Information Technology & Organizational Learning

Responsive Organizational Dynamism: Managing Technology using Organizational Learning Tools

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Good afternoon! Let me first say what an honor it is to have an opportunity to come here today, travel such a long way, and to be able to talk about my work, work that is very important to me, and whenever there is an opportunity to talk about that research with other people it is very enjoyable for me. I have also been able to follow for some time the work of this college and it's been very exciting for me to see the major enhances, particularly the creation of the new graduate school, and I am just delighted to be here today.

Today's topic is Information Technology and Organizational Learning. Some of you might ask, "What does organizational learning have to do with Information Technology, and why is that an important topic?" It is my position that organizational learning is perhaps the single most important issue that technology can affect—certainly as technology is used more, it becomes part of everything that goes on, not only in life, but in all aspects of business as well.

I'm going to ask all of you to step back a bit from your technical education, and to consider how the technology you learned in class is ultimately used in an organization. For I think I'll be able to show you today that it is understanding how technology is actually going to be used, how it's going to change the world, is the single most important aspect of what you do when you provide this technology to an organization.

The theory that I will talk to you about is called Responsive Organizational Dynamism, which I will define shortly. I will share with you my practical experiences with the many companies that I've worked with, most of them global enterprises, and show you how technology requires behavioral changes in the workplace. So let's first start this discussion with what is happening with technology in the world. And let me use a quote from my new book, *Informational Technology and Organizational Learning*, "Information Technology represents a broadening dimension of business life that affects everything we do inside an organization." Let me expand this a bit further. When I say "affects everything we do in an organization", it means that technology changes behavior and aspects of what goes on inside an organization. The last time we saw such an impact we called it the Industrial Revolution. Indeed the Industrial Revolution changed every aspect of life, there was no business, no home, no aspect of education that didn't get affected by the Industrial Revolution, and so, today, I will demonstrate to you that the same is true for technology, which will indeed lead us to the conclusion that technology is another revolution. In order to discuss this further, it is necessary to look at technology not as something you just create, a new program, a new capability, but let's look at it more as a variable, in other words, you're introducing technology into the world of an organization; what does it do? I call this variable "Technological Dynamism," and this "Dynamism" is what's making it so challenging for organizations to assimilate into their everyday operations.

Let's look at Information Technology as this variable, and let me now ask you to remember three things that are fundamental components of Technological Dynamism. I will present that these three components are consistently operating within organizations, businesses, educational institutions and every transac-

tion that occurs over the Internet. Let's define them:

First: we expect technology to accelerate events in our lives. Let me give you an example: in the educational community, ten years ago, if a student wanted to talk to me, they would typically make an appointment, and perhaps two or three days later they would get to me, and we would have a discussion. Three weeks ago I gave a final examination for one of my courses at Columbia University, and at a quarter of eleven in the evening I got eight e-mails requesting responses to questions about what would be on the exam. So as a faculty member at the University, my life has changed as a result of a technological innovation called "e-mail." I know I have to respond faster, be available sooner, in the hopes that my institution or organization is capable of handling this acceleration of events. What happens if I don't respond? If I don't respond to my students, they will not think of me as a very good faculty member. Therefore, institutions that cannot respond quickly to their students—may lose them.

Second: Dynamic Interactions from technological innovations foster the need to empower individuals and groups to make decisions at all times. Now what does that mean? This dynamic interaction means that I really don't know when and how technology innovations occur, they just happen! And they happen at different intervals and we need to be prepared as either an individual or a department or an organization to respond quickly to them. So it's not only that technology is accelerating life, it's very dynamic in the way it behaves.

The third variable, and perhaps one that may disturb many IT professionals, is that technology is rather unpredictable in terms of the way it eventually gets implemented in organizations. If you are uncomfortable with the word "unpredictable" as technology people, then perhaps we can settle on the word "uncertain." For example, how many of you really think that Steve Jobs from Apple thought that the Macintosh was designed to be used as a desktop publishing system? He likely had little or no notion of that at all. It just turned out that way. So what I ask you to think about with point number three, unpredictable or uncertain outcomes, is to think of one word: risk.

So here's the world that you're confronting. I'm asking you to live every day in an organization, dealing with an acceleration of events that requires change in a dynamic way. And the reality is that you're not really sure what's going to happen, and you have to take a risk, every time you create a new piece of software or every time you come out with a new type of hardware.

Remember though, that if you are developing new products for your organization that they must be accelerating transactions and events to really provide value. I'll show you today that if you're not accelerating events, I'm not sure anybody will be interested in the technology that you are developing.

Responsive Organizational Dynamism, which I refer to as ROD, is a set of integrative practices and responses to these very challenges. An organization must be responsive to Technological Dynamism, and if they are not responsive, they will be able to compete in a global economy. Another way of saying this is, forget about five year plans. Move quickly, and every day you walk into the office, you may have to respond to Technological Dynamism. Do not be fooled into thinking that Chief Executive Officers, Chief Operating Officers, or Chief Financial Officers understand this. They don't. The fact that they don't, is why this is so exciting, because of the opportunity you have to become leaders in technology innovation for years to come.

So let me give you a template. Let me give you some guidelines as to how you might consider doing this. There are essentially two components of Responsive Organizational Dynamism: Strategic Integration, and Cultural Assimilation. Let's first define Strategic Integration. It's the process that addresses the strategic impact of a technology on the organization. Let me be very clear here, the first question we should ask ourselves about a new technology is: Why do we need it? It must have strategic value to the business. Let me be even more specific. What competitive advantage does this technology provide for the business? Does it establish new markets? Does it support better service? And if you're thinking of having a series of meetings which may take a few weeks in order to make that decision, forget it! The organization may likely need to make a decision much sooner than that! Why?—because in today's world a delay of a few days could mean missing a crucial market opportunity. How's that for acceleration of events? Now let's talk about Cultural Assimilation, an equal partner of this dilemma. Cultural Assimilation is the ability of the organization to internally use a new technology. This includes the role of the IT department, how the technology will be assimilated within the organization as a whole. This means that it's one thing to have a technology that you know has value, it is another to be able to implement it in the existing organization. One without the other doesn't work.

Let me give you some examples. If you implement a new technology, it may create new roles and responsibilities for people in the organization. It may eliminate an existing job! And it may indeed create new jobs! And when do I need you to assimi-

late this cultural change? Now! What organizations and corporations are challenged with today is that both of these variables must work together, and if they don't, it doesn't work. In other words, you may have great strategy, but you can't implement it; or you might be able to implement a technology, but your strategy makes no sense.

I did a three-year study where I met with over 40 Chief Executives from different types of corporations. I spent a minimum of one hour with each of them, and here's what my result shows. One: technology is not consistently applied in firms and not regularly linked to strategic business events. Two: executives are unclear on how to manage technology. Three: operating departments and individuals are disjoint on how to use technology. And finally, technology lacks best practices.

Let's talk a little bit more about best practices. What do I mean by that? Well, let me give you an example. If you wanted to be a doctor, or you wanted to be an attorney, or you wanted to be an accountant, it would require a process where you need to obtain a license to practice. In technology, no such licensing, or as I would call it, governance, even exists. Think about it. What becomes a standard in the technology industry? Why are most of Microsoft's technologies considered standards? Because they are the leaders in technology, thus, might makes right in technology, not necessarily what is best. So we have these two powerful variables: Strategic Integration and Cultural Assimilation, I don't have lots of time, I've got to change things, and our research shows that we're inconsistent, we don't know how to manage it, we have no best practices, and we're disjoint. The question is, is there anything we can do about it? The answer is yes. IT departments must integrate themselves better with the cultures of their organizations. This can only be accomplished through changes in behavior. Behavioral changes do not occur from technology. They occur from learning, from reflecting, from looking at things differently, and being able to adopt these technologies and assimilate them.

Let's take a very popular product called SAP. SAP is an enterprise management product, we all know this type of software works, yet 50 percent of the time SAP implementations are unsuccessful. It doesn't fail because there's something wrong with the technology, it doesn't necessarily fail because it's not strategic; rather it fails because a particular organization cannot integrate the technology in their organization. They cannot integrate SAP because they fail to change the behavior of their people. The people who provide the most impact in this change and assimilation are what I call business line managers. Let me define that as a person who manages a day-to-day operation. If you don't have their support, if they're not involved in a product like SAP, you will fail.

Business events accelerate transformation. Now, what do I mean by this? It means if I present a learning opportunity that will have a clearly defined beginning and end, then I will be able to show results from an effort. There is nothing more effective to create change in behavior, than to ask an employee to try something different and guarantee an experience within a specific period. People who work in a warehouse are typically focused on their job, which is to process and ship things, as opposed to developing new vision; that is, they only have time for results. If you show someone in this situation a new technology, and ask them to experiment for a specific time period—and guarantee they will be able to see a result—good or bad, you stand a better chance of changing behavior and organizational development. It's nothing more than trial and error and results, but you must be able to do this very quickly.

I will now introduce the concept of reflection as an effective method to promote change and integration of technology. What I mean by reflection is the ability to look in the mirror and admit, "Maybe I'm not doing this task the right way. Maybe there's a better way." What can give me quicker results if I experiment with something new? What can I use, in a trial and error way, which will help promote change in behavior? What are the common factors that help promote such change? The most reliable project that has defined beginnings and endings are technology projects. Technology provides measurable outcomes! Either the technology worked or it didn't work! Either we got orders out faster or we didn't. That's a wonderful way to reflect and see if a new process is valuable to me as a worker or not.

Unfortunately, we know that the technology profession does not have official best practices. Therefore, we need to empower our organizations to experiment with technology certainly because we know projects end one way or another. So this is a perfect way of engaging an organization to embrace change from innovative technologies. So what does this mean? One: the days of the IT department being all alone, doing what it wants, are over. You must be an integrated organization within the rest of the community. So, making technology integrated is your challenge.

Here is what IT should accomplish to be successful. You must implement a means of establishing technology integration into the actual business processes. Also, stay away from technical methodologies. Every organization is unique; every culture

is different. Therefore, in each case, you have to find what works in that culture. The position of IT not being responsible for the business is faulty and unacceptable. If technology is not part of the everyday business function, it cannot succeed. Executives spend money on technology so that it will provide strategic performance and competitive advantage to the firm. If you have a technology that doesn't do that, why are you implementing it?

Perhaps the most difficult issue for organizations to deal with is to recognize that change resulting from emerging technologies is more the norm. Every business research study has shown that organizations do not like to change. That's reality. So we have a clash. We have organizations that won't change, and we have a variable that says, not only do you have to change, but you have to change dynamically, in an accelerating way, and at an unpredictable pace. How many people do you know in organizations that are willing to do this everyday? Another way of stating this is that you've got to be *change ready*.

So I've spent the first part of this lecture telling you the problem. I think it's now time to offer some solutions, and the good news is that there are solutions to this dilemma. There are essentially two dimensions of technology. This became evident to me after many discussions, reviews and consultations with corporations, and understanding that they saw IT in only one dimension.

So what I ask of you now, is to think of these two IT dimensions in terms of two words. One: are you a Driver? Two: are you a Supporter? Because depending on which one you are, it dramatically makes a difference on how you will use technology and value it. My most recent studies that involved Chief Executives, Chief Operating Officers, and Chief Financial Officers made it clear that presenting technology as either a Driver or Supporter was the most effective way to get these executives to understand the dimensionality of IT. What is also important is that if these executives understand Driver and Supporter then they will implement it. Whether a technology is a Driver or a Supporter relates to the behavior and contribution that a technology can make to the goals of the organization. So this is the time to sit back and say am I a Driver, or am I a Supporter? One is not worse than the other, or better. It is very important for you to understand that.

Let's first start with defining a Driver. A Driver department is defined as a unit that engages in direct revenue generating activities. You're driving revenue. If you are driving revenue, what are you expected to do? You're expected to be daring. You're expected to engage in higher risk oriented operations. You behave this way because you're expected to get monetary returns for the business. So those organizations and departments that are Drivers must take risks—and this risk is the norm—it's expected. How many of you have ever been in marketing? Did you think that salespeople sell every day? Did they not have a win/loss ratio? You can't bat, as they say in baseball, a thousand. How many technology projects have you been on where this concept is discussed? How then do we determine what a Driver technology is? It is dangerous to define a technology Driver as something that must generate revenue, because we know that not all technology products can generate direct returns. So let me step back for a minute and give you something that will make it easier to determine whether your technology is a Driver. To do this, I will refer to a simple definition of a market. A market is defined as a relationship between a buyer and a seller. Rather than think of a technology Driver as something that generates revenue, think of it as something that changes the relationship between the buyer and the seller where your organization represents the seller. So if you want to put in a new e-mail system, it must change the relationship between the buyer and the seller. There better be something that your customer will get out of this. If not, why are you doing it? So when you create the latest and greatest technology, don't walk into the CEO and tell him/her how good the technology is, rather tell the CEO how it changes the relationship between your customers. And if you cannot do that, your technology is less valuable to the organization. The impact of whether you are a Driver or not a Driver means little unless you understand the other dimension: Supporter.

Supporter functions are units that do not generate obvious direct revenues, but rather support Driver units. Supporter departments, by their very nature, are evaluated on effectiveness, efficiencies, economies of scale. That is, do it cheaper and cheaper and cheaper. Any executive that looks at IT as a cost center only sees a Supporter role. And indeed this is what most chief executives see. They need help. They need your help. Chief executives need to understand that there is another dimension of technology. This technology Driver comes with uncertainty. We're going to have to take a risk, and you know what? We may have to throw it away sometimes. This is not fiction. For example, the former CIO of the Americas for Siemens Corporation; his name is Dana Deasy, had a 90 day concept. Every 90 days they would review major new technology projects. Some went forward. Some got canceled. Some had major changes. New technology projects did not bat a thousand. Incidental-

ly, if you think that this cannot be done in a large organization, Siemens Corporation has over 450 employees in 139 companies. That means 139 Chief Information Officers. Yet they realized five years ago that if they were going to be able to compete in this world, they had to adapt to a Driver technology concept and they had to have technical people who understood how that worked throughout their organizations.

Another way of seeing a Supporter is measuring it like you would any commodity product. That is, cost is the only issue. So if you are a programmer, and all you do is support work, then you will be judged solely on your technical abilities. But if you have the ability to also do Driver activities, that is, the ability to talk about new innovation, to understand how that affects the business, now you've really got my interest! You see, a Driver is never a commodity. So let's look at this: is IT a Driver or a Supporter? The answer is yes! It's both. And that is the heart of the difficulty of understanding how to manage it. Let me put this into further context. All initial IT initiatives should start out as a Driver and then eventually become a Supporter. What we're talking about here is a description of a technology life cycle that transforms in risk and value over time. So here it is, and you should write this down, if you have a new technology, and it doesn't change the relationship between the buyer and the seller, there's no reason to use it; simply because it has no strategic value to the business. However, all Driver technologies will eventually become Supporters. I guarantee you, all technologies eventually become commodities. So when you first implement technology, you're a Driver, you take risks, you're not sure the way it's going to come out, you've got to be change ready. Once you implement the technology will eventually lose its competitive edge, and then you look and measure it based on efficiency and economies of scale.

Let me provide you with two examples. Ten years ago, if you came to Columbia University, and I told you I had e-mail, you would say "what an advantage." Today, you would likely say: "So what? So does everyone else." So email went from being a competitive advantage for attracting new students to an expectation—an expectation that every college provides email—that's a commodity!

Second example. An international company called the Leading Hotels of the World. They are an organization that provides luxury vacations for wealthy people. Eight years ago, wealthy people picked up a phone when they wanted to go somewhere fancy. Five years ago, the Leading Hotels of the World implemented a new technology that provided an automated reservation system. It was a competitive advantage. It was a Driver. What do you think the competitive advantage today of having an automated reservation system is. Probably ZERO! Your customers assume you have one. Here, again we see a Driver technology transform into a Supporter technology. Therefore, IT can drive business strategy, and yet support it at the same time. Fundamental, but yet few people actually understand it. The way to imagine this dual role is to understand that technology starts out as a Driver. If you're not a Driver, don't even invest in the technology. At some point we re-evaluate this technology like Siemens did, because we are taking a risk with any new technology, and we are not sure how it's going to work out. Eventually the technology matures and is operating in the business. And then, there may be what I call these mini loops, which are enhancements made to the product over some period of time. Although during this phase it is still a Driver, it will eventually mature and become a Supporter which means it is no longer a competitive edge for the business! This means that your competitors have the same technology. And, when that occurs, we will measure the technology in economies of scale, and it can either be replaced, or it's a candidate to be outsourced. However, you would never, ever outsource a Driver technology.

Another way of understanding this concept is to relate it to an s-curve in marketing, where a new technology or a new product introduction continues to grow in sales, but at some point, it slacks off. That slack means it's now a Supporter. Sometimes, product enhancements can rejuvenate and prolong the life of a Driver because the enhancement provides new competitive advantage. In this case, you've just modified the

life cycle of a piece of technology.

When we look at value from a Driver, we have to be careful. In the case of the reservation system example, one could see the direct returns, because the system allowed customers to make more reservations, which could be easily allocated to additional profit. Another type of return is known as Hybrid Direct, where we know the technology is participating in the benefit of monetary returns, but it's very, very difficult to pinpoint exactly how much it is, so we apportion it in some way—sometimes using an algorithm. An example of this can be seen when technology is used to support stock markets where we know the technology is an important component of generating revenue, but not the only part. Yet another method of measuring value is called "Indirect." That is, there are no related direct benefits, but yet the firm understands that there is a related benefit. A good example of indirect benefits is a customer help line. Is it really generating revenue? No, but it's generating a strategic benefit called customer support. Finally there is a very common IT value that nobody ever likes to use called "none." If we put a desktop computer on an employee's desk, am I going to waste time to determine whether it's a Driver or a Supporter? That obviously makes no sense. Simply put, we call this type of investment "a cost of doing business." If you're going to be in business, you've got to have desktop computing. If you're going to be a school, you have to have a podium, you have to have projectors. You can't really apportion that.

Thus far we have established the problem and the solution. The third and final step is: how do we do it?

Integration is the fundamental key. IT and non-IT must become almost invisible in the way they work together. We're becoming a society of specialists. Notwithstanding what department we happen to belong to, IT and non-IT contribute to all business units and all IT specific issues. Let me be more specific: value what non-IT people know about technology. They know more about technology than you think they do, because they look at it from a different perspective. At the same time, invite your technology people into meetings. It's amazing how much they know about your business. Show me an organization that has this type of structure and I will show you an organization that can respond dynamically to changes. And those of you that are considering a technical career only, do not think you're going to be exempt from participating in these discussions. You won't be!

So, what is technology then? It is our most significant agent of change. We finally have an agent that demands organizational change. There's no choice. If you don't change, you won't be around. To summarize these three issues, acceleration, dynamic behavior, unpredictable outcome, fosters the need for organizations to change on an ongoing basis. Organizations do not like to change, but technology requires organizations to reinvent themselves, and evolve new cultures that are what I call change ready. So let's move through the survival guide. One: you must address operational weaknesses in the organization in terms of how to deal with new technologies, and how to better realize business benefits. If you've got places in an organization where this is not being done, your organization and your business is going to be in trouble. Provide a mechanism that both enables the organization to deal with accelerated change caused by technological innovations, and that integrates them in a new cycle of processing and handling change.

This lecture is not about "this would be nice to do if we had the time," this discussion is about "survival and an ability to compete in a new world." We don't have time for weekly meetings. The meetings have to be dynamic. The people involved in IT and non-IT have to be working seamlessly together. If there are communication problems and gaps they have to be taken care of. You must constantly monitor IT investments, like Siemens did, and you must have practices that require everyone in the organization to be strategic, including programmers, network people, and technology managers. I recognize that we cannot do this alone. Executives and managers need to step up to the plate and be educated. They must allow IT and non-IT to work together. They must educate all levels of their organization. They must understand Driver/Supporter, they must participate in this life cycle, and they must be champions of a change ready organization.

So I leave you with this: don't be an advanced technological company, be a mature technological company, and don't confuse the difference between advanced and mature. A mature technology organization is one where technology is evaluated based on strategic value. Strategic integration of technology must always be evaluated based on the ability of the organization to assimilate it. Assimilation goes beyond the staff, the warehouse, it means everyone. And finally, where we started this discussion, whatever that process is, it better deal with accelerated pressures to respond, dynamic changing behaviors of your customers, and the unpredictability inevitably of what you're trying to implement technically.

Thank you again for the honor of being able to be here to speak today, and for being such a wonderful audience.

(June 10, 2005)