2 BIG TIPS FOR TECHNOLOGY ADOPTION

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TABLE OF CONTENTS

INTRODUCTION

Frequent changes to its markets required this well-known consumer products company to significantly speed up its product development cycle. Several years ago, they had decided to drive a digital transformation of their six R&D centers scattered around the world and their global supply chain. However, they had made little progress. Even though they bought an established software package, they encountered many challenges including software development delays and quality problems and broad resistance to the business process and personnel changes required to become more digital. Most of the program and company leadership teams felt that they had little control of the effort and that the initiative was failing.

The leadership team recognized that the digital transformations of R&D were in trouble and that they needed to rethink their approach. They made two critical changes that were significant departures from the conventional wisdom:

They reduced the focus on the software by adopting an Off-The-Shelf (OTS) strategy, eliminating all customization. This minimized the amount of programming, reducing the role of IT, the software vendor, and the small army of consultants doing the customization

They shifted the focus of the change to the people who would be using the software, providing substantial programs (using the Cerebyte NeuroMentor) to guide personnel to proactively embrace the technology, even though the first releases of the new tools were going to be significantly less effective than their current systems

Four months after making these changes, the digital transformation for key groups was completed for the first substantive uses of the software. As one of the leaders of the digital transformation said: "Bending people and processes was a lot easier, faster and more effective than developing incredibly complex software that never achieved its goals."

The "new normal" requires more comprehensive and effective digital capabilities, but anyone who has experienced a technology adoption knows that new technologies are exceedingly difficult to develop and implement. Approximately 80% of such projects do not meet their objectives with 15-20% failing completely. With the "new normal" these digital transformations are even more strategically critical, but even harder to define, develop and implement. Yet, direct experience and statistics show that the accepted approaches to technology adoption don't work. How will organizations become more digital when the challenges of digital transformations so great and the accepted approaches are so ineffective?

Fortunately, there are emerging methodologies and technologies that speed the development and wide adoption of even extremely complex enterprise technologies. These approaches are based on a key premise that goes against most typical dynamics in a digital transformation: <u>changing people and processes to align with the strengths and weakness of software is much easier to do than programming complex software to support the organization's preferred business practices</u>. People and processes change, but not the software. This approach has been successful in widely diverse digital transformations such as those using SalesForce.com, SAP, Oracle, WorkDay and many other internally developed systems and in many different industries such as healthcare, technology and gas and oil.

Not surprisingly, entrenched stakeholders (such as IT departments, vendors, and consultants) that benefit from current practices resist this approach. The choice for most organizations becomes: <u>Are you going to keep doing what you already know does not work (Einstein's well-known definition of insanity) or are you going to do something different to achieve the digital transformation?</u>

In this guide, we will discuss two big tips for guiding an organization to optimize technology adoptions, supported by numerous little tips. These tips come from experiences helping many different companies in diverse industries make digital transformations. The two BIG TIPS are:

- **BIG TIP #1:** Reduce the importance and role of technology in the digital transformation (yes, we know this seems odd for a technology adoption and will be explained later)
- **BIG TIP #2:** Make user attitudes and behaviors, and supporting leadership attitudes and behavior, the center of your implementation effort. People adopt technology so people determine the success of failure of your digital transformation.

While we will use examples from large programs because their size and expense make getting them right more important, these Tips apply to small programs as well. Technology adoptions of any size or in any area have the same issues and can succeed using this approach.

Why are Technology Adoptions so Difficult?

There are many reasons that digital transformations fail, but these can be grouped into a few larger categories including:

- **Believing False IT "Miracle" Mythologies**: Purchasers of major systems, typically senior leadership in IT, finance and the business units, purchase systems based on five incorrect beliefs that later cause significant implementation problems. These beliefs are:

  o Myth #1: The system will solve many of their productivity and management problems, producing a huge jump in productivity

  o Myth #2: The system will give them considerably more "command and control" of their workers driving increased accountability and, as a result performance improvement

  o Myth #3: The system has so many features that it can be used for many diverse functions increasing the value to the organization

  o Myth #4: The system is easily customized to accommodate their business's requirements and, closely related, easily integrated with other systems

  o Myth #5: The system will be easy to implement because it is just people swapping one system for another

Why do these incorrect beliefs occur? All participants (the organizations leadership, IT, vendors, consultants) have a vested interest in overstating system capabilities and ease of implementation. Leadership wants all the above to be true making it easier to justify the large financial expenditures required. IT gains organizational prestige, position, and, most importantly budget, from having the system the organization

invest in a large system (either from a vendor or for internal development). Vendors and consultants, especially consultants doing programming, want a big sale. The only people who are consistently skeptical of these mythologies are end-users who are rarely brought into the decision-making process.

These mythologies occur if the systems are going to be developed inhouse (which usually means hiring outside programming) or purchased from a vendor. In the initial investment process, everyone uncritically embraces what we call the "miracle of the IT system," which is a self-serving delusion that eventually gets crushed by the harsh reality of what these systems can do. Believing in the IT systems miracle serves the interests of each of these stakeholder groups involved with the purchase but not the interests of end-users who must live with the harsh reality which eventually causes resistance to or outright rejection the new systems.

- **Overly Ambitious Software Scope**: In response to the initial overselling, most such systems try to be "everything for everyone" which leads to such a sweeping scope that it is impossible to program or implement effectively. Consequently, the systems are frequently delayed, are very buggy and are usually less effective than current systems, particularly at "first release." Even when purchasing from an established vendor, customization and complex interfaces to and from the core system are extremely difficult to develop and rarely work well. Simply put, large scale software development is extremely hard to do, and the bigger the scope the harder it is.

- **Reliance on Technical Training:** <u>One of the mistaken beliefs, heavily promoted by vendors and IT, is that traditional technical training is the equivalent of technology adoption.</u> The belief is that spending many hours looking at PowerPoint slides and pushing buttons about system features are technology adoption because, now that everyone knows how to enter and manipulate data in the system, adoption is assured.

This also an incorrect belief. In many cases feature focused traditional technical training has little impact and may even discourage adoption. In general, research on traditional training leads to about 10-18% retention of the content. For mind-numbing, button pushing technical training, our experience is that retention is even lower. Furthermore, feature-centric button pushing has little relevance for real world use because many of the features presented are only rarely used, but their inclusion in the training dilutes learning of the more important functionality. Finally, such training typically requires putting instructors on planes, is virtually impossible to scale to large organizations.

It is easy to understand how this incorrect belief occurs. Vendors and IT are typically technical people themselves who know little about how people learn. As one vendor of a construction management system stated: "We force them to bang on the system for 6 weeks and by the end they know our technology." But, in this case, no one used the technology after the six weeks because <u>forcing irrelevant learning just doesn't lead to use</u>. Feature-focused training is what IT and vendors know so they propagate their own limited, incorrect knowledge and experience of learning. But if the leadership team believes that the technical training promoted by technical people will create adoption, the digital initiative is likely to fail.

- **Neglect of User's Perspective**: One implication of the expectation that narrowly focused technical creates adoption is that the larger context of the system is irrelevant to adoption. But such systems always exist within a complex personal and organizational ecosystem. Most of the time, people are already working incredibly hard on known and accepted "comfortable" systems. Taking time from "important work" (i.e. their "day job") to learn a new system that doesn't work well, increases low-

value administrative load, increase management's "command and control" and, by implication are meant to replace them causes an obvious negative response. With little perceived benefit and a lot that is wrong, most end-users resist new systems.

In short, the current approaches miss on just about every way possible. It is therefore not surprising to see the 80% "failure" rate. As one salesperson for a sales force automation system said: "If customers knew how hard it was to implement our system, no one would ever buy it." This disturbing perspective is true for every major system purchase and implementation.

WHAT CAN YOU DO TO OVERCOME THESE CHALLENGES?

Based on extensive experience with many technology implementations there are just two BIG TIPS that make a lot of difference in a technology adoption. These tips are BIG and highly disruptive to existing norms so we will provide a series of specific "Little Tips" in support of the BIG TIPS.

BIG TIP #1: Reduce the importance and role of technology in the digital transformation

We know that this seems counter to the very idea of a digital transformation, but it turns out that this is the best way to do a digital transformation. Here are some supporting tips with explanation, but beware, these tips may be surprise and disrupt your thinking:

Little Tip #1A -- Buy, don't make the technology, but don't believe what you are told when you buy by the vendor, IT or consultants. Whatever they say will be an exaggeration to win the sale.

It is much better to buy an existing system from an established vendor that seems reasonably close to your objectives then to develop your own new system. Software development is incredibly difficult to do. In larger systems this can mean millions of lines of code and incredibly diverse and complex interfaces between modules of the system. Developers NEVER achieve the time, budget, and functionality objectives. Some development organizations claim that Agile methodology improves their ability to deliver on time and on budget, but the reality is that Agile just hides lots of the inadequacies. It is much easier to define broad requirements for a system and rely on a vendor organization that has a team of people working on it full time and, presumably, knows how to code a commercial product. You can NOT match what any reasonable vendor can do.

However, don't delude yourself by believing either what the vendor or IT says the system can do or your own justification for buying the system. While the vendor, IT and your own perspective are part of the rationale for investing in the system, none of these perspectives are an accurate picture of the reality and you are much better off getting real as soon as the buying process is done.

Little Tip #1B – Once you buy, use the system you bought WITHOUT ANY CUSTOMIZATION. Accept all their defaults and modify your business processes and personnel to accommodate what the system can do.

You are better off using what is a called pure "off-the-shelf (OTS)" approach to customizing the software. This may be the most controversial but also most important tip. As soon as you change anything in the software you just bought, you are introducing many bugs and problems exploding the costs and time. For example, at one time SAP offered nearly 300 customizable features and significant support for hundreds of interfaces to other systems. This is just overwhelming. We worked with two companies who tried to customized SAP. One continued with SAP but, after millions of dollars and much frustration, abandoned the customization going pure OTS by accepting all the defaults. After the change, the technical adoption eventually succeeded. The other company gave up and dropped SAP. You are much better going OTS with whatever you buy.

However, this means is that the software capabilities determine how you must run your business. Imagine you have 20 years' experience in a business and IT comes to you and says: "You know all of that great experience you have in running the business…well, forget it. You will run your business according to how some engineer in the vendor's development team designed the software's functions."

This is in direct contrast to the idea that software should support the optimum business process defined by experienced businesspeople. The software features and functions, not the business leadership, defines how to manage the business, and people don't not like it. But, it turns out, going OTS works while customization fails.

Similarly, with no modifications to the purchased package, IT's role changes drastically in ways they don't like. Since you are using an OTS version of software, the need to define requirements, create technical specifications and either manage coding or do the coding is sharply reduced. Mostly, IT defines requirements and technical specification and does the actual coding for a limited number of automated interfaces for inputs to or outputs between the core system and other systems. Consequently, in an OTS approach, IT typically wonders if it has a role at all. Their role becomes educating the business units about the strengths of the system and the opportunities it creates for them, as well as managing the frustrations of the business unit noted above. They become process consultants more than technical experts, which many resist.

These may sound like huge barriers to change, but it turns out that changing business processes and, thanks to significant advances in the neuroscience of learning, human responses is now far better and easier to do than complex programming.

Little Tip #1C: Narrow the initial technical work to the smallest possible scope and, if possible, to just the interfaces to and from just one module.

You have already limited your technical work by adopting an OTS approach. Now limit it more, to just a few interfaces to the smallest possible subset of the system's functionality (sometimes described as the minimum viable product or MVP). As you may have realized, our perspective is that is ridiculously hard to do any significant software development so limit your focus immediately. Such severe limitations are obviously in conflict with the rationale for buying a big system and the underlying perception that the system can and should be "everything for everyone." Imagine trying to explain this narrow focus to the executives who

bought the system. It goes something like this: "We just spent a huge sum buying a really big system that is going to solve all of our problems, but we are going to use only 10% of it for the next year, add 10% in the coming year and after about 5 years, we might have something approximating what you thought we were getting." This is hardly a winning conversation.

However, the alternative is worse. The alternative is a form of institutional purgatory. When organizations try to do anything more than the MVP, they spend massive amounts of time and resources working away at the technology, but it rarely works as expected and is never finished. Here too all the stakeholders have a vested interest in misrepresenting what is going on. You will hear: "With just a few more resources we will get it done." You put in the resources and it still doesn't get done, indefinitely. It is much better to tightly focus the effort so you can see progress even if it means you have to say something like: "Remember everything I told you in the decision investing in the system in the system because it has all of these capabilities. Forget it. We will get it done but in tiny phases." Have a well-defined long-term plan for expanding to other elements of the system, but don't be overly ambitious at the beginning.

BIG TIP #2: Make user attitudes and behaviors, and supporting leadership attitudes and behavior, the center of your implementation effort.

People adopt technology so people determine the success or failure of your digital transformation. Reducing the focus on technology in a technology adoption initiative does not mean that there isn't a path to quickly and effectively implementing digital transformations. Recent advances in the neuroscience of learning and change provide new ways to achieve many of the goals of a technology adoption even if the technology is only partially functional. Here are some tips on how to leverage human capabilities to offset technical limitations.

Little Tip #2.1: Define and Own a Compelling Purpose for the Technology Adoption

A strong sense of "purpose" is the primary motivator for any significant change in an organization and specifically for technology adoptions. This is not at all surprising since recent research has shown that "purpose" is a critical motivator for all humans (Pink, 2009). For technology adoptions, "purpose" is the compelling market or social reason for adopting the technology, and the linking of each employee's attitude, skills and behaviors to this social benefit. For example, the purpose of one digital transformation of a store management system was to: "Better serve our customers by using the new technology to put more and better products on our shelves, faster." The purpose was explicitly about enhancing the customer experience. A compelling purpose motivates people to accept and overcome the challenges of the early stages of a technology adoption. Getting the organization aligned around that shared purpose is the crucial first step in achieving a successful transformation.

The best way to develop the compelling purpose for a technology adoption is to ask a few of the current top performers how they see the ultimate value of the new technology. These top performers are always at the positive end of a performance curve, even when they operate under the same conditions as others. As such, top performers have a huge proportion of the tribal wisdom of the organization and are likely to quickly see and articulate why a technology is needed. By describing their passion, and writing it in the first person as though they are saying it, the purpose sounds like an actual conversation, not just text. Here are two examples developed by the top performers for two digital transformations:

Digital Supply Chain Technology (DSC): *Our expanding and increasingly complex end customers demand a faster, more flexible, and responsive supply chain. I thrive by using new attitudes, skills, and DSC to enable faster, more effective Supply Planning and make a bigger contribution to our supply chain. I am a key influencer and role model, using DSC as a foundation for driving the best supply chain decisions. My direct contribution is personally satisfying and helps OurCo and our end customers win.*

Sales Force Automation Technology (SFA): *Our expanding and increasingly complex environment demands a faster, more effective sales process. I thrive by using new attitudes, skills and SFA to enable increased sales productivity and a bigger contribution to our revenue growth. I am a key influencer and role model, using SFA as a foundation for driving the best sales processes and results. My sales success is personally satisfying and helps our company and our end customers win.*

How does this purpose statement help technology adoption? Notice that these are not like typical "mission" statements but are written with passion and in the first person just the way experts speak about why the think the technology adoption is important to them. In turn, this statement will be the primary motivator of user engagement. More specifically, using a process and technology called NeuroMentoring (which is a process and technology that emulates the experience of having a great mentor guide someone through the technology adoption), users read the purpose statement out loud and record or write their responses to portions they find intriguing and provocative (they do this using a NeuroMentor app on their phones or computer). Ideally, the potential users of the system then share their responses with peers.

NeuroMentoring uses the top performers highly graphical language to creates a "generation effect" (which is not a reference to generations such as GenX). <u>A generation effect is when individuals mentally create their own imagery around an idea.</u> As an example of the generation effect, think of a time when you read a novel with rich descriptions of the characters and settings. As you read these descriptions, you could picture these people and scenes. In neurological terms, this picturing is activating the visual cortex and you can literally see them (and the movie is always disappointing). When people read the purpose, write about it and share it, they create or "generate" a self-image about their significant contribution to the success of the technology adoption. Research has shown that this "generation effect" drives intense motivation and much faster learning. At the end of this process, people embrace the purpose of the technology.

In turn, the generation effect creates other positive neural responses:

- When a user sees themselves as a positive, proactive contributor to a greater "good" endorphins and dopamine are released which further increases openness to new ideas, accelerates learning and drives the practical application of the technology

- Writing a response to the purpose that describes the generated imagery, suppresses portions of the brain associated with resistance to change and stimulates portions of the brain associated with a sense of control, also increasing openness to new ideas

- Sharing the generated imagery with others stimulates the neural release of oxytocin and serotonin, the neurochemicals of group success, creating a commitment to the group's success with the new technology.

Not surprisingly, these NeuroMentoring processes produce an intense commitment to the success of the technology adoption, driving people to overcome many barriers and increasing the likelihood of success.

However, the purpose statement generated by the top performers and the original rationale for leadership's investment in the new technology rarely align. When the primary reasons for new technologies are "command and control," which is the primary reason for many sales and human resource management systems, or complete replacement of the humans with artificial intelligence or machine learning, resistance is likely. While the typical top performer created purpose statement honors human participants, many of the reasons for buying a new system directly or indirectly attack people, which hardly promotes positive attitudes. Leadership then has a dilemma. Do you ignore the reasons you bought the system in order to get people to use the system or insist on people using the system as you and the vendor expect, and have the system fail? You can't have both, at least in the short term.

Successful technology adoptions consistently ignore the original, mostly negative reasons for purchasing the technology and align with the positive reasons from the top performers. The positive attitudes lead to enhanced performance and lessen the need for command and control or replacement of humans.

Little Tip #2.2: Technology Adoption Requires Transformational Leadership

Technology adoptions need transformational leadership because implementing major new technology always requires huge organizational change. Yet, because of the many mythologies that occur in the sales process, most leaders tune out of the implementation process immediately after the purchase. Senior leadership believes that the virtues of having the new technology will lead to adoption, without much effort, for the simple reason that everyone tells them this is the case, and they want to believe it. People that contradict the mythologies by contending that technology adoptions are exceedingly difficult and require continuous great leadership are consistently ignored.

The best way to understand why transformational leadership is so critical to technology adoptions, is illustrated by Table 1. The left column is the state of a typical organization prior to technology adoption. The entire organization knows how to achieve continuous operational excellence. But technology adoptions conflict with virtually every aspect of operational excellence. What previously was well-known and effective is now substantively disrupted, which creates massive strains on the organization.

Most leaders are good at the operational excellence in the left column but not knowledgeable or skilled about the transformational leadership of the right column. To make this situation more complex, during a technology adoption, leadership must simultaneously continue to achieve operational excellence (i.e. lead for the left column) while also driving the disruption and supporting those being disrupted (lead for the right column). Suffice to say, transformational leadership during a technology adoption is difficult.

Operational Excellence	Transformational Leadership
Goal is to reduce variance and maximize efficiency through SOPs	Requires new processes and systems that increase variance and reduce efficiency
Clear specific measures for well-defined outcomes	Current measures block transformation -- new measures & outcomes not defined
Low levels of conflict over resources	High levels of conflict over everything
Technology is known and problems are tolerated	Mythology that new technology will solve all issues
Traditional management hierarchy very efficient – people know how to manage and feel in control	Decentralized, broad collaboration is required – everyone is a leader, no one is "the" leader and leadership is intangible
Time allocations are relatively predictable. People can do work that delivers a defined result is a defined amount of time.	Time is very flexible, uncertain and tends to stretch. Little is known about what work is involved, what the results will be or how long it will take.
Can be trained as a set of defined skills	Requires broader education of judgement, confidence, influencing and many other intangibles.

Table 1. Operational excellence vs. transformational leadership.

We have an e-book (*6 Tips for Great Transformational Leadership*) that goes into transformational leadership in depth, which we won't repeat here. Instead we will just present some of the more salient guidance for transformational leadership of technology adoptions. Here is a quick list of advice for transformational leadership for a technology adoption:

- Be highly purpose driven, reviewing progress frequently and beginning each discussion and review session with a re-visiting of the purpose. People forget the purpose fast. Keep it in front of them.
- Treat everyone as though they are a transformational leader and give them the development programs that will make them great transformational leaders. In technology adoptions, one loud, negative person in almost any role can undermine the entire adoption.
- Build a robust steering team of senior management that proactive and continuously guides the initiative. Provide middle- and first-line managers with the leadership development they need to guide the adoption.
- Use the NeuroMentoring process above to enlist everyone as a champion of the adoption.
- Support the building and dissemination of user best practices on the use of the technology in the real world. This is a lot more than the traditional technical training. It is broad education in the use of the

technology, bugs and all, in real-world situations they will encounter. Everyone who touches the system must have the time and support to learn to use the technology, which means leadership must ensure that they have the time and support.

The leadership goal is to return, as fast and easily as possible, to a new operational excellence but now using the new technology. Somewhat counter-intuitively, purpose-driven transformational leadership that systematically disrupts current operational processes to learn the new processes gets organizations to the new operational excellence faster and more easily than rushing into the technology. It is a paradox of "go slow to go fast" which works well for technology adoptions.

Little Tip #2.3: Create best practices for how to use the technology in the messy real world as the primary way to drive implementation.

Two types of top performers – technical experts who know the technology and high performing personnel who know the current role – together are the best source of guidance in the best practices for how to learn and use technology. The first group, the technical experts, tell you what the actual software capabilities, not the mythologies. The second group can understand the technical description of the capabilities and translate that into how to optimize use of the technology in real world conditions. In particular, the second group can identify challenging real-world conditions that might undermine use of the technology and create processes that surmount these barriers. The integration of these perspectives produces development programs for individuals and managers that really work.

The structure of best practices for technology adoption is so consistent regardless of the technology (Figure 1) that these experts can create a high impact program in as little as three hours. The structure is identical to how these experts, acting as great personal mentors would guide others through the technology adoptions. This structure and process applies to leadership roles such as first line managers leading the tactical implementation but only occasionally using the technology and to individual contributors using the system daily. By leveraging existing personnel this way, an organization can have a set of best practices for the technology adoption defined by its own respected experts and ready to implement in almost real-time and with minimal labor and expense. Much faster than is the norm.

Highly Refined Purpose	Structured Path to Mastery	Plan for Long-term Sustaining
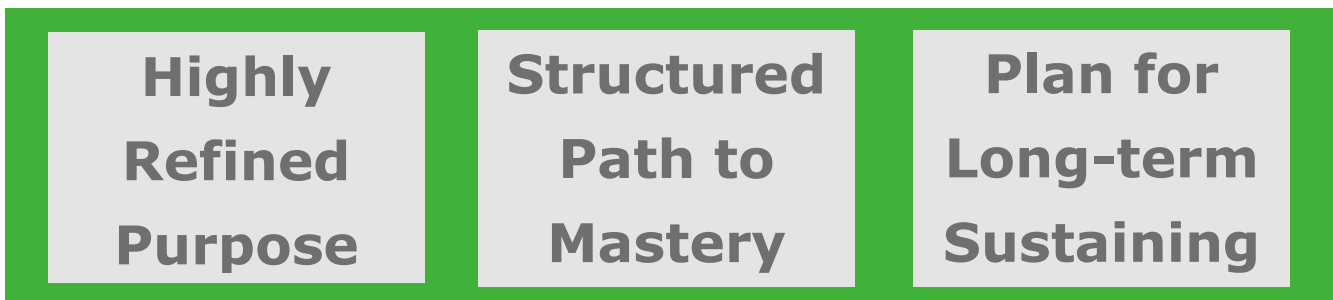
Figure 1: The Structure of Top Performer Wisdom

As we noted above, the top performers usually have the best understanding of anyone in the organization of the purpose of the technology. These experts can also link the purpose to the best practices that will create comprehensive adoption. Following NeuroMentoring processes again, with the guidance to create best

practices for the "messy real world," these experts quickly define the following components that optimize technology adoption:

- A well-defined, 4-phase, structured "Path to Mastery"
- The real-world tips they give to others when they are acting as mentors, which define mastery
- A specific set of actions to take to learn about and use the technology. The "learn about" portion is technical training, though of a very different type than is common (see next section) and the "use" portion brings in the ecosystem, surrounding the technology.

As with so much of what experts do, the four phases of the "Path to Mastery" are very consistent and specific. Experts guiding someone through a technology adoption articulate the same 4 phases of adoptions:

- Understand why you are adopting the technology
- Understand the technologies' functionality (more on this later)
- Understand how to optimize the value of the technology for the larger ecosystem
- Understand how to sustain the value of the technology in the midst of constant change

Here is an example of a typical Path to Mastery for a technology adoption using the DSC program:

STEP ONE - DSC READINESS

DSC and related changes create new opportunities but may be more challenging than expected to implement. Your enthusiastic, competent use of DSC positions us to develop high growth markets of the future. To use DSC effectively you must become a self-aware supply planner: changing the way you think, use systems for analysis and communicate your recommendations. Embrace the change to DSC, with all its benefits and challenges, and create an environment where others can embrace the change as well.

STEP TWO - MASTERING DSC FUNCTIONALITY

The change to DSC is a disruption of previously well-defined, well-known business processes and systems. The old must be disrupted to create the new capabilities (such as a one week supply forecasts) needed for a faster, more flexible supply chain. Mastering DSC requires unlearning and discarding past practices and learning and adopting new ones. It means mastering DSC output to optimize ordering and warehouse loading to achieve business priorities. This change takes a lot of often uncomfortable work -- few people embrace this process.

STEP THREE - OPTIMIZING THE DSC ECOSYSTEM

Your ability to use DSC to better understand and manage the role your product or solution plays in our company's financial and market strategy directly enhances supply planning's contribution to our success. Know how to use Systems Thinking, Financial Acumen and DSC's functionality (particularly the modeling capability) to optimize the value of DSC for the entire supply chain ecosystem and for enhancing the Financial Acumen needed to drive financial performance.

STEP FOUR - TRANSFORMATIONAL LEADERSHIP

Be an influential leader. Leverage your developing skills to tell a compelling, influential, supply planning story, based on DSC capabilities. Fearlessly influence others to discover and implement

innovations derived from DSC that create competitive advantage. Use DSC to make good business decisions you feel great about which promote personal, customer and our company's success.

Supporting each of the phases of a technology adoption are "Tips" from the experts. Tips define "Mastery" of the phase, which are like interim deliverables. Here are two examples of a technology adoption "tips" for this same program. The first one is about how to manage the conflict between short-term demands for operational excellence and the time required to learn DSC. The second one is about learning to use the output from DSC.

DSC Tip #1: There is a conflict between the demands on your time for doing your "day" job and the time (and possible frustration) required to learn and use DSC, including stopping some things which were effective in the past. The tendency, particularly during technology transitions, is to continue to focus on meeting immediate needs and doing current functions as before, which often negatively impacts the future. The old systems seem efficient and the new ways cumbersome, so people naturally resist these transitions. The 3-box model of change and the comparison table provide structures for being smart about balancing these conflicting forces during the transition to DSC.

DSC Tip #2: Focus on learning how to interpret DSC outputs and how to use these outputs to guide manufacturing and business units' decision-making. The outputs, particularly when they present different choices, are the primary way that DSC enables Supply Planning to become leaders of critical supply decision making. It may initially be hard to trust the validity of the outputs until you build trust in the input data and the system, but focusing on the outputs and their use is the key change to using DSC to reduce the time spent on data inputs and analysis and increase your role as supply planning leaders.

In turn, emulating the role of a great mentoring saying "now try this…" the experts define actions that drive adoptions. Here are the actions supporting the above Tips:

DSC Action #1: Review the corporate change model and the operations vs. transformational leadership table. Define the percentage of time you spend on daily activities versus the time you spend on preparing yourself and the organization for DSC. Describe 2-3 pressures which make you focus on short-term operations. Identify two things you will need to "forget," two conflicts you might have between daily transactions and the DSC transformation and actions you can take to increase the time you spend learning to use DSC and related business processes.

DSC Action #2: Review the example scenarios in the attached output reports. Pick 1-2 scenarios that are closest to a real situation you are currently managing. What are the implications of these scenarios for guiding manufacturing or the business unit? How might you use the output to work with these organizations? Review with a peer before your group meeting.

At the conclusion of three hours of this discovery process, your organization has a robust set of best practices for the technology adoption.

Little Tip #2.4: Optimize "technical training"

It is critical that users learn the functionality of the system. You might have noticed that training on functionality is included in these programs, usually in the second phase. This may seem like a contradiction

to the earlier descriptions of how poor technical training contributes to adoption failures. For optimizing learning of functionality (aka "technical training"), you must do several things differently than from the traditional technical training presented during the selling process. To be successful, functionality training has these properties:

1. Embed training in functionality in the learning about and optimizing use of the system in the larger ecosystem. Users need to know and trust the inputs to the system, or they will not trust the system. They must also know how the outputs of the system will be used. When they know both inputs and outputs, their willingness and ability to learn how to push the buttons is more relevant to their work and learning increases significantly

2. The system is the middle of the ecosystem and there is a "happy path" within the system which is the most frequent and most important use of the system. All systems have a 20-80 rule. 20% of the functionality accounts for 80% of the use. Therefore, ignore the 80% of the features that are not used frequently or of high value. Instead, focus intensely on the happy path and teach where to find the resources in support of remaining 80% of the features.

3. Teach the system functionality using realistic scenarios, supported by discussions of strategy. People will learn technology amazingly fast when they see how it applies directly to their jobs. Be aware though that users are extremely sensitive to the realism of the scenarios. Even slightly unrealistic scenarios undermine technical learning

Here too there is a profound conflict with the selling process. IT and vendors typically contend that narrowly focused technical training is sufficient, and leadership accepts this premise. However, as discussed above, that type of training doesn't work. Using a broader, more context approach in the training takes a lot less time to develop and teach functionality and produces far better results. Again, do you want to ignore what caused you to buy the system and fail or reject that perspectives and do something drastically different and succeed?

Little Tip #2.5: Use NeuroMentoring technology to drive technology adoption for large numbers in the messy real world

The single best way to ensure technology adoption is to give everyone a great personal mentor to guide the adoption. Technology adoptions are usually so challenging, that people benefit a tremendous amount from individualized personal guidance and support they would get from a great mentor. Great mentors guide the new user through the complexity and challenges of learning and using the technology. However, there aren't many great mentors and they can only mentor a few people at a time, so human mentoring is not viable for most technology adoptions.

Fortunately, through extensive studies of great mentors, we learned that these mentors, like the experts described above, are very consistent in how they mentor. Great mentors do three things:

- They have in-depth expertise in their domain
- They use a consistent set of verbal cues to guide their mentees to understand the domain and apply it to the real world
- They provide real-time support for their mentees as the mentees enter and leave challenging situations

Mentor Expertise: We have already described the structure of expertise, and how to discover it. Not surprisingly, great mentors' expertise is organized in the same way as other experts. The difference between many experts and mentoring, is that many experts know their domain but aren't willing or able to communicate it well. Being able to communicate the expert's wisdom about technology adoption using the cues and process of great mentors speed in-depth technology adoption.

Mentor Cues: The consistency of the cues great mentors use in communicating of the content, makes it is possible to design mobile and cloud applications that provide the same cues as a great mentor and produces the same neural response. We call this software "NeuroMentoring Technology." More specifically, NeuroMentoring Technology does four things to drive technology adoption (Figure 2):

- Purpose – guides the generation effect around the technologies compelling purpose resulting in intense commitment to doing the work required for a success adoption
- Path to Mastery – guides development of cognitive structures that reflect how the adoption will occur, easing anxiety about the work needed in the adoption
- Tips – guides the user on how to use the expertise in the messy real world
- Actions – guides the user to apply the expertise in the messy real world

You are already familiar with the generation effect around purpose. In their online interactions with NeuroMentoring technology, users generate their purpose in 2-5 minutes. The technology provides a way to get users to focus and apply their attention to the problem at hand. Attention is key to learning. Users change physiologically as the neurochemicals associated with the generation effect hit their brains. They lean forward, tap the screen and say things like" I never thought of the technology this way, but it is great perspective."

Similarly, users generate the cognitive structure around the path to mastery in about another 30 minutes. This is important because a robust cognitive structure, think of it as a sort-of map of the adoption process, accelerates assimilation of new, more detailed knowledge. The new knowledge now has a place on the map so the user can focus on just the actual content, easily putting into a broader context.

Tips and Actions have a different role in NeuroMentoring technology. Great mentors, without usually realizing what they are doing, consistently use the neuroscience of "self-directed neuroplasticity" to develop their mentees. "Neuroplasticity" refers to how our brains rewire (i.e. learn) during a technology adoption process and "self-directed" is the use of the intellect to guide the exploration of the content and application that drives the neuroplasticity. The tips and actions provide the guidance and repetition that lead to learning and using the technology. Typically, new technology users will complete one of the expert's defined actions per week, but in faster roll-outs these can be completed in a few days. Because these are using the newest understanding of learning and change, users learn to use the technology – both functionality and use in the ecosystem -- far faster than traditional training, typically in a matter of a few weeks.

NeuroMentoring Technology can be used individually or in a group. Group learning is extremely effective during early stage of implementation. The social neurochemicals of oxytocin and serotonin are released promoting collective alignment and effort. This typically consists of a group "launch" process and biweekly check in meetings, led by a designated trained facilitator. Individual use more typically occurs when a technology is established, and new users are being taught how to use the system when they start a new job.

Because NeuroMentoring Technology is available as an integrated cloud and mobile app, thousands of people can be guided through technology adoption regardless of how many users there are or where they are.

Mentor Support: Great mentors provide real-time support for their mentees. In human mentoring this is often a telephone call just prior or just after a significant event. When it is before the event, the mentor and mentee talk through the situation and decide on an optimal strategy. When it is after the event it is

Both types of real-time support are a form of what neuroscientists call a "reflective pause." A reflective pause just before an event is a moment that briefly stops the normal flow of thinking giving the intellect (the pre-frontal cortex) more control. Such control reduces the release of disruptive neurochemicals, adrenalin (the hyperawareness neurochemical) and cortisol (the fight or flight neurochemical). After an event, the reflective pause creates internalization and integration of learnings from the experience, which is how something that was just experienced gets converted to long-term attitude change and increased behavioral capabilities. As a result, users of the new technology feel more positive and resist adoption less.

As with the other functions of great mentoring, NeuroMentoring, particularly NeuroMentoring provided through phone apps can provide this real time to support to technology adopters. For example, one user of the DSC technology was walking down the hall on her way to a meeting about how to optimize the use of DSC output by another group. She thought this was going to be a contentious meeting because the other group was going to have to change fundamental business processes to use DSC. She was worried so she pulled out her phone and taped on the mobile NeuroMentor and went to the tip about leading cross-functional technology adoption. It took less than 10 seconds to read the tip, experience the reflective pause, calm her emotions and reaffirm her strategy. After the meeting, she again pulled out her phone and, using the voice entry capability, recorded what she learned about leading a complex meeting. The mobile NeuroMentor Technology gave her the same support as a great mentor and directly helped the technology adoption.

One of the most important benefits of NeuroMentor Technology is that it is a model of how to use digital tools. It is a digital technology for adopting digital technology, which creates a more holistic sense of digital capabilities.

Unfortunately, there are considerable barriers to implementing BIG TIP #2. First, as with BIG TIP #1, the leadership must acknowledge many of the rationales for buying the system have little relevance to the adoption of the system. Second, the leadership team must allocate time to the adoption, time that conflicts with maintaining current operational excellence. The organization needs to be OK with reducing current efficiency to create new efficiencies. Third, and usually the real blocking barrier, the leadership needs to allocate budget for the human development programs. This is incredibly hard to do. We had the opportunity to see this play out with a large oil company trying to implement a digital management system for large capital projects such as building an oil field or a new refinery. The leadership team had just spent $25M for the software, but its implementation team was saying that they needed to spend another $3M to get their people to use the system. No one wanted to say they were "suckered" (the word used by the implementation team leader) and had to spend a lot more money to cover up deficits in the technology or acquisition process.

SPEED, IMPACT AND SUSTAINABILITY

Speed

Most technology adoptions take many months to launch and years to complete. By following all the above tips, because of the underlying neuroscience, these timelines can be sharply reduced. For the DSC program, the implementation team completed all the re-scoping of BIG TIP #1 in a little over 3 weeks. They completed BIG #2, Little Tips #2.1-2.4 in a little over a month. The delays in BIG TIP #2, were reorganizing the functionality training because the technology wasn't stable, so the scenarios kept changing and getting leadership to align and commit to the new approach. The total to go from approval to comprehensive launch infrastructure was about 2 months.

Once this infrastructure was in place, the launch of the NeuroMentoring (BIG TIP 2, Little Tip 2.5) took 3 hours and covered an initial group of 50 people. These 50 were divided into 6 teams of 8-9, completing 2 Actions per week, tapping on their mobile NeuroMentor Technology for real-time support and recording their learnings. Facilitated by a senior manager, the teams met biweekly to debrief the learning and share adoption strategies. The entire program lasted a little over three months. In general, the literal adoption of any technology takes between 8 and 35 hours of work to have a complete adoption. This can be done in just a few weeks or over about 3-4 months. This is much faster than other approaches.

The biggest problems with the timelines of technology adoptions using these TIPS is not the human processes but the reliability and functionality of the software. This is the primary reason to use OTS software, to minimize delays. The biggest problem, assuming using OTS, is the writing of interfaces between the primary system and related systems, particularly systems that provide automated inputs to the primary system. These interfaces are never ready on time and, as a result, the sections about trusting the system inputs is at risk and if the users don't trust the inputs they don't trust the system. Most of the time, the timeline of the NeuroMentoring must be adjusted to accommodates software development delays.

Impact

Does this work? Management rarely has much insight into the progress of a technology adoption. They are told about release dates and number of users typically through PowerPoint presentations. These presentations are usually about new future milestones and new future groups, with little about how the system is doing in the moment. Fortunately, NeuroMentoring technology provides leadership transparency into how many of the actions have been completed and how well they have been completed. As one Executive VP of Sales commented about an SFA implementation: "This is the first time I can actually see the process of our SFA implementation."

Activity measurement helps, but behavioral measurement is better. Completing Little Tips 2.3 and 2.4, provides an idealized model of desired attitudes toward the new technology and capabilities using the new technology. Measurement of user alignment with these idealized models is easy, requiring only surveys of demonstration of the expert tips. The survey ask questions like:

- Rate on a scale of 1-5, the degree to which the user demonstrates effective balancing of daily work pressures with transformational change?

- Rate on a scale of 1-5, how well the user demonstrates utilizes the system's output in working with downstream groups?

Aggregating and statistically analyzing the responses gives a complete, accurate picture of demonstration of the idealized model the technology adoption. For example, in the DSC program, users averaged 90% alignment with the model and for a technology managing contractual relationships between healthcare providers a health insurance company, the contract managers using the new technology showed over a 99% alignment with the idealized model. The change in customer service for the health insurance company raised provider satisfaction scores over 20%. These tips work incredibly well.

Sustainability

Systems change constantly. There is never a stable end-state so there is never an end to technology adoption. The best ways to address this is to build a change embracing culture that system uses NeuroMentor Technology. In such cultures, change resilience is high and transformational leadership is prevalent throughout the organization. The NeuroMentor Technology gives the organization the ability to guide everyone in the organization in close to real time so every is comfortable with using technology to guide technology adoption. The best way to ensure that a technology adoption sticks, and sticks again when it is revised, and sticks again when it is revised again, and again, is to build a culture and the NeuroMentor Technology infrastructure that is always living these tips. Adoption of new technology is simply business as usual.

Leadership's Decision

Leadership of most organizations see the "new normal" as increasing the need for digital capabilities. There are many conventional wisdoms about how to digitize your environment, most of which are wrong. Your choice is emotionally complex. You can either try to implement the system you thought you wanted and actually bought, and fail, or change your perspective about the value of the system and implement the system that you can implement and make significant gains, just not exactly the ones you expected? Organizations who make the first choice live in institutional purgatory indefinitely. Leadership that makes the second choice, thrive in more positive ways than expected. Which do you choose?

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