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**IT-enabled Business Change:  
An Approach to Understanding  
and Managing Risk**

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**Abstract:** IT projects aimed at enabling business change have become larger and more critical in recent years. But despite improved technical functionality and reliability there are persistent project overruns, delays and downright failure. A recent summary estimated that 30 to 70% of IT projects aimed at process improvement do not live up to expectations. This echoes early research on IT project implementation. With major IT-enabled process changes, involved in ERP, CRM, and SCM projects, major delays and overruns can result in missing revenue and profit targets for firms. Over the years the stakes have grown but business still has problems in managing IT-enabled projects. This paper addresses why and what can be done.

It is argued that the problem stems from senior and project management failing to take three steps: (1) assessing the risks of the change up front (the most serious are the changes needed in the business, not the changes in the technology; (2) mitigating the causes of highest risk at the front end and as the project progresses; and (3) adjusting the method of project management to minimize the remaining risks. This assess-mitigate-adjust approach aims to minimize the risks over a project's lifecycle and thereby increase the chances of success.

**Keywords:** IT-enabled change, organizational change management, IT project implementation, project risk assessment, project management



## IT-enabled Business Change: An Approach to Understanding and Managing Risk

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IT projects aimed at enabling business change have become larger and more critical in recent years. But despite improved technical functionality and reliability, there are persistent project overruns, delays and downright failure. A recent summary estimated that 30 to 70% of IT projects aimed at process improvement do not live up to expectations.<sup>1</sup> This echoes early research on IT project implementation.<sup>2</sup> With major IT-enabled process changes involved in ERP, CRM, and SCM projects, major delays and overruns can result in missing revenue and profit targets for firms. Over the years the stakes have grown but business still has problems in managing IT-enabled projects. Why? What can managers do about it?

Big projects can fail for many reasons. Managers need an approach and tools which are general and flexible yet which also force specific analysis and corrective action in particular circumstances. Not infrequently the technology itself is to blame: vendor packages don't scale up, custom software projects explode due to scope creep, or the new systems bogs down due to the integration of diverse products, legacy systems and new data. While it is not easy to anticipate, technical failure is at least containable: with the right expertise, the technical analysis and corrections can fix projects before they impact the business.<sup>3</sup> But to get business results from technology, business change is necessary. The focus should be on the many things that can go wrong in making positive business change happen. Recent research, case studies and anecdotal evidence from executives confronted with these types of projects point to the growing importance of this focus.<sup>4</sup> Assuming a technology that works, managing business change means anticipating and changing such things as process design, organization structure, incentives and rewards, cultural practices, and the skills, attitudes, and ultimately the work behavior of employees. Nothing seems more obvious, in a way; yet nothing has been more difficult, more misunderstood and more neglected in practice.

Before embarking on any project that requires business change, wise management will assess the risks inherent in change and look for methods to lessen these risks. At each project milestone,

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<sup>1</sup> See McAfee and Andrew, "When Too Much IT Knowledge Is a Dangerous Thing," *MIT Sloan Management Review*, Winter 2003, pp 83–89.

<sup>2</sup> My research of 18 software application projects, conducted in the distant history of the computer era, showed that only three were fully successful in delivering expected business results. See Gibson, C.F. and Singer, C.J., "New Risks for MIS Managers," *Computerworld*, April 19, 1982.

<sup>3</sup> An early and still relevant way to view the technical risk assessment and project adaptation to risk, by F.W. McFarlan is Chapter 10 in Applegate, L.M., Austin, R.D. and McFarlan, F.W., *Corporate Information Strategy and Management: Text and Cases*, sixth edition. Boston, MA, McGraw-Hill Irwin, 2003. For adaptations to IT project management which have evolved to improve technical delivery and also to ensure better organizational acceptance and implementation, see Fichman, R.G. and Moses, S.A., "An Incremental Process for Software Implementation," *MIT Sloan Management Review*, Winter 1997, pp 39–52, and MacCormack, A., "How Internet Companies Build Software," *MIT Sloan Management Review*, Winter 2001, pp. 75–84.

<sup>4</sup> For recent academic research see Brown, Carol V. and Vessey, Iris, "Managing the Next Wave of Enterprise Systems: Leveraging Lessons from ERP," *MIS Quarterly Executive*, Vol 2, No.1, March 2003, pp. 65–77. For case studies see Seeger, J.A., Lorsch, J.W. and Gibson, C.F., "First National City Bank Operating Group," cases (A), (A-1), (B), (B-1), Harvard Business School Case Services, 1974 and 1975, and Zuboff, S. "The Expense Tracking System at Tiger Creek," Harvard Business School Case Study 485–057.

risk assessment can be repeated. This article provides an approach for risk assessment, up-front mitigation of risk and ways to manage projects to minimize the risk over the project lifecycle. We start with three illustrative examples of project failure. Then the successful case of an ERP at Dow Corning Corporation shows effective business change management. Drawing on the Dow Corning example, as well as my 30 years of experience in the field, a three-step approach is presented. These include utilizing first, a decision-tree diagnostic for assessing change risk; second, early actions to mitigate the highest risk situations; and third alternative methods for managing change projects to minimize the remaining risk.

## **HOW BAD CAN IT GET?**

Sometimes nothing can change people's behavior. In one unionized electric utility, senior management saw an opportunity to automate the dispatching of field repair and service personnel. Management believed the dispatchers and repair people would experience little change. Indeed the efficiency of going to a client-server desktop and centrally accessible database log would make the job easier and position the company for long-term gains in efficiency and cost savings. The union said "No way." There was a prolonged arbitration with academic expert witnesses on both sides.

The company's representative argued the change would be minimal in terms of mental difficulty and would benefit the staff by bringing them into the computer age. The union's representative argued that the computer was an instrument of subversive management control that would stress the people. The company lost. In retrospect, company management seriously underestimated the chasm in values and perspectives between management and the union, a chasm concretely manifested in work rules in the contract. The contract conflict resulted in deferring the change for many years.

Sometimes change is possible, but management leadership is out of touch with people's resistance. At First National City Bank, the predecessor to Citibank, a major reorganization of demand-deposit accounting operations was undertaken. A published case study illustrated the timeless basic issues of top-down driven change, indeed precisely what has come to be called "process reengineering," meeting workforce resistance.<sup>5</sup> New managers from outside the company and the industry designed in meticulous detail new paper flow processes to replace functional silos. They assumed the workforce would love the crisp new factory environment. Cutover was top-down and big bang. At cutover, a disgruntled and fearful workforce resisted with indifference and even acts of sabotage. The result was a blowup. The bank was unable to meet the daily exchange of paper at the Federal Reserve; books were out of balance for weeks. The aggressive, efficiency-oriented new managers were seen by their subordinates, previously nurtured by the old customer-oriented banking culture, as ruthless and insensitive.

Increasingly, failure of these large projects is affecting business performance and the careers of senior executives. At Cybex, a \$125 million successful exercise equipment manufacturer in 1998, it was decided to implement an ERP to rationalize diverse operational systems, focus the business for future growth and deal with Y2K.<sup>6</sup> After spending \$7 million, double the original estimate and extending implementation to two years compared to a planned four months, operational problems

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<sup>5</sup> Seeger, J.A., Lorsch, J.W. and Gibson, C.F. "First National City Bank Operating Group," cases (A), (A-1), (B), {B-1), Harvard Business School Case Services, 1974 and 1975.

<sup>6</sup> See the case study, "Cybex: ERP, e-Business, and the CEO," by F. Paublannt and C. Gibson, MIT Sloan School of Management, December 2000.

instead of solutions began to affect sales and profits. The stock price declined to less than a fourth of its value in 1998. The CEO who had championed the project was dismissed. While many of Cybex's problems with the ERP were technical, a reflective management highlighted severe underestimation of the business change required: too many diverse initiatives, and too much change in sales, distribution and manufacturing to be absorbed all at once.

These examples suggest managing business change can range in difficulty and severity, it can be seeded in employee resistance or inherent in the degree of change and the nature of the project. A management approach to understanding and mitigating risk for all situations must be contingent and flexible, to make allowance for all the different issues that can arise. After looking at one company's success in managing business change in these terms we present such an approach.

### **A SUCCESS: DOW CORNING'S ERP**

In 1995 Dow Corning was a company in serious trouble.<sup>7</sup> After 50 years of profitable, mostly double digit growth for its owners, Dow Chemical and Corning Inc., the \$2.2 billion company was experiencing increasing global competition for its broad silicone-based product line. More pressing was the infamous breast implant situation: thousands of recipients of the product were lining up for jury trials, in many instances encouraged and led by lawyers and doctors eager to plead their case.

With increasing pressure on earnings and in the highly publicized breast implant crisis atmosphere, the Dow Corning Board named Dick Hazleton, a career company veteran, as CEO. While Hazleton recognized that the breast implant situation would demand the full attention of some of his senior management team, he also realized the importance of maintaining the short and long term health of Dow Corning's underlying business. He thus led his operating committee of 16 executives through a strategic review. Their time frame was a decade. The business strategy that had evolved and served the company well was to be left intact. The focus of change was business processes and the use of IT as a significant enabler of change. Such a role for IT would be new for Dow Corning in light of limited IT success to that point with change-critical large projects.

Hazleton and the operating committee assessed that the risk of success for IT-enabled operational change was very high. Dow Corning's IT organization had failed in a recent attempt to build a global order-entry system. It was impossible for the analysts to get consensus among autonomous regional business units on systems requirements. Organizational decision making was consensus oriented. While employees supported management in the current crisis situation, they had never experienced major change. Management knew the Dow Corning culture was characterized by existing practices, long job tenure and employee loyalty, but the case that transformational change was necessary had to be made.<sup>8</sup> Management made two key decisions.

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<sup>7</sup> See the case series, Ross, J.W., "Dow Corning Corporation: Business Processes and Information Technology", MIT Sloan Center for Information Systems Research Working Paper #298, April 1997, and Ross, J.W., "Dow Corning Corporation C: Transforming the Organization", MIT Sloan CISR Working Paper #305, June 1999.

<sup>8</sup> As the breast implant problem provoked public criticism of the company, including a TV roasting by Connie Chung and determination by the Surgeon General that the product be taken off the market, employees voluntarily took out a six-page ad in the headquarters town newspaper, with over 5,000 signatures under the words: To: Dow Corning Executive Management, Your employees are behind you 100%. There later proved to be no relationship between the implants and any illness; see Angell, Marcia (M.D.), Science On Trial: The Clash of Medical Evidence and the Law in the Breast Implant Case, New York, W.W. Norton, 1996.

The first decision, in what I term phase zero, was to put Charlie Lacefield in charge of IT and also the operational change program. Lacefield, a member of the operating committee, had thirty years experience in manufacturing and engineering at Dow Corning, would report to the Office of the CEO and would have direct access to CEO Hazleton. The second decision, made on Lacefield's recommendation, was to acquire and implement SAP's R3 ERP. Hazleton and the operating committee committed to implement the ERP modules, with minimal modifications, and to support the associated operational changes.

Lacefield called the change program "Project Pride." It unfolded in four distinct phases over three years of implementation, 1996–1999. Each phase reflected different business change risks and needed different styles of project management. In phase one Lacefield was most concerned about learning the SAP R3 systems with a constant eye on how to ensure that employees would accept changes down the line. He decided not to use consultants to any extent, but to build capability and commitment to the systems and the changes by having the work done in house. He asked his colleagues for, and received 40 of the best, most respected middle managers from operations around the world. He made them the full-time implementation team. Few had any direct IT experience, but they worked closely with Lacefield's IT function. Employing a typical Dow Corning project management approach, consensus-oriented and with flexible milestones, the team began to learn SAP and to design work process changes to match SAP without modifying it.

Phase two of "Project Pride" began during the first year as Lacefield reacted to what he saw as the limitations of the consensus-learning project style. While creative learning was certainly occurring, and the team of 40 became deeply committed to understanding SAP, little progress was made on redesigning processes. Employees in the field, aware of the executive pronouncements that big change was coming, were beginning to question the lack of firm milestones and signs of progress. Lacefield took two important actions. First he changed the project manager from one relatively comfortable with technology to a highly respected, strong, result-oriented plant manager who had previously worked under him in manufacturing. Second, he tightened project planning to become more rigid: deadlines were set and expected to be met for a pilot implementation. At the same time he left the "Project Pride" implementation team in charge of how they used their resources to meet those deadlines. This project approach was used through the successful, though stressful, completion of the pilot implementation. The pilot was a full cutover to SAP for virtually all operations of a recently acquired autonomous business in Europe. The success of the pilot soon resonated throughout the Dow Corning culture as a symbol of top management's determination and the capability of the "Project Pride" team.

With the pilot done, Lacefield recognized that he was in a new phase. There was a need for a change in project management to enable the worldwide implementation of SAP. The broad, global scope and urgency of the project drove the risk and kept it high, despite the fact that a climate of employee receptivity had been created. Lacefield modified the project style by strengthening the authoritative nature of his leadership and that of his lieutenants, while still permitting flexibility at the ground level. In the crucial period from 1997 into 1998, he led a relentless and unprecedented change effort at Dow Corning. He traveled extensively to spread the word and rally the project teams implementing SAP. He personally negotiated with and pressed his executive colleagues and old personal friends to adhere to their commitment to make changes. A key change came in 1998 when Hazleton agreed to make project implementation one

of the significant performance goals for the senior levels of line management. It was a strong statement of support for “Project Pride”.

At this point the fourth and final phase was underway. Although there were several pockets of reluctance, they were generally employees trying to maintain good customer relations and meet their operational goals, a more positive form of resistance. Lacefield and the teams picked up the pace and tightened and made rigid deadlines for site-specific sub-projects. Senior management stressed the new goals. Implementation time for sites went from 18 months after the pilot to four months in late 1998. In 1999 Lacefield essentially completed the installation of SAP. Dow Corning became the largest successful single-database installation of SAP R3 at that time, providing global integration for the company. This distillation and extraction of aspects of the Dow Corning case illustrates change management as advocated here. In my terms, the managers cited at Dow Corning were intuitively mindful that change in work behavior by employees and managers was key to success. In each phase they implicitly or explicitly conducted *change risk assessments*, made *mitigation decisions* to reduce risk, and adjusted the *method of project management* to cope with remaining risk. In what follows, these components are presented as three steps in a general and recommended explicit approach to understanding and managing risk: assessing change risk, mitigating change risk and managing change projects.

### Step One: Assessing Change Risk

The risk that a large IT-enabled project will fail for lack of business change should be assessed by top management at the very conception of the project and by project management at key phases over the life of the project. Up front the business case should explicitly present the overall change risk assessment. As suggested earlier distinction should be made between *change* risk and *IT technical* risk. Technical risk is reasonably well handled in practice by modular development, by outsourcing the building of the systems or by purchasing packages. But success in the technical part of a project only results in the system meeting its test specs. Overall business change risk must be assessed well in advance of manifest danger signals. Based on research, cases and my experience in both academia and in management consulting, there are three factors that will help to determine and lessen business change risk.<sup>9</sup> These are:

1. *Leadership* of the change
2. *Employee’ Perspective* on the change
3. *The Scope and Urgency* of the change

These three factors should be assessed in a binary way, whether each is positive and headed toward low change risk or negative and headed toward high change risk. The decision tree diagram in Figure 1 shows the eight paths that result from the binary assessment.<sup>10</sup> This results in a continuum on the right from low risk at the top (all three factors positive) to high risk at the bottom (all three factors negative). The most important factor for affecting risk in any particular situation should be placed on the left in the decision tree, as the assessment of it immediately

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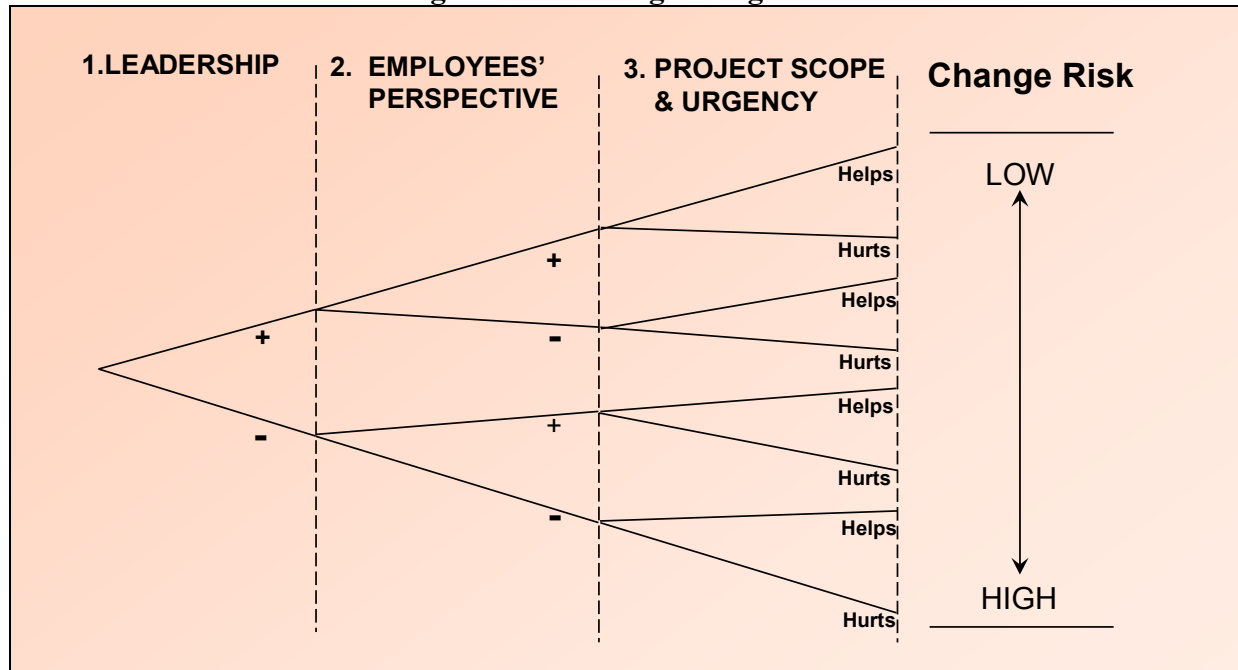
<sup>9</sup> These three factors are similar to those derived independently by Christensen: resources (leadership), processes (scope and urgency), and values (employees’ perspective). See Christensen, C.M. and Overdorf, M., “Meeting the Challenge of Disruptive Change,” *Harvard Business Review*, March–April, 2000, pp 67–76.

<sup>10</sup> I owe the idea of contingent factors combining to lead to alternative choices of action and the “decision tree” form to Victor Vroom. See Vroom, V.H. and Yetton, P.W., *Leadership and Decision-Making*. Pittsburgh, University of Pittsburgh, 1973.



drives the risk below or above the median regardless of the outcomes of the other two factors. Figure 1 shows, more or less arbitrarily, leadership as the driver of risk, employee perspective second and scope and urgency third in importance.

**Figure 1: Assessing Change Risk**



### *Leadership Assessment*

*Leadership* refers to the manager or managers responsible for the change. This may be a project manager but, in most situations, line managers, those whose subordinates are expected to change the work they are doing, are also key leaders. While a project may be known by its IT flavor, such as ERP or CRM or a web-centered project, the IT project manager or the systems integrator or consultants are poor choices for the overall change management leader.

There are six specific questions for leadership assessment:

1. Are the leaders *committed* to the business case for this project?
2. Do the leaders *understand* the extent of change in work behavior required for success of the project?
3. Are the leaders *formally motivated* to accomplish the change? For example, is the achievement of the project's business goals (increased productivity, effectiveness or major transformation) built into and consistent with their performance goals?
4. Do the leaders at the proper organizational level and position have the *formal power* to exercise influence over change in work behavior of the target people?
5. Do the leaders have *experience* with a project of this scope, urgency and impact on people?
6. Do the leaders have *informal power* with respect to the people? Are they respected in the culture, articulate in making a case for change, credible, influential?

The answers to these questions may be mixed positives and negatives, and giving weight to the questions is necessarily a matter of judgment in each situation. In some cases the lack of formal power may itself make the binary assessment negative. In other cases and cultures it may not be that important.

### *Employees' Perspective Assessment*

Assessing how employees will perceive and take to change in their work is at the heart of change management. A formal questionnaire survey may be used, but there is no substitute for hard-headed discussion among the leadership and managers who have insights from long experience with their people and organizational culture. There are two broad questions to guide discussion and yield a binary positive or negative assessment on this factor:

1. With respect to the change needed, in the time necessary, will the people affected:

#### *Embrace the change with enthusiasm?*

Not all change meets resistance. If the timing and organizational context are right, particularly if the reward system is such that the new information or processing enables people to see the change as conducive to promotion or pay or prestige, they can and will take to it. However, assessors should beware the trap that managers and IT advocates often fall into, projecting their positive views of the change onto the people under assessment. This was a big part of the problem in the examples above of the electric utility and First National City Bank.

#### *Follow orders?*

In some cultures it may be sufficient to announce a major change and have employees fall in line with support. Such an assessment should be made carefully, as it means employees have the same perspective as top managers who have embraced the change. By definition major change means doing things differently and employees who will follow orders to change roles need to abandon their old work behaviors. If this is what they truly will do then a positive answer to this sub-question means the employee perspective factor is positive.

#### *Follow others?*

Just as the informal influence of leaders can tip that factor to positive, so can the norms and values in the organizational culture. The informal leaders, peers of those not affected, can sway opinion at the water cooler and in the local pub. But the employee perspective risk begins to rise if this is the assessed conclusion. At First National City Bank these influential people were the first to become negative toward the change. At Dow Corning there was a cultural proclivity to follow others, but not at first. Generally, however, if employees tend to follow others, this factor up front can be positive.

#### *Wait and see?*

Indifference is the insidious enemy of change. Yet it is a perfectly rational response from employees when they experience conflicting signals about what is wanted or when they are unsure leaders are doing the right thing. At Dow Corning employees tended to follow the extant incentives and directions to meet current performance goals using current processes supported by established work behavior. When it came to an unprecedented transformation, mere pronouncement from the top, and even top management commitment, was not sufficient. A negative answer on this sub-question suggests that

more effort at understanding employees' views is needed and should tip the overall employees' perspective factor assessment to negative.

#### *Resist?*

Overt resistance and passive resistance to change in work can be hard to anticipate, and even harder to understand. My experience is that as often as not "resistance" may be the people adhering to other work objectives, such as meeting quarterly sales or production targets. Sometimes resistance is institutionalized, as in the union resistance in the electric utility example. If this is the case, the employees' perspective factor is negative.

#### *Sabotage?*

Deliberate destruction of a new system and new work requirements is rare. Yet, as seen in the First National City Bank example, the outlet to pent-up frustration and sense of powerlessness can lead to sabotage. Anticipation of sabotage clearly puts the employee perspective factor as the primary driver of risk, to the extreme left in the guiding diagram like Figure 1, and a positive assessment of neither of the other two factors, leadership or scope and urgency, can reduce the risk into the safety range above the median on the right of the diagram.

## 2. Why?

In discussing employee perspective managers should bring in their personal experience with the culture of the organization. In some companies talking about such "soft" issues is frowned upon. But at Dow Corning such considerations were a normal part of "Project Pride" execution. In general an analytical sensitivity and discussion of people issues is nothing more than being explicit about what good managers anywhere do intuitively: consider the outcome of a change on how targeted employees will react to it.<sup>11</sup>

Large organizations dealing with extensive change projects have different subcultures and will have different assessments for different groups. Manufacturing in Milan may enthusiastically embrace a change for efficiency from a new ERP while sales in Schenectady resist. Moreover, as illustrated in phases three and four of "Project Pride" at Dow Corning, these differences can lead to different assessments of risk over time. But as a guide for dialogue management should force a binary positive or negative for this employees' perspective factor, as for the other two factors.

### *Scope and Urgency Assessment*

In assessing this factor three questions are key.

#### 1. Is the scope of the project wide or narrow?

Usually the greater the scope of a project (i.e., the number of people affected, the degree of change required, the number of separate organizational functions or units involved) the higher the risk. At Dow Corning as in most ERP situations greater scope invariably meant greater risk.

#### 2. Is the scope of change deep and severe, or not?

Process change may be minor or major, affecting much of the work and calling for significant work behavior change. It is vital to assess the precise nature of the changes in

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<sup>11</sup> For an approach to managing people which attempts to combine organizational goals with an understanding of people, see Gibson, C.F., *Managing Organizational Behavior: Text and Cases*, Homewood, IL, Richard D. Irwin, 1980.

work. An excellent tool for this is the “Matrix of Change” by Brynjolfsson et al.<sup>12</sup> From that can come the overall binary assessment on this question.

### 3. What is the effect of urgency?

The need to move quickly is clearly a risk factor. Lack of time to plan effectively can hurt. However, does a project done rapidly for reasons of survival necessarily carry higher risk that the change will fail? Urgency may help or hurt a project’s success. It depends. At Dow Corning, urgency was a positive factor. The breast implant crisis and the deteriorating competitive situation were abundantly attention-getting for top management and for virtually all employees. For many companies Y2K offered positive urgency to many IT-enabled change projects in the late 1990s. Similar environmentally-mandated changes such as privacy legislation and Sarbanes-Oxley accountability may serve to make urgency positive as well.

To see the importance of Step One, assessing change risk, consider what might have been in each of the three “How bad can it get?” examples. Thoughtful assessment would have raised the flag of high change risk at the beginning of each of those projects and at several points along the way. At the electric utility the employees’ perspective factor was the primary driver and negative. At First National City Bank new leadership was inexperienced in dealing with the back office culture, their formal power of little help to an alien workforce; scope and urgency increased risk. In short all three factors were negative leading to the highest risk possible. At Cybex, top management undertook a change none had experienced before, and under pressure from urgency did not reflect on the consequences of multiple simultaneous changes in sales, manufacturing and channels of distribution. The leadership and scope and urgency led to high risk.

Assessing business change risk should be thought of as an agenda and checklist for discussion, institutionalized formally or undertaken informally by senior managers. At a leading retail financial investment company, assessing change risk using the decision tree in Figure 1 is a formal requirement for line managers in making the business case for an IT-enabled project.<sup>13</sup> There and elsewhere high risk outcomes on Figure 1 should lead to mitigation actions prior to actual implementation.

## STEP TWO: MITIGATING CHANGE RISK

“Mitigation” is nothing more nor less than thoughtful management action based on anticipation of high change risk. Hazleton’s and top management’s implicit high risk assessment in contemplating a transformation of operations at Dow Corning led to two mitigating actions. They inserted new leadership and selected a package so that the focus would be on change, not technology itself. In phase two, Lacefield mitigated the risk by assigning a new experienced project manager. Had the managers in the electric utility case plumbed the antipathy and union strength more carefully, mitigation might have taken the path of an eventual careful renegotiation of the union contract. Had the ambitious new managers at First National City Bank stepped back from their top-down approach to first understand the workforce perspective, such as by promoting to their group a few highly selected middle managers out of the tenured ranks, the risk would have been reduced. Had an experienced line manager been placed in charge of Cybex’s

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<sup>12</sup> Brynjolfsson, E., Renshaw, A.A. and Van Alstyne, M. “The Matrix of Change,” *MIT Sloan Management Review*, Winter 1997, pp 37–54, reprint 3823.

<sup>13</sup> This was reported by Bob Destefano, CIO of Vanguard, in a presentation at the MIT Sloan School in a seminar on IT Management in 2001.

implementation and the project scope reduced to manageable phases, risk could have become manageable. In all these examples, mitigation essentially reworks the decision tree in Figure 1 by changing one or more negative factors to positive.

Mitigation is difficult for several reasons. In many large projects commitments have been made and the technical work is well underway before implementation or change risk is considered. Even worse, many IT projects are considered just that—to be purchased or built and also *installed* by the IT department or by outside consultants. Slowing down a project until change risk is mitigated, thereby breaking pronouncements and commitments can mean loss of credibility, upset to schedule coordination and invariably more cost. Finally, mitigating action is also rare because a focused management mind set can be devilishly hard to change.<sup>14</sup> To make these hard calls is a test that senior managers increasingly face as IT-enabled change continues to grow in impact.

Mitigation for major projects is a strategic matter for a corporation's top management. In a current and ongoing example as of this writing, at Celanese, top management understood the high risk of key people resisting a major financial and operational process consolidation across divisions. Karl Wachs, the CIO who worked closely with the CEO, spent eleven months on the front end, before the technical work became visible, selling the project to the division presidents who were the key people to be affected.<sup>15</sup> Celanese management saw that they were doing much more than implementing an IT system. In fact, they perceived that the organization was headed toward a new culture and new way of working. Tangible work behavior change to use the system is often only the tip of the iceberg for a new way of operating. Long term benefits of faster financial reporting and more uniform processes at Celanese may mean tighter centralized control and intervention on previously autonomous divisions. In such instances mitigation steps at the front end are just the beginning of building a new organization and culture. The work endures for a matter of years, not months, calling for top management foresight, focus and endurance. This strategic change concept was well understood from the beginning at Dow Corning, where the mitigation and project styles evolved toward a way of managing that was a cultural change: from, "Do your job and join in consensus-seeking." to something like, "This is a tougher world we are in and we've got to get tougher to survive."

Taking change risk seriously may result in killing a project or delaying it while mitigation steps are taken, as at Celanese. Proceeding after mitigation will still involve managing the risk of change failure. For that the method of the project management must match the degree of change risk.

### **STEP THREE: MANAGING CHANGE PROJECTS**

If managing IT-enabled change is important, it ought to affect the methods of project management. Change should be managed, sometimes in a tough way, sometimes flexibly, to fit the degree of change risk and to be acceptable in the particular organizational culture. In other words the chosen project method should be *contingent* on the nature of the change risk, that is on the assessment of the three factors in Figure 1, and as close as possible to the company's

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<sup>14</sup> A prominent university pushed through an ERP implementation managed by the administrative side, with the result that users throughout academic departments, with no direct affiliation in the administrative hierarchy, largely ignored the new systems. On the difficulty of killing projects, and the psychological deterrents thereof, see Royer, Isabelle, "Why Bad Projects Are So Hard to Kill," *Harvard Business Review*, February 2003, pp 48–57.

<sup>15</sup> Berinato, S. "A Day in the Life of Celanese's Big ERP Rollup," *CIO Magazine*, Jan. 15, 2003.

accepted way of doing things. Some academic research has focused on a participative or improvisational approach to project management.<sup>16</sup> But little research has recognized that top-down and authoritative change may also fit some circumstances. This section proposes an array of project methods to be matched to change risk.

Change projects can be characterized by two dimensions, the *project budget and deadlines* (rigid or adjustable) and the nature of the *management style* (authoritative or participative). These dimensions and the array of four project methods are illustrated in Figure 2. The project methods range from Big Bang, the most extreme and efficient when it can work, to Top-down Coordination, with authoritative management but with adjustable planning, to Guided Evolution, a rigorous set of timetable expectations with employee participation, to Improvisation, the least controlled and potentially most creative method.

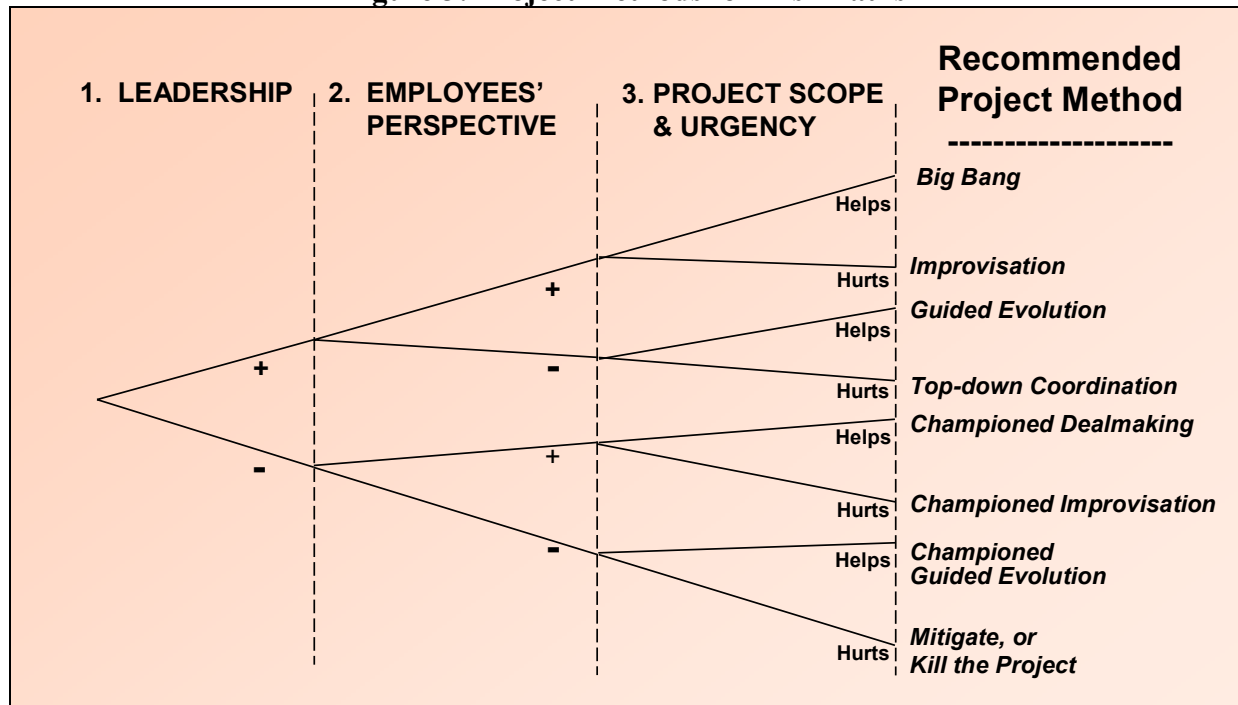
**Figure 2: Project Methods**

<b>Project Budget &amp; Deadlines</b>	<b>Management Style</b>	
	<i>Authoritative</i>	<i>Participative</i>
<i>Fixed</i>	<b>Big Bang</b>	<b>Guided Evolution</b>
<i>Adjustable</i>	<b>Top-down Coordination</b>	<b>Improvisation</b>

Each of the four project methods lines up with the outcomes of the lower risk half of the risk assessment decision tree, as shown in Figure 3. They provide a *default* or recommended first-cut choice for managers to consider. At the lowest risk extreme, seen at the top of the diagram, Big Bang is the recommended default. Improvisation is the ultimate in bottom-up creativity and recommended where leadership and people's perspective are positive but scope and urgency are negative, the idea being that a committed workforce can be effective in learning and adapting to difficult project tasks. Guided Evolution fits where employees' perspective is negative: with a rigid overall plan and respected leadership to encourage and motivate employees' progress can be made. Top-down Coordination works where leadership is positive but employees' perspective and scope and urgency are both negative. Top-down Coordination presents the greatest leadership challenge among the methods, as it requires a full-time commitment of a highly experienced and respected lead.

<sup>16</sup> A clear case for a user-centered approach, for example, is in Orlikowski, W.J. and Hofman, J.D., "An Improvisational Model for Change Management: The Case of Groupware Technologies," *Sloan Management Review*, Winter 1997, pp 11–21.

**Figure 3: Project Methods for Risk Paths**



Where leadership for change is negative and mitigation for some reason has not fixed it to positive, a *champion* in the user organization is needed for each project type. This essentially means someone in the ranks with an appreciation of the organization's goals for the project who is willing to bet his or her job on the project, without the support and guidance of higher management. By definition this is not a situation that lends itself to leadership by responsible senior management. Nevertheless a number of illustrations show that champions can pull off projects with, for example informal ad-hoc "deals."<sup>17</sup> As risky as it is to careers, benign subversion may be the only way to get change started when the climate at the top is negative. While a champion can manage effectively in three of the four cases in which leadership is absent, the fourth case, where all three risk factors are negative, should lead to killing the project unless effective mitigation can be undertaken.

Note that the project methods are a function of the risk path, not the level of risk. That is, the six end points of paths within the two extreme outcomes of the decision tree, between the top path and the bottom path, have an associated recommended project method that sticks with the path and is *independent* of the risk level. Thus, a particular risk assessment which begins with putting a different factor as the left-most or primary driving factor for risk will result in a different order of the default methods between the top path (where Big Bang still holds) and the bottom path (where Mitigation or Kill still holds).

<sup>17</sup> An example of this is the implementation of hand-held computers years ago at Frito Lay, where the IT manager made a deal with a friend and champion in sales to introduce a pilot that was dimly understood or supported at the time by senior management. See the case study, "Frito-Lay, Inc.: A Strategic Transition (B)," Harvard Business School, 9-187-123, Rev. 2/24/93. The idea of "deals" as a project approach out of view of strategy is described in Weill, P. and Broadbent, M., *Leveraging the New Infrastructure: How Market Leaders Capitalize on Information Technology*. Boston, Massachusetts, Harvard Business School Press, 1998.

The phases of the Dow Corning experience illustrate the choices and changes of project methods:

- In phase zero, Hazleton and top management sensed a high risk for all three factors, the bottom path in our terms in Figure 3. Their mitigation step to name Lacefield the leader of the project turned the leadership factor, which was the driving factor, to positive and reduced the overall risk.
- In phase one, Lacefield focused not on the broader project but on the immediate project within the project, to get up to speed on the technical nature of SAP and to plan for specific process changes independent of any particular site. At that focused level it appeared at the time that risk factor of project leadership under him was positive for that purpose, that the employees' perspective applied to the Project Pride team of 40 selected managers was positive, and that the scope and urgency applied to getting on top of SAP was negative. Using Figure 3, that assessment of positive, positive, negative suggests Improvisation, which was in fact what he chose.
- In phase two Lacefield changed the project method. The localized project, while benefiting from Improvisation for the near-term priority task of learning SAP, began to experience the pressure of a negative expectation from the broader culture. The nature of this shift, more or less imposed by the expectations of employees and management outside the project, made the risk assessment of the localized project negative. The project leader under Lacefield was not experienced in implementations, while the broader employees' perspective and the scope and urgency were still negative. This high risk assessment called for either killing the project or taking a mitigation step, which Lacefield took by replacing the project manager. Still focusing on a rigid timetable, he allowed the new project manager to operate in a participative manner with the team and the pilot managers, namely a Guided Evolution method. This served well through the completion of the Pilot.
- In phase three Lacefield began to see light at the end of the tunnel, but recognized wide variation in the change risk for different sites. In other words, the appropriate method for a particular site would depend on the particular change risk for the site. Overall, he adopted a Top-down Coordination method of project management, with an authoritative style accompanying his traveling and convincing, but allowing for flexibility in timetables for particular projects.
- In phase four the employees' perspective factor tripped to positive and the scope and urgency became positive almost universally among sites. With the risk factors all positive, Project Pride was driven home with a Big Bang method.

As illustrated by Dow Corning, project method should be chosen with careful adaptation to any particular situation and may be different at different levels of the organization at the same time and different for the same level over time, depending on the ongoing change risk assessment. Thus, the recommended default project methods in Figure 3 are *loosely coupled* to the risk assessment path outcomes: in a particular organization it may be that good leadership and skill could associate an Improvisation project without a champion on the high risk half of the outcomes, or a Big Bang project instead of Top-down Coordinated where the leadership is positive but the other two factors are negative. It may be that a particular project method is well known and well done in a culture, as Improvisation was at Dow Corning, and may not align with the default recommendation in Figure 3. In cases like that managers should consider changing the risk conditions to fit the successful management method of their culture, in other words



working from right to left in Figure 3.<sup>18</sup> Once again, the tools are to promote dialogue and conclusions which may be very different in different settings.

## SUMMING UP

This article has emphasized the central importance of business change for getting results from increasingly important and strategic IT-enabled change projects. The underlying rationale is that business results come ultimately from behavior change, and that such change is critical to achieving business value from IT projects. The article proposes for senior management a three-step approach for assessing business change risk, mitigating change risk and managing change projects with an array of contingency-dependent project methods. Assessing change risk involves examining up front and periodically each of three factors: leadership, employees' perspective, and project scope and urgency. Perceived high risk calls for mitigation steps, often difficult to take and always requiring the best of senior management judgment. Project methods will vary with level and over time, and may be adapted to fit the particular culture as well as change risk assessment.

This approach with binary answers and decision trees should be used as reminders and stimulators of thought and dialogue and action, rather than as mechanical steps. As illustrated in the Dow Corning analysis, particular conditions and particular degrees of change, among other things, may lead thoughtful managers to deviate from the guides in their approach to managing change. Integrating the guides and steps into the management process for project consideration should increase the batting average for large, important, IT-driven change, and help ensure the payoff in business value.

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<sup>18</sup> I once did a risk assessment with a division president who, over drinks and dinner, informed me that my recommendation for "Championed Guided Evolution" was unacceptable. While thinking of some way to salvage my recommendation, he asked, "What is this 'Top-down' something or other on your chart?" I explained that was an authoritative management style with adjustable deadlines. He nodded and said, "That's the way we do things here, authoritatively. What do I need to make that work?" Looking from right to left, tying his preferred project method to an end point, my answer was he needed a project where the scope and urgency hurts, and where people don't want it, and... He interrupted to say, "We got those..." Then I concluded that he needed to have leadership that knows what it is doing. Our dialogue got productive about how to mitigate the negative leadership factor in his case. We concluded that he could pull together a team of experienced field supervisors to implement the system, and use the 'Top-down' approach expected in the organization. It worked for them.