endless. One of the things that distinguish effective leaders from ineffective leaders is choosing well. Models such as the Purpose-Alignment model can help, but they don't make decisions, leaders do.

The Short-Horizon Model
Managers and executives tend to think in certain horizons—strategic, tactical, and operational. However, in a turbulent world the traditional timeframes for these horizons (a year for operational for example) are too long. A better Short-Horizon model for responding quickly to opportunities and threats is the roadmap, release, and iteration model used by software delivery teams. Business initiatives can be planned and executed with this model. A roadmap targets large chunks of work onto a 6-18

month timeline. Within the roadmap, release plans, consisting of deployable chunks of work, are outlined in a 3 month timeline. And at the lowest level, 2-week iterations, consisting of small, useful chunks of work, are planned within each release. If executives and managers want to be adaptive, then they must shorten their working cycles just like Agile software deliverers do.
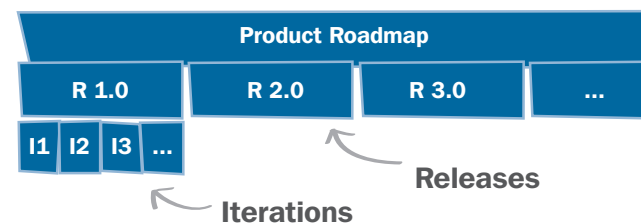

Figure 8: The Short Horizon Model

"Yet time turns out to be a more important factor in organizational performance than traditional financial measurements. When you focus on time, you tend to get both greater responsiveness and lower cost."
(Denning, 2010)

The OODA Loop Model
The third useful model in building adaptive mindsets and organizations is the OODA loop developed by US Air Force fighter pilot John Boyd. Boyd was an ace fighter pilot and had great influence in fighting strategy. His OODA loop shows the thinking process behind making lightning fast actions and responses to competitor's action.
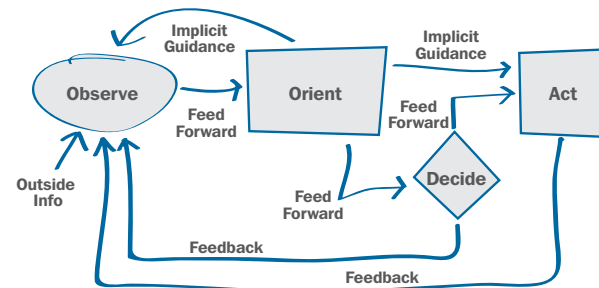

Figure 9: OODA Loop (adapted from Boyd, 1995)

The way the basic OODA Model (using simple arrows around in a circle) is normally depicted—is somewhat deceptive because the fast- and normal-path is actually OOA (Observe, Orient, and Act)—the way it's depicted in Figure 9. For really fast action, Boyd depended on training and experience guiding him directly to action, without a lengthy decision step. The decision step was usually performed after the fact, acting as a learning practice. Boyd also differentiated between observing and orienting—the first was seeing reality without filters, while orienting applied the

filters of culture, experience, new information, and analysis. In a turbulent environment the importance of seeing reality without filters enhances the ability to identify opportunities and threats.

Satir Change Model
The Satir Change Model is one of a number of useful ways to think about change. I like this model because it emphasizes some key points:

• Things get worse before they get better
• People may give up on a change if it gets too bumpy
• The ride from current performance to better performance is bumpy
• Successful transitions require investments in both time and money
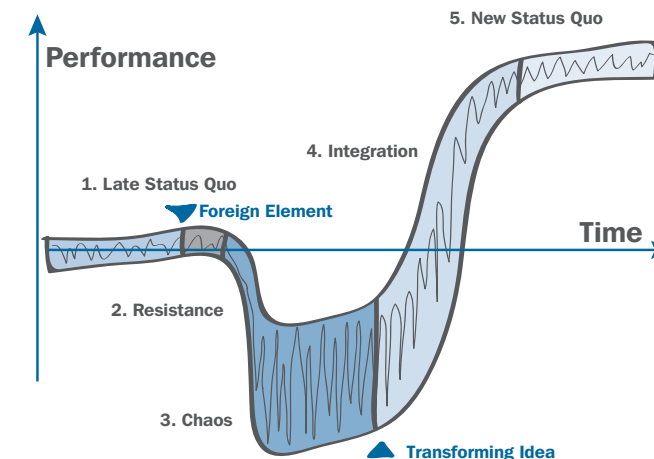• Trust and understanding are needed to overcome fear and resistance.

Figure 10: The Satir Change Model (Weinberg & Smith, 2000)

This model, and many others, seems to ignore the question, "Is this a good adaptation?" The entire process is geared to overcoming resistance, and resistance always has a negative connotation. But think about change for a minute. Environmental changes create both opportunity and danger. In any business, development organization, or project team there are many, many changes: market, economic, competitor, team member, business objectives, and so on. For any one of those changes there may be multiple possible adaptations. With hundreds of changes, large and small, and hundreds of possible adaptations to each, again both large and small—how do we weed out the adaptations that are wrong choices?

Maybe we should look at the Satir model, and others, not from the negative perspective of overcoming resistance, but also from a positive perspective of helping us weed out the inappropriate adaptations while helping us implement the appropriate ones.

We tend to think of change management, or maybe better called adaptation management, as managing the exceptions—the deviations from the norm. But maybe we should view adaptation as the normal and steady state as the exception—it sure seems that way in today's business environment.

Adapting For Success
In the natural world mutation and natural selection drive adaptation. Mutation provides choices; most of which are rejected and natural selection (both survival of the fittest and arrival of the fittest) picks the winners and losers. In the business world opportunity and innovation provide the choices, and competitors and customers pick the winners and losers. So leaders need to have ways of doing both—generating lots of innovations (mutations) and choosing winners (at least options you consider winners).

"I suspect that the fate of all complex adapting systems in the biosphere--from single cells to economies--is to evolve to a natural state between order and chaos, a grand compromise between structure and surprise."
(Kauffman, 1995)

Anticipation (planning) and adaptation aren't the antithesis of each other, they are complementary—you have to do both. Failure to anticipate and plan leads to unnecessary rework and possible failure. Conversely, trying to anticipate the unknowable, leads to unrealistic plans and expectations. Plans evolve from what we know. Adaptations are responses to learning what we don't know. Flexibility is the response to changes we expect in the future. For example, we know that payroll tax rates will probably change in the future, so we build in flexibility to our processes and software. Adaptability is how we respond to the unknown—it's maintaining structural quality (architecture, infrastructure, process) and enterprise agility. Unfortunately, it's not always clear what we know and what we don't.

Adapting requires new mental models. "As quantum physics changed our notions of predictability and Darwin changed our perspective on evolution, complex adaptive systems (CAS) theory has reshaped scientific and management thinking. In an era of rapid change, we need better ways of making sense of the world around us. Just as biologists now study ecosystems as well as species, executives and managers need to understand the global economic and political ecosystems in which their companies compete."
(Highsmith J. , 2009)

Exploring

Adapting is about understanding the fundamental process of seeing reality, embracing change and responding to that change. Exploring is similar, but more about the "how" of that response—an explorer knows how to experiment, how to learn and evolve a solution over time. Leaders who adapt are comfortable with responding to unfolding conditions and changes. Leaders who explore use an Envision-Evolve process rather than a Plan-Do process.

One aspect of Agile software delivery that sounds easy but in reality has proven hard for many individuals to accept has been the idea of gradual evolution rather than a big up front effort (be it design, requirements, architecture, or business model.). The idea of creating a skeleton architecture or skeleton plan and having it evolve over time, rather than doing extensive data gathering up front, and then issuing a final plan or an architecture just seem foreign to many. In many ways it feels like a loss of control, which it is, but what people don't realize is that they never had control in the first place. It's interesting that there are many managers and leaders who are comfortable with a prescriptive plan, even when they know that historically these plans haven't worked out and the results will probably be different. However, they are uncomfortable with a fuzzy early plan that evolves towards a goal.

"To create, a person must have knowledge but forget the knowledge, must see unexpected connections in things but not have a mental disorder, must work hard but spend time doing nothing, must create many ideas yet most of them are useless, must look at the same thing as everyone else, yet see something different, must desire success but learn how to fail, must be persistent but not stubborn, and must listen to experts but know how to disregard them."
(Michalko, 2010)

Changing the Plan-Do management culture won't be easy. An Envision-Explore culture understands that innovative answers to complex problems emerge over time. This idea of letting solutions emerge rather than having them pre-determined up front in the plan takes a leap of faith for many managers—they want to know the precise steps from here to there. They are uncomfortable with a process that says, "lets plan a little, get started, and we'll see what happens." They want answers where there are none. They are comfortable with a detailed plan, which they know won't work out, but offers the illusion of a known end point.

Even more difficult may be that it isn't one way or the other. It's not plan or don't plan, it's create a vision, plan some, execute some, and plan again. People, not just managers, want certainty in a world of uncertainty. Those who can learn to deal with, and tolerate, Envision-Explore mentality will have a higher success rate in responding to today's challenges.

Facilitating

Traditional command-control management is about managers telling subordinates what to do, when to do it, how to do it, where to do it. There is little autonomy in a hierarchical, command-control culture. Adaptive leaders, on the other hand, are more facilitating than demanding, their job is to create a self-organizing, self-disciplined team—whether the team develops software or manages the business.

Effective leaders are increasingly collaborators. One survey posed the statement, "You have programs designed to develop leaders who can creatively bring together resources across different parts of your organizations." In the top 20 performing companies, 100 percent agreed with this statement. In all others the agreement was 66 percent (Hay Group, 2010). Collaborative leaders run the top companies.

Adaptive leaders lead teams, non-adaptive ones manage tasks. How many managers spend hours detailing tasks into Microsoft Project and then spend more hours ticking off task completions? Many managers like this task oriented-approach because it is concrete, definable, and completion seems finite. Facilitating teams, on the other hand, seems fuzzy, messy, un-definable, and never complete. So naturally some people gravitate to the easier—managing tasks.

Adaptive leadership focuses on team management, from building self-organizing teams to developing a servant leadership style. It is both more difficult, and ultimately more rewarding than managing tasks. In an agile enterprise the people take care of the tasks and the leader engages the people. The facilitative leader works on things like building self-organizing teams, a trusting and respectful environment, collaboration, participatory decision making, and developing appropriate empowerment guidelines (for an excellent discussion of empowerment, see Chapters 6 & 7 in (Appelo, 2011)).

"Commanders know the objective; leaders grasp the direction. Commanders dictate; leaders influence. Controllers demand; collaborators facilitate. Controllers micro-manage; collaborators encourage. Managers who embrace the leadership-collaboration model understand their primary role is to set direction, to provide guidance, and to facilitate connecting people and teams."
(Highsmith J. , 2000)

Facilitating a collaborative, self-organizing organization may be the most important job of an adaptive leader. But being a facilitative leader doesn't mean abdicating all authority and decision making. Another primary task for an adaptive leader is bringing clarity to ambiguous situations.

Clarity sounds simple, but it's not. We embrace agility because it helps us adapt to the turbulence that creates opportunity and peril. Most of the time significant changes create mounds of uncertainty and the decisions required to respond to those changes are never clear-cut. There is never one obvious option, but a multitude of options that seem reasonable. There is never enough information, and the information is often contradictory. Change creates ambiguity, uncertainty, doubt, and indecision that lead to floundering.

Adaptive leaders have the ability to cleave through this ambiguity, to focus on a decision when everyone else is floundering, to clarify direction when everyone else sees confusion. In today's highly amped environment, waiting for certainty ensures failure. There was an article in Harvard Business Review several years ago in which a CEO of a fast-moving, high-tech company said something to the effect of "my job is to reduce ambiguity." He realized that at some point the debate among his management team needed to end, that at some point he needed to cut through the uncertainty and make critical decisions. He needed to be clear, even when everyone knew the situation was uncertain.

Adaptive leaders are those who have vision and foresight; who can articulate clear direction; who can persist in the face of ambiguity, uncertainty, and doubt; who can adapt before their focus becomes obsession. Growing leaders who embody these traits is a critical task in building Agile/adaptive organizations.

"The structure of an organization's collaborative network has significant impact on its ability to produce emergent [innovative] results and ultimately on its very ability to adapt."
(Highsmith J. , 2000)

"The Top 20 Best Companies for Leadership are at the forefront of a significant shift away from hierarchical organizational operating models."
(Hay Group, 2010)

Riding Paradox

What is an adaptive leader or manager? There are countless answers to this question revolving around the characteristics, mindset, or behaviors—for example, collaborative, light touch, servant, and failure tolerant. One of the critical traits is that of "And" rather than "Or" leadership. The most pressing issues to face leaders are usually paradoxical; they appear to have contradictory solutions. Take for example the paradox of needing predictable delivery with that of needing to be flexible and adapt over the life of a project. Agile teams face difficult choices because managers haven't addressed this paradox. They continue to admonish teams to do both, without really giving them direction about how. Or, they give lip service to adaptability and focus on delivering to plan—scope, schedule, and cost—just like in waterfall days. Or worse, they focus on velocity and forget quality.

Figure 11: Riding Paradox ("Paradox" by Michael Bergt)

The ability to ride paradox can be enhanced by integrative thinking.

"Integrative Thinking is the ability to constructively face the tensions of opposing models, and instead of choosing one at the expense of the other, generating a creative resolution of the tension in the form of a new model that contains elements of the both models, but is superior to each"
(Rotman).

Agile teams succeed, in part, because they embrace seeing reality, the reality that "stuff" happens during a project and the path to success involves adaptation. Ambiguity, risk, and uncertainty are an integral part of innovative projects today. As such, they offer leaders paradoxical situations—situations that require backing away from the direct paradox and figuring out inclusive solutions. Adaptive leaders need to become "Riders of Paradox" as shown in Figure 11. The paradox horse seems always to be going in opposite directions at the same time. Furthermore, the leader is exposed, drawn by the traditional norms of many organizations in which it's OK to be wrong, but not OK to be uncertain.

Agile leaders need the courage to view issues from different perspectives, to gather data without undue prejudice, to formulate both/and rather than either/or solutions. Too few organizations make it past what I've labeled "prescriptive agility," which should be an oxymoron, but unfortunately isn't. These organizations are as rigid about their agile implementations as they were previously about their heavy methodologies! They fail to move beyond rules to understanding. Adaptive leaders need to be riders of paradox, always thinking "how can I do this, AND that" at the same time.

"Learn the law very well, so you will know how to disobey it properly." The Dali Lama

I'll illustrate with three other examples from software development, issues that have been written about as either/or: CMM versus Agile, BUFD (big up-front design) versus NUFD (no up-front design), and Scrum versus Kanban. In each case, proponents on either side have set the other up as an enemy to be defeated, and not looked at what is useful in each. The bottom line is that all models are flawed—Waterfall, PMI, CMM, Deming, Scrum, XP, Kanban, Lean—but all are also potentially useful. The true adaptive leader—be she an iteration manager, a project manager, a technical lead, a development vice-president, or a CIO—attempts to "include" the best from different models. Max Keeler from the Motley Fool talked at the US Agile 2010 conference about using Kanban on maintenance projects and Scrum on larger projects. Scott Ambler from IBM has a wealth of statistics from surveys that show most Agile organizations use "just-enough" up-front design.

It's easy to be an "or" leader. Pick a side and state your case loudly, over and over until the opposition gives up. It's much more difficult to be an "and" leader, balancing between seemingly opposite strategies. However, in our ever-changing and turbulent world, slavishly following the "one right answer" is a recipe for disaster.

Complexity and leadership

"Mountaineering at extreme levels is not about skill—many have comparable individual skills. It is not about strength and stamina—although they play an important part. Ultimately, extreme mountaineering is about judgment. It is walking the narrow edge between success and oblivion."
(Highsmith J. , 2000)

There are several important points from this mountaineering analogy which translate into our thinking about adaptive leadership. Mostly it's about judgment.

First, speed is frequently the safest alternative. Customers are often so starved for any results, they are ecstatic about whatever is delivered in 3 to 6 months. By the time 12-18 month or longer projects are delivered, relationships are ruined and the product's reception unenthusiastic at best.

Second, make sure the terrain is where you want to be. Make sure your organization has the skills and abilities to tackle the complexity of the undertaking. Finding yourself crossing a 3,000 foot high, 75 degree ice slope, with only crampons and an ice axe, is not the time to realize you should be somewhere else.

Third, the experience needed to hone judgment comes from testing limits in increasingly demanding environments. Higher on the mountain, the critical decision is always between continuing and retreating. Pushing limits is one thing; ignoring risks is another. There is a big difference between taking an informed risk and being reckless. The best mountaineers are those who know when to advance and when to retreat. On one trip they push themselves to incredible limits, the next they abandon the climb early. They understand the environment and its risks, and are therefore able to judge their skills against them.

Last, decisions and actions are the result of complex information and interactions. There are guidelines in the mountains, but no rules. Rules can work in moderate terrain, but team members who know the exceptions to the rules hold the key to success on extreme terrain. Skill and judgment allow the mountaineer to mitigate risk, not eliminate it. Ignoring risks heightens ones dependency on luck, and luck alone is a poor long term strategy.

Speed, terrain selection, judging risks (margin of error), and understanding the difference between rules and guidelines are all part of traversing dangerous software mountains. Managing in complex environments is no different.

Adaptive leaders deliver enterprise agility. Through both actions and mindset, they have the ability to guide organizations through our world of speed, complexity, uncertainty, and ambiguity. Enterprises of the future that need to respond to these remarkable business conditions must be networked, flat, collaborative, fast, focused, adaptive, and not traditional command-control. Growing adaptive leaders to manage this transformation will be key to future success.

Call to Action

There are enterprises that are Agile today. There are a growing number that will be Agile in the near future. Will your enterprise be among them? Does it need to be? The following action steps may help:

1 Delve into the business reality in your industry. Determine when, where, and how your business needs to be more responsive in the marketplace.

2 Evaluate the adaptive leadership capabilities of yourself and your management team.

3 Determine which of the "Doing Agile" actions outlined in the first part of this paper to start "Envisioning" and implementing where you would like to be in 3 months, 6 months, and a year.

4 Determine which of the adaptive mindset areas are most important for your organization and start "Envisioning" and implementing where you would like to be in 3 months, 6 months, and a year.

5 Enjoy!

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