

Chapter X

Managing and Practicing OD in an IT Environment: A Structured Approach to Developing IT Project Teams

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Abstract

This chapter introduces a framework for improving success in information technology (IT) projects by leveraging the organization development (OD) practitioner's expertise in fostering cooperation and learning in teams. It argues that IT project failure can be addressed and prevented by building teams that anticipate and recover from issues of communication, goal clarity, and internal support. The author intends this framework to provide a foundation for OD practitioners and IT project teams to engage the domain knowledge of each in order to successfully execute projects

that are cooperative, focused on improvement through learning, and ultimately dedicated to more productive outcomes for the organizations they serve.

Introduction

Failure was not an option for the eRecords project. The health, safety, and lives of its constituents were at stake. The initiative sought to create a client-server application and database to replace the hundreds of thousands of paper files a government agency used to track those in its care. These files contained the most sensitive bits of information on each benefit recipient, and the decisions made from these files were literally a matter of life and death. The government had allocated millions of dollars in funding to eRecords (a pseudonym), and the project was publicly supported and promoted at the highest levels of government. Multiple agencies contributed financial and human resources. The best-known, most expensive contractors formed an integrated team to develop and implement the new system. The project personnel were virtually an all-star team of the best and brightest in their field. Every possible resource was devoted to the initiative's success, and the lives and careers of thousands were riding on it.

And yet, eRecords failed.

In fact, it didn't just fail—it failed spectacularly. eRecords failed in the most public possible ways, leading to internal investigations, government audits, and an ongoing presence on the front page of the newspaper. Its staff fled for safer positions, its management scrambled to shift blame, and its sponsors were publicly humiliated and demoted. The project exceeded its schedule more than threefold, consumed many times its projected budget, and delivered fewer than half of its promised benefits. The application continues in use to this day, and every day it is used it exacts an escalating cost in lost time, unnecessary work duplication, and user frustration. Far from being an isolated example of IT project failure, it illustrates the norm.

Kurt Lewin on the last day of his life told Ronald Lippitt, "Interdependence is the greatest challenge" (Weisbord, 1987, p. 104). He was remarking on the hazards individualism presents to groups working together toward common goals, and, 60 years after his death, the father of organization development (OD) could just as easily have been addressing a group of information

technology (IT) project managers. Despite linking people around the world with new and innovative uses of technology, IT project teams continue to contribute tremendous waste and dysfunction to their organizations and clients through their failure to work together effectively.

IT professionals, the premiere knowledge workers, are among the most individually gifted professionals in the world. They are able to interpret the processes of the physical world to a digital form, enabling quantum leaps in productivity and creating new opportunities in industry, government, and service organizations. Their work contributed US\$255 billion in IT project spending in the United States in 2002 (The Standish Group [Standish], 2003), and over US\$1 trillion globally (Microsoft Corporation [Microsoft], 2002). Yet, project waste reached \$55 billion in the U.S. that year, over 20% of total IT project spending (Standish, 2003). Assuming a proportional global success rate, IT project waste could easily top a quarter of a trillion U.S. dollars each year.

If global IT project waste is over a quarter of a trillion U.S. dollars each year, is it the case that modern technology is too complex to be developed and deployed predictably? No. Graduates of elite project management programs like the one at Boston University—many of whom manage knowledge work in large IT projects—consistently cite the following reasons for the failure of IT projects:

- poor communication,
- unclear goals, and
- lack of senior management support.

Ten years of research into project success and failure by the Standish Group supports these findings (Standish, 2003). In other words, these hundreds of billions of dollars in waste are attributable not to failures in the technology itself, but rather to the human systems that create the technology.

OD is a field devoted to improving organizational effectiveness. The recurrent issues in IT projects—communication, clarity about objectives, and leadership alignment and support—are precisely the opportunities OD addresses. While the OD practitioner has not traditionally been a key member of IT project teams, the persistent issues these teams face indicate a strong need, integral role, and clear challenge for teachers, managers, and practitioners of OD.

Perspectives on OD and IT

Failure in IT projects can be defined as exceeding a projected budget, taking longer than the estimated schedule, failing to meet agreed-upon quality requirements, or (most common) some combination of the three. Some of the more common types of IT projects include:

- software application development (creating new software packages),
- hardware and software implementation (implementing new computers or software),
- database management and revision (ensuring proper data storage and access),
- hardware and software upgrades (replacing or enhancing existing assets), and
- network infrastructure improvements (continuing to involve the paths data travel).

While there are differences among these and other types of IT projects, one commonality is that most IT projects take longer, cost more, or contribute less than originally planned.

OD practitioners specialize in addressing the issues of organizational learning and alignment that plague IT projects, and yet OD practitioners are usually absent or marginal in such projects. IT professionals instead use project management techniques to exert greater control over uncertainty in projects, but IT projects continue to experience cost and schedule overruns, as well as unmet requirements. These gaps indicate a need for complementary roles between IT project managers and OD practitioners. IT offers a substantial market for increasingly underused OD practitioners, and OD offers relief for the cycle of dysfunction that drains IT budgets. The key to realizing these benefits is to eliminate the traditional barriers between these fields and frame a new working relationship.

IT and OD suffer from stereotypes that create barriers between them. IT professionals are often cast as aloof, antisocial, arrogant, analytical geeks. OD is usually dismissed as being too “touchy-feely” and largely useless for producing real results. These stereotypes mask the potential for each field to

complement and extend the other. Working together, these two fields are far more effective than either is alone. To be accepted in IT projects, OD practitioners must respect the purpose and pace of IT, working with accountability toward its success. In return, IT professionals must be receptive to the presence and outcome-oriented approaches of the OD practitioner. The short-term result will be immediate savings in technology budgets. Long-term benefits include more strategic use of technology, more and better jobs for both IT professionals and OD consultants, and the promotion of innovation and growth.

Note that the lack of OD practitioners is not the source of project failure. The source of project failure is an inability or unwillingness to work cooperatively (as evidenced by the previously cited issues of poor communication, lack of clarity about objectives, and absence of leadership support) and to collectively learn from self-reflection (as evidenced by problem repetition within and across IT projects). Nor are OD practitioners the only way to address such issues; in fact, an OD practitioner without a framework for engaging the IT project team can hasten its demise. Success in IT projects can be improved when IT project teams work cooperatively and learn from experience, two behaviors that qualified OD practitioners understand and cultivate. The key to unlocking that success is to build a framework for enabling the IT project team's cooperation and learning.

Objectives of This Chapter

The objectives of this chapter are to:

- explain the most common issues resulting in IT failure and waste;
- explain how OD can address these issues;
- present a model for managing and practicing OD in an IT environment;
- describe how to use the model to create effective teams, organizational alignment, and organizational learning in IT projects; and
- prescribe practical strategies for ensuring success in IT projects.

This chapter establishes a framework for using OD to minimize common IT issues. Its focus is neither technology nor OD technique. The chapter does not

discuss such technical distinctions as whether the IT project comprises software development, implementation, network configuration, or other objectives. It also is not concerned with specific OD approaches or orientations. This chapter presents a general approach that can be used in most technical projects and with many OD approaches. This chapter brings IT and OD together to minimize the recurrent issues that consume a quarter of a trillion U.S. dollars in IT project waste each year, and to realize significant, lasting technological and organizational change.

The primary intended audience for this chapter is the manager or practitioner of OD interested in engaging with IT projects as a means of improving and influencing the organizations they serve. This chapter may also be of interest to the IT project manager or executive interested in new approaches to the persistent, expensive issues plaguing IT projects.

Background

A thorough overview of the issues and opportunities facing OD practitioners in IT projects requires a common set of definitions and some background information on the issue. The next sections discuss common terminology and present a foundation of theory for this discussion.

Definitions

When discussing two fields as disparate as OD and IT, it is essential to clarify the terminology of each at the outset. In the case of these particular fields, where a word such as “system” or “process” may have different meanings in each, such definition is absolutely necessary. IT and OD are fundamentally distanced from each other by their terminology, and each views its work through its own metaphors. Agreement on terms or at least the differences between similar terms is a logical first step toward bridging that distance. Defining terms is also a good investment of time in the early stages of IT-specific OD efforts, minimizing misunderstandings later in the project. The following terms are key to this discussion.

- **Organization development:** Though there are nearly as many definitions as people purporting to practice it, organization development in the context of this discussion can be defined as “a process that applies behavioral science knowledge and practices to help organizations achieve greater effectiveness, including increased financial performance and improved quality of worklife” (Cummings & Worley, 1997, p. 1). Marvin Weisbord (1987) notes that high-quality work requires a creative interaction of the three perspectives of people, economics, and technology. This definition of OD accommodates that essential interaction, and the pace and investment in IT projects demand the successful management of that interaction.
- **Information technology:** Information technology also has a variety of definitions, most of which are largely derived from the perspective of the person doing the defining. John Thorp defines information technology as “a general term used to refer to all aspects of computing and communications technology, including hardware and software (both system and application software) that encompasses the creation, storage, processing, distribution, and display of information for a variety of uses, including business, educational, artistic, scientific, recreational, or personal” (Thorp, 1998, p. 257). For the purpose of succinctness, let’s consider IT to be software systems that process information and the technologies supporting these systems. This definition accommodates office applications, communications systems such as e-mail and groupware, specialized systems such as accounting packages, and Internet and World Wide Web sites and applications. While the field of IT is as broad and diverse as the organizations and individuals that use it, this discussion will place IT in a much more focused context.
- **Projects and project management:** IT is executed in discrete efforts called “projects.” The Project Management Body of Knowledge (PMBOK) defines a project as “a temporary endeavor undertaken to create a unique product, service, or result” (Project Management Institute [PMI], 2000, p. 204). Projects may be as short as a few weeks or as long as a few years, but they are distinct from an ongoing business concern in that they have a planned beginning and end. The field of project management, defined as “the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements,” is the *lingua franca* of IT projects, and the PMBOK is its bible (PMI, 2000, p. 205).

While it is not necessary for the OD practitioner to be certified as a project manager in order to understand these terms of art, it is useful to have a copy of the PMBOK as a reference.

- **Systems, processes, and process consultation:** As mentioned earlier, IT and OD have different meanings for the same terms, and being clear on these dual meanings will help in establishing rapport. It will also save time and confusion during the more critical points in the project. A “system” in IT terms usually refers to some combination of software, hardware, or both that work together to perform a specific function or set of functions. The OD practitioner is likely more familiar with human “systems” such as organizations or groups. Similarly, IT professionals understand “process” as an activity that receives inputs and acts upon them to produce outputs. For example, a personal finance software system might take one’s bank balances as an input and act upon them to produce a pie chart, comparing these balances as an output. OD practitioners compare “process” with “task,” where the “task” is what is to be done and the “process” is how (Weisbord, 1987, p. 221). Weisbord (1987) notes that process reflects perceptions, attitudes, feelings, and reasoning, a definition that will likely sound quite foreign to those accustomed to mapping processes in flow-charts.

Edgar Schein defines “process consultation” as “a set of activities on the part of the consultant that help the client to perceive, understand, and act upon the process events that occur in the client’s environment in order to improve the situation *as defined by the client*” [italics added] (Schein, 1988, p. 11). This definition comes closest to the OD practitioner’s role described here, and the emphasis on the customer’s definition helps to frame that role. However, in this discussion the OD practitioner will be presented with a model that specifies inputs, outputs, and quality in relation to the activities of process consultation, in essence merging the OD definition of process with the technical one. The technical definition of process considers an input to be any product, service, or piece of information that comes into a process from a supplier (Pande, Neuman, & Cavanagh, 2000, p. 397). In this model, inputs will be information about the functioning of the IT project team, and the suppliers will be the team, its members, and its customers. Similarly, an output is any product, service, or piece of information coming out of, or resulting from, the activities in a process (Pande et al., 2000, p. 399). The outputs from this

model are new information about the IT project team's functioning and new behaviors that improve that functioning.

- **Customers, requirements, and quality:** Three important and related terms in this discussion are "quality," "requirements," and "customer." "Quality" is defined as "measurable standards of comparison so that applications can be consistently directed toward business goals" (Pande et al., 2000, p. 401). Note that "business goals" in this sense refers to the business of the organization, whether that business is making cars or abating global warming. "Requirements" are specific statements of those measurable standards of comparison for a given process. A "customer" is any person or organization who receives the output of a process (Pande et al., 2000, p. 395). In this context, **quality** is the degree to which a process acts upon inputs to produce outputs that meet the (process) customer's requirements. These terms are important in this model because the IT project team (the customer) has very specific requirements (including schedule and cost), and the OD practitioner will select the inputs into and seek outputs from the OD process that meet these requirements (quality). The OD practitioner in the IT project is using Schein's process consultation, with the more technical definition of "process" framing the data going into and the outcomes resulting from the process consultation. In essence, this is one type of process embedded within the other.
- **Teambuilding:** One final term needs to be defined for this discussion: "teambuilding." William Dyer lists four criteria for success in teambuilding:
 - Top management must provide clear support.
 - Organizational rewards should support teamwork.
 - Time for team development should be encouraged and made available.
 - People must clearly understand what teambuilding is and what it is not. (Dyer, 1995, pp. 13-15)

Dyer goes on to satisfy the last item by defining teambuilding as an activity whose purpose is "to help those who must work together to accomplish results, to identify any condition that impedes effective collaboration, and engage in actions that improve the quality of teamwork" (Dyer, 1995, p. 15). In contrast

to the common perception of teambuilding as an activity that helps people feel good about working with each other but drains time and money from the organization, this definition emphasizes results, effective collaboration, and quality. These are the priorities of the IT project team, and they are what the OD practitioner will help to achieve as a part of that team.

The terminology used by IT and OD in their respective domains may seem obscure and contradictory, but in working together, simplicity and directness are key. The better the two fields are able to understand each other, the more effectively they can work together to produce the results they jointly seek.

Literature

The 2001 IDC IT Economic Impact study estimated annual global spending on information technology — computer hardware, software, and services — at US\$1 trillion (Microsoft, 2002). The most recent Standish Group CHAOS Report on project success and failure noted that of the US\$255 billion in IT project spending in the United States, only a third of these projects are successful (completed on time, within budget, and according to requirements). The report asserts that US\$55 billion of IT project spending is wasted (Standish, 2003). The report goes on to note that IT projects overrun their schedules an average of 82%, and that only 52% of required features and functions appear in the released product (Standish, 2003). These are astounding statistics. If global IT project success and failure rates are even close to the U.S. averages — and trends suggest they are even worse — those projects are contributing hundreds of billions of dollars in waste even as they drive global economic development. Conservative estimates extrapolating the rate of U.S. IT project waste to global IT spending pegs annual global IT project waste at over US\$250 billion.

IT expenditures have been growing 20-30% annually for 20 years and account for about 40% of annual business equipment expenditure in the U.S. (Thorp, 1998, p. xxi). In 1997 IT accounted for about 7% of total corporate costs, and about 60% of corporations depended to some extent on IT systems (Thorp, 1998, p. 4). These figures have risen substantially since then. Yet, project success rates indicate severe inefficiencies in realizing a return on IT investment. In 1996, 73% of corporate IT projects were late, over budget, or canceled (Thorp, 1998, p. 12). As these rates of failure increase, their costs will also increase with global IT spending. The U.S. Government alone spends over

US\$59 billion annually on IT, and non-profit organizations are becoming increasingly reliant on IT's power (Executive Office of the President, Office of Management and Budget, 2003). Global IT spending is projected to top US\$1.4 trillion by 2005 (Microsoft, 2002).

IT success and failure is interesting (and shocking) at a global level, but it is experienced at the organizational and IT project level. IT is created and disseminated through discrete projects, and these projects cumulatively and exponentially influence the organizations that are their customers. Change in the organizational, societal, and global effects of IT must begin at the IT project level. Margaret Mead believed in the importance of the small, face-to-face group as the link between the person and 'macro' system. The IT project team is such a group. While only a small subset of the body of organizational theory targets project teams and their limited life cycles, the link between project team and organization is a link between tactics and strategy (PMI, 2000, p. 110). The IT project team offers an opportunity to translate the individual IT professional's talents into productive group, organizational, and global results (Weisbord, 1987, pp. 85-86).

Most IT professionals are familiar with the maxim "garbage in, garbage out." Buried within this *bon mot* is the assertion that so long as technical inputs are of good quality, outputs will be as well. The underlying assumption in the maxim is that the system or process acting on the inputs works perfectly. The reality is that few systems or processes are perfect. Processes are at least important as inputs and outputs when seeking performance improvements. When an IT project team comprising numerous talented individuals begins working toward a common purpose, the result is often a shared set of processes that can be improved to lead to better results.

The project manager is the person responsible for managing the technical aspects of a project (PMI, 2000, p. 205), but Dyer notes that the manager is also responsible for the development of the work team (Dyer, 1995, p. 87). The IT project manager is usually so focused on the content and scope of the project that team development is an afterthought, if a thought at all. Also, given that the IT project team is often a mix of people from different divisions or companies, and that an IT project team is usually designed to be a temporary unit (PMI, 2000, p. 204), the IT project manager may not have formal responsibility for team development. Still, there is a connection between teamwork and the content and scope of the IT project. Weisbord (1987) explains Mike Blansfield's identification of universal processes (purposes, in/out, elbow room, discussion, use of skills, conflict, support) that work teams

rarely connect to results, noting that most managers define positive results as higher productivity, better quality, more profits, and lower costs. Blansfield directly links the key processes to the managerial definition of results in his Team Effectiveness Theory, indicating a strong, though often unacknowledged, causal relationship (Weisbord, 1987, p. 303). The implication is clear: Focusing on improving IT project teams' processes can have a positive effect on their results, and thus on the organizations they serve. In fact, the very act of bringing the team to reflection about its behaviors can result in a sort of Hawthorne effect, improving performance through the act of change despite the intent of the change (Roethlisberger & Dickson, 1939).

Participation in decision-making processes would seem a natural operating mode for one as highly skilled as the IT professional. Yet, project management works at cross-purposes with participation in practice if not in theory. The tendency in a fast-paced, high-pressure environment like IT is to control, and one person in control can always make decisions faster than many. Project management as a controlling mechanism may produce temporary results, but will ultimately create more issues than would participation. Similarly, Lewin knew that participation alone would also fail absent careful diagnosis and application, reflecting the uniqueness of each situation (Weisbord, 1987, pp. 93-94). Involving people is more than just a technique. A truly effective IT project team operates from an integration of the structured theory of project management and the proven foundation of participation in the decision-making process. The key is in finding a way to integrate the two.

Main Thrust of the Chapter

OD has a tremendous opportunity in the IT field. OD practitioners who want jobs, influence, and an opportunity to make a meaningful difference can find all three in IT by first building the effectiveness of the IT project team. Eric Trist wrote, "Information technologies, especially those concerned with the micro-processor and telecommunication, give immense scope for solving many current problems—if the right value choices can be made" (Trist, 1981, p. 59). More than two decades after Trist's observation, IT is the single largest capital investment in most organizations today (Thorp, 1998). IT drives tremendous changes in organizations and is one of the most powerful organizational interventions. The way IT products and services are created and deployed

significantly influences an organization's culture, structure, development, and survival (Beckhard & Harris, 1987). OD practitioners seek but seldom find this level of influence in organizations, and the IT project team provides access to that influence. The process of creating IT products and services also produces the issues associated with IT projects: poor communication, unclear or competing objectives, and lack of leadership buy-in. While these issues are common, approaches to overcoming them are not. The IT project management process does not by itself offer mechanisms for learning and improving during projects. The OD process does.

OD "applies behavioral science knowledge and practices to help organizations achieve greater effectiveness" (Cummings & Worley, 1997, p. 1). The major issues in IT projects — poor communication, lack of clear objectives, and lack of leadership support — are targeted and minimized by OD interventions that create participation and learning. OD addresses the issues with which IT struggles. In this sense, the relationship between OD and IT is — or should be — symbiotic.

Yet, IT continues to repeat its mistakes, and OD continues to be considered more a luxury than an IT project necessity. The next section discusses the issues, controversies, and problems that maintain distance between these seemingly complementary fields.

Issues, Controversies, Problems

IT and OD remain distanced by differences in priorities, undefined relationships, and incomplete approaches. Each pursues different — and often conflicting — goals and values. Similarly, the relationship between IT and OD — and the benefits of creating such a relationship — has not been defined and does not have many models to emulate. Perhaps most important, IT and OD continue to employ incomplete, insular approaches when more robust, complementary, and collaborative approaches are required. This section discusses each of these issues.

Differences in Priorities

The persistent issue in the way IT projects are currently conducted is the astounding waste in cost and schedule overruns and in unmet requirements. The

human and opportunity costs of such waste are tremendous, both globally and locally. Yet, this big problem masks an equally disturbing issue: Few people seem to really care about solving the big problem.

IT professionals rarely occupy a level in their organizations that requires or even offers a clear view of the organization's strategy and finances. Their concerns often focus on producing IT products and services that meet immediate or near-term needs, and the boundaries of their current projects often define their spheres of concern. The larger organizational picture is often missing. IT professionals who do have a view of the larger organizational picture—usually mid- to upper-level managers—are often caught up in the political struggles common in the upper levels of organizations. While both groups believe in the holy IT trinity of cost, schedule, and requirements, that trinity serves different ends for each. Neither directly feels the mounting losses of IT project waste, and almost no one comprehends the magnified costs downstream. These are measured in lost opportunities, lost revenue, and lost jobs.

OD practitioners are seldom more strategic than IT professionals in their orientation, but they do care about lost opportunities and lost jobs. When markets expand, people have secure jobs and growing room (Weisbord, 1987, p. 2). When there is waste that results in lost jobs and shrinking opportunity, the opposite is true. OD practitioners usually work toward personal and organizational growth, and are often stymied by the economic conditions that make jobs less secure. Their work resides in the diagnosis and correction of organizational issues such as poor communication, clarity about objectives, and issues of organizational alignment and support. The espoused theory is that eliminating these problems will produce organizations that are more productive and rewarding places to work. The unfortunate reality is that when times get tough, OD is considered an expendable luxury rather than a strategic tool.

Undefined Relationships

While the most common, persistent issues in IT projects are the very sorts of issues OD addresses, few IT projects have an OD practitioner as a team member or consider OD critical to success. The historic role of the OD practitioner in IT projects has been limited to narrowly focused efforts such as training, project communication, and documentation. While these functions are important in any IT environment, the OD practitioner has far more to offer to the IT organization. The real OD work lies within the IT project team itself.

Why haven't IT projects traditionally had OD practitioners as part of the team? Three reasons immediately present themselves. First, both IT and OD value competence, and asking for help is analogous to admitting fault. IT and OD practitioners are experts brought into an organization to solve the toughest problems, not to introduce new ones. Whether from arrogance or insecurity, people in both fields often opt for working problems out alone rather than seeking help. Second, IT and OD tend to approach issues differently. While OD practitioners tend to take the broad, big-picture view of organizations with the human element as a primary concern, IT professionals are narrowly focused on the technical requirements, schedule, and cost of their particular project, often to the exclusion of individual and organizational concerns. Yet, the most important reason IT and OD people do not often work together is also the most obvious: Most have never done it before.

There are very few examples of successful IT-OD partnerships. Despite failing in exactly the areas OD seeks to improve, IT professionals tend not to notice or value OD practitioners. Ask most IT professionals their impression of OD and they will gladly recount the pointless teambuilding session that cost them half a day of work or the boring "people skills" training their manager made them attend. Ask OD practitioners about IT projects and they will likely offer blank stares or nervous laughter. Despite having complementary needs and talents, the two fields remain separated by ego, approach, and ignorance.

Incomplete Approaches

The field of OD has not invested the effort in defining its relationship to IT in the same way project management has. As a result, IT professionals know little about OD, and OD takes little notice of IT. In the past several years, OD has become increasingly technique-focused while minimizing the importance of the outcomes of using those techniques, a shift that runs counter to the most pressing needs of IT. IT demands results, and OD is seldom held accountable for them. While OD practitioners seem to believe that newer and better techniques will produce more consistent, meaningful — though vague — outcomes, IT continues to invest its faith in the controlling (and often creativity-starving) mechanisms of project management, and both are the worse for it.

It seems clear that OD and IT can play a role in each other's success, and the challenge at this point is in defining that role. IT can no longer afford to spend a quarter trillion dollars each year on ego and ignorance, and OD is equally challenged in establishing its relevance and credibility. Through careful, system-

atic, sensitive application of OD theory and approach within the specific project management context of the IT project, both IT and OD can achieve the cost savings and organizational impact as yet unrealized by each.

Solutions and Recommendations

In order to stop the cycle of IT project failure and waste, IT project teams must learn to learn, correcting recurrent behaviors that impede their success. OD efforts to facilitate these improvements must respect the boundaries of the project, delivering results while working within the schedule and budget of the IT project. Time and cost are at a premium in the IT project; this is perhaps the strongest element of the IT culture. The OD practitioner interested in working with IT project teams must understand that their work will be evaluated in these terms.

The OD practitioner can contribute to the success of the IT project by using a model for integrating IT and OD, adapting the model to each IT project with a customized project charter, and employing a structured team-building approach that focuses the model on the process level. Once the proper context has been established, teambuilding is a logical first approach to addressing the most cumbersome problems of IT. While there are many interventions that can produce positive results in the IT project, the structured team-building approach is the one that most directly addresses the most troublesome issues in IT projects. The goal in this approach is to promote a structured, results-driven methodology for engaging and promoting productive learning in these projects. Working with the IT project manager—the formal leader of the IT project—the OD practitioner builds the team's capacity to plan and manage its own work within the parameters of the project's scope, purpose, and organizational goal.

A Model for Integrating IT and OD

Differences in priorities, undefined relationships, and incomplete approaches have impeded IT-OD collaboration. A model for integrating and defining shared priorities, relationships, and approaches creates a way to overcome these barriers and begin the work of developing the IT project team. The IT Project Success Funnel is that model.

Figure 1. IT Project Success Funnel (The elements of IT project success are considered by working downward through the levels of the funnel.)



The IT Project Success Funnel (Figure 1) brings together the priorities of the OD practitioner and the IT project manager in one unified, consistent approach to the work of the project. The model takes the primary concerns of the OD practitioner — organizational strategy and project purpose — and merges them with the on-the-ground imperatives of the IT project manager: project requirements, schedule, and cost. The combination dictates the alignment essential to creating and demonstrating value through IT projects. This alignment creates the foundation for consistent communication, clarity about project objectives, and support throughout the organization.

- **Organizational strategy:** At the top of the funnel is organizational strategy. Organizational strategy is the broadest context within which an IT project is conducted. Every IT project should be able to be directly traced to the organizational strategy. If not, the project is likely not something on which the organization should be spending time and energy. While this may seem a somewhat extreme view, IT investment is too large

a part of organizational investment to be anything other than perfectly clear about how the IT project supports organizational strategy. When the project's benefit is unclear, so is its entitlement to be a part of the organization.

- **Project purpose:** Under organizational strategy is project purpose. Project purpose is the specific objective or objectives met by the IT project, and these are where the most direct links to organizational strategy are emphasized. The project purpose is the means by which the IT project supports the organizational strategy. The project purpose is ideally a very brief (one- to two-sentence) statement of how the project supports an organizational strategic objective.
- **Requirements:** The next level is requirements, which refer to the specific things the product or service of the IT project must do. These are the means for achieving the ends of the project purpose. The requirements specify what the IT project's end product or service is supposed to *do*. While IT project teams sometimes confuse requirements with features (such as "Oracle database" or "Microsoft Word-like spell check feature"), IT project requirements specify the outcomes of the project that make the project purpose a reality.
- **Schedule:** Next is the project schedule; this element in the funnel defines the time by which the requirements of the project can be delivered upon. The project schedule plays an important role in supporting the requirements, purpose, and strategy in that the IT project's role is often time sensitive. IT projects' ability to deliver value upward into the organizational strategy usually depends on being able to deliver that value within a particular window of time, especially when that strategy focuses on competitive advantage. Lapses in the project schedule can push an IT project's outcomes from indispensable to irrelevant.
- **Cost:** At the bottom of the funnel is cost. Cost is the smallest part of the funnel but is the part (along with schedule) most likely to receive attention throughout the project, especially from the IT project team and manager. Cost and schedule are the most clear indicators in any IT project, though meeting these requirements says nothing about the value delivered by the IT project. Cost is at the bottom of the funnel for the purposes of OD intervention because problems throughout the funnel's levels always trickle down to cost, whether through serving the wrong goals and purposes, unmet or unnecessary requirements, or — most commonly —

lapses in schedule. All these issues exact costs, and these costs can ultimately stop an IT project cold.

The IT Project Success Funnel very clearly defines the boundaries of the IT project in such a way that the OD practitioner can begin addressing issues of alignment and leadership support while planning an approach to the IT project team's process needs.

Using the Project Charter

The model is a useful theory for thinking about the parameters of an IT project, but the OD practitioner has to bridge the gap between theory and practice to create real results in the IT project. One of the most useful tools for an OD practitioner in contracting and working with an IT project manager is a project charter specifying the IT project's organizational strategy linkage and the purpose of the project, and laying out the highest level of requirements, schedule, and cost. These should ideally be laid out at a level appropriate for an executive, omitting unnecessary details in order to present a high-level view of the IT project's intent and the scope of the OD practitioner's efforts.

The charter is not a binding contract, but rather a tool for confirming shared understanding at the outset of the partners' work together. The project charter announces that a new project has begun, and it demonstrates management support for the project and the project manager (Verzuh, 1999, p. 53). Ideally the OD practitioner would be present at the inception of the IT project, and thus would recommend the use of a project charter at the outset, but the OD practitioner may also arrive after a project is already underway. In this case, the OD practitioner may encourage the IT project manager to collaborate in creating a charter that describes the high-level specifics of the project. If the IT project manager already has a working charter — and many will — the OD practitioner should obtain it, verify that all necessary information is included, and negotiate a relationship with the IT project manager and team based on the existing charter and the team's development opportunities.

The IT Project Charter captures the common understanding of the elements of the project funnel at a level that is specific enough to guide the project, but general enough to be shared among all members of the IT project team and its customers. The charter establishes the definition of quality for all involved, and

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- the organizational strategic objective the project supports: the specific element of the organization's strategy that is directly served by this project,
- the purpose of the project (phrased to indicate how the strategic objective is supported): what the project will be doing to directly support that objective,
- a list of three to five high-level requirements for the project, and a reference to where the complete requirements are recorded: the main activities performed by the product of this project,
- a high-level project schedule with major milestone dates and deliverables: the key dates in the project, and
- a high-level statement of the project's budget and funding source: the broad financial parameters that form part of the definition of project success.

The project charter should ideally be no more than a page or two, and it should serve as a touchstone throughout the project. Rather than occupying a binder on a shelf, the IT project manager and OD practitioner should seek ways to use the charter as an orienting device throughout the project. Figure 2 provides an example of a template for the IT Project Charter.

The IT Project Charter establishes clarity about the IT project in a way that provides the OD practitioner and the IT project team the initial data to begin the work of improving communication and other processes. The very act of creating and validating the charter is itself an intervention addressing both clarity about objectives and an understanding of leadership and stakeholder support. Once created, the charter is a vital foundation document for the work of addressing the IT project team's functioning. If the charter already exists, it is an invaluable link between the IT Project Success Funnel and the structured teambuilding approach to improving team effectiveness.

A Teambuilding Approach to IT Project Success

Once the elements of the IT Project Success funnel are established and agreed upon, the OD practitioner must design ways to use the model as a lever for positive change with the IT project team. The IT project team is able to improve

performance and minimize the historic issues of poor communication, lack of leadership support, and unclear objectives through focused teambuilding, organizational alignment, and organizational learning. Warner Burke notes that when a work group has at least one goal common to all members and when accomplishment of that goal requires cooperative, interdependent behaviors on the part of all group members—as for the IT project team—teambuilding may be an appropriate intervention (Burke, 1982). Teambuilding is an especially effective intervention for addressing the common issues in IT projects because its structure provides a framework for addressing organizational alignment and organizational learning. An IT executive in the U.S. government once remarked that creating organizational change while continuing to deliver mission-critical services is like attempting to paint a Boeing 747 in full flight. The structured framework of teambuilding, organizational alignment, and organizational learning attempts to do a better job of painting the airplane while keeping the flight on schedule.

Burke, citing Beckhard, notes that there are four purposes of teambuilding:

1. to set goals or priorities;
2. to analyze or allocate the way work is performed according to team members' roles and responsibilities;
3. to examine the way the team is working (its processes such as norms, decision making, communications, etc.); and
4. to examine relationships among the team members. (Burke, 1982)

Burke elaborates on Beckhard's purposes by emphasizing that while all these purposes are operating in a teambuilding effort, one purpose should be defined as the primary purpose in order to avoid conflicting notions among team members of the purpose of the effort. In the IT project, the primary purpose of teambuilding is to address the processes of the team, especially those specific to the team's communication behaviors. The reason for this emphasis is that poor communication among team members is by far the most commonly cited issue in IT projects, and that better communication may provide clarity about objectives and leadership support needs.

Burke also notes that Beckhard's purposes are most effectively used in the order listed (Burke, 1982). The reason for working from the top of Beckhard's model downward is that each level sets context for the levels beneath it. Burke

notes that it may be a misuse of energy to begin work at the interpersonal relationship level because these issues may result from misunderstanding in the other domains. This approach is particularly useful for the IT project team and its typical issues because it addresses objectives and roles (leadership and otherwise), two of the most common issues in IT projects, in the process of working toward the process level, where communication issues can be identified and resolved.

The work of the IT-focused OD practitioner begins with the first level of Beckhard's model, goals and priorities, and continues through roles and responsibilities toward the focus of the OD effort, the processes of the team itself, and the interpersonal concerns in its work.

- **Goals of the IT-focused OD practitioner:** The mission of the OD practitioner in an IT project — and that of the IT project team — is to increase the IT project's contribution to the organization's strategy. The OD practitioner's goal as a part of the IT project team is to increase the likelihood of project success by facilitating better communication, clearer objectives, and support for the project throughout the organization. To achieve these ends, the OD practitioner in an IT project takes into account alignment of the organization's strategy, the purpose of the IT project, and the requirements, schedule, and cost of the project. This orientation aligns the organizational concerns of the OD practitioner with the project-specific concerns of the IT professional to define the value boundaries of work within the project.

The process of completing and validating the project charter is the most meaningful approach to satisfying the goals and priorities level of the IT project. With shared understanding of the IT project's organizational alignment and project boundaries, the IT project team comes to a clear, common vision of their work together.

A common issue found at the goals and priorities level is a misalignment through the project funnel, such as contradictions between project purpose and organizational strategy, requirements and project purpose, or any combination of requirements, schedule, and cost. These issues should become fairly obvious during the OD practitioner's contracting phase with the IT project manager, and they should be noted and addressed or flagged as likely trouble spots.

Since the focus of the teambuilding effort is at the process level, the goals and priorities level defines the context and objectives for the project team's processes. The goals and priorities level, through the model of the project funnel, also establishes the boundaries for the inputs to both the IT project team and the OD practitioner's processes. If the data the OD practitioner obtains from the organizational or project system (the inputs to the process level) do not fall within or demonstrably affect the boundaries of the IT project funnel, they are irrelevant. In short, the OD practitioner must deliver value in the eyes of her customer, the IT project team.

- **Roles and responsibilities of the IT-focused OD practitioner:** Because of the prominence of the project management approach as a means to deliver value and increase the probability of success in IT projects, roles and responsibilities in IT projects tend to be exceptionally well defined. Project managers usually employ a Responsibility Assignment Matrix (RAM) such as the sample in Table 1 (PMI, 2000), and OD scholars have advocated similar approaches in teambuilding and organizational structure interventions (Dyer, 1995; Weisbord, 1987; Burke, 1982).

A key concern of the IT-focused OD practitioner is the specific outcomes to be delivered as a result of having worked with the IT project team. Specifying desired outcomes and behaviors establishes the parameters of that relationship. The OD practitioner has a responsibility to select inputs, interventions, and outputs that fall within the funnel, and thus serve the

Table 1. Responsibility Assignment Matrix (Adapted from Guide to the Project Management Body of Knowledge, 2000 Edition)

Phase	Person A	Person B	Person C	Person D	Person E	Person F
Requirements	S	R	A	P	P	
Functional	S		A	P		
Design	S		R	A	I	P
Development		R	S	A		P
Testing			S	P	I	P

P=Participant; A=Accountable; R=Review Required; I=Input Required; S=Sign-off Required

goals of the project and the strategy of the organization. This responsibility is demonstrated at the process level in Burke's model.

- **The process of OD in the IT environment:** The process level of Beckhard/Burke's model is the focus of the teambuilding approach, and it is where the most critical work with an IT project team is performed. The most common issue contributing to IT project failure—poor communication—is a result of dysfunction in the IT project team's processes. With the foundation of clear goals and priorities and mutually understood roles and responsibilities, the OD practitioner can employ the action research process to diagnose and positively intervene in the IT project team's processes, especially those that produce the symptoms of poor communication.

It is helpful to think of the action research process in the same way an IT professional thinks of technical processes: a set of steps that receives inputs and acts upon them to produce outputs. In the case of the IT-focused OD effort, the inputs to the process are selected from within the IT Project Success Funnel, and the quality of the outputs to be produced are defined within the parameters of this same funnel (Figure 3). The funnel serves as an orienting device used to narrow the range of possible inputs and focus the desired results of the OD practitioner's work.

In practice, this model provides a foundation for each step of the action research process. In entry and contracting, the OD practitioner and IT project manager already have a mutual understanding of the environment in which the IT project operates, and of its goals and staff responsibilities. The OD practitioner collects data that fall within the boundaries of the IT Project Success Funnel and provides group feedback within these same parameters. The IT project team and OD practitioner can jointly decide

Figure 3. Combining the IT Project Success Funnel with the Action Research Process to define input and output quality



how to proceed with the validated data, and the action plan and goals they create can be compared against the funnel to ensure that the OD-related effort is compatible with the imperatives of the IT project. Subsequent evaluation and contracting can be conducted, with the funnel continuing to set context.

The action research process works in this context as a process within a process; Burke's teambuilding process serves as a preparatory, orienting process to the action research process, focusing it toward the level and IT project team processes offering the most opportunity for improvement and innovation. This combination of approaches involves the IT project team, not just in getting to the issue or opportunity, but also in agreeing about the environment in which the issue or opportunity exists.

Once the OD practitioner and IT project team have reached the process level and begun mutually deciding what to work on and how to do it, the IT Project Success Funnel and Burke's teambuilding model continue to provide the background and much of the OD practitioner's data (which tends to abbreviate the time-consuming data collection part of the action research process). Together the OD practitioner and the IT project team can apply the action research process to improve the effectiveness of meetings, resolve tensions between different but interrelated functions, guide planning efforts for the project's completion and implementation, identify developmental needs, and any number of other interventions the team finds appropriate and useful. So long as participation, leadership, and a shared understanding of the IT project boundaries are present, the opportunities presented by this structured OD approach are limitless, as are their results.

In actually implementing changes proposed by the team, it is a good idea to break large change into smaller, more manageable phases separated by time for reflection and team discussion (Freedman, 1997; Schaffer, 1997; Lippitt & Lippitt, 1986). In any OD intervention, and especially to one in the high-stakes environment of the IT project, the Hippocratic Oath applies: First, do no harm. OD is a difficult enough sell with a driven IT team; any approach that disrupts the requirements, schedule, or cost of the project will create animosity toward the OD practitioner. Conversely, smaller phases with time for evaluation and reflection give the team the opportunity to create change, learn from the change, and apply the lessons of the change to the next phase. Smaller phases also divide the risks of

change, moving them from the all-or-nothing realm of wholesale transformation to the manageable parameters of incremental implementation and evaluation.

- **The human element:** The element of Burke's model most associated with the OD field and least associated with IT project teams is its fourth level, interpersonal relationships. Weisbord (1987, p. 258) lists three powerful levers in every workplace for turning anxiety into energy: purposes, structure, and relationships. The IT Project Success Funnel and the process-focused action research process offer powerful tools for leveraging purpose and structure to focus the IT project team's energy. This alignment and shared momentum create a fertile environment for building positive interpersonal relationships. Weisbord (1987) advocates guided team development, and his recommendation depends on developing awareness, skills, and cooperation within a natural work group against a social and business backdrop. Using as a guide the context and progress created by the work at the process level, and encouraging the democratic behaviors fundamental to that work, IT project team members can among themselves (or with the help of the OD practitioner as a coach) begin to identify and develop the healthiest, most harmonious behaviors and norms for the IT project team.

Resistance is a topic never far from the IT project, and an important consideration at the interpersonal and individual levels. The recipients of the IT project team's products and services in the customer organization (whether internal or external) may be expected to resist the changes technology demands, and the IT project team can certainly be expected to resist changes in their own familiar processes. McGregor and Knickerbocker addressed the very opportunities and challenges the IT-focused OD practitioner will face:

"We want to encourage enthusiastic cooperative effort, we want to increase efficiency to the utmost. These things we can accomplish only if the changes which are made in technical processes are perceived as necessary and reasonable by those whom the changes affect." (1941, p. 57)

Arthur Freedman (1997) notes the tendency among consultants and organizational leaders not to anticipate and prepare for difficulties in accepting and

adopting change. If the OD practitioner and her IT project manager counterpart use the models described here to focus the IT project team's improvement but fail to anticipate and plan for those difficulties, IT project teams will likely be worse for having wasted precious time, and the OD practitioner will likely be out of work.

Putting Theory into Action

The teambuilding approach, when practiced within the framing and formalization of the model and charter, provides a structured approach to diagnosing and improving the cooperative, interdependent process behaviors required to deliver the IT project on time, within budget, and according to requirements. It would be a mistake to assert that this approach is a panacea for the universe of pitfalls that can happen in an IT project. IT projects concentrate complexity into narrowly defined windows of time, tasks, and funding, bringing together diverse people and disciplines to achieve a common goal without the luxury of extended reflection and experimentation. IT projects move quickly, and they create complex dynamics within a temporary organization. The approach and models presented here are not a universal cure, but rather one specific way to define and engage in the work of developing the IT team without impeding its work. In practice this approach is best used as a guide and a framework within which to apply the specific OD and project management knowledge most appropriate to a given situation and team. Rick Freedman (2000) warns about the double-edged sword of methodologies and best practices: While having a defined process for performing a complex task is clearly an advantage, that process should not be so rigid as to stifle innovation and impose uniformity on the creative process of developing the IT project team's effectiveness.

The following scenarios offer a glimpse of what this approach might look like in practice:

Scenario 1. An IT project is initiated for a telecommunications company to develop a system through which its customers can create Web pages about themselves, their hobbies, and their interests. These Web pages will be available to anyone with a Web browser, and they will be free to the customer. An internal IT team is formed to perform this project. In talking with the project sponsor for the project, the IT project manager learns that the site must go live in two months' time, and that it must offer features that

its competitors in this market do not yet offer (though the competitors have been in this market for several years). While the tendency might be to ramp up this project quickly and burn as much midnight oil as necessary, the OD practitioner has two immediate concerns: First, the project does not appear to serve the strategy of a telecommunications company; and second, the requirements and schedule do not appear to be aligned (nor reasonable). Working with the IT project manager, the OD practitioner may facilitate additional discussions between the project manager sponsor before involving the team, ascertaining that the project is a good strategic fit and that the expectations of the team are reasonable, and saving considerable trouble in having a thinly stretched team and a dubious product.

Scenario 2. A government agency is engaged in a large project to enable Web-based records management among several thousand geographically dispersed employees. The project supports the organizational strategy by enabling more responsive service to citizens through the use of this system. A team of several different contractors representing various specialty firms is managed by an IT project manager, also a contractor. The schedule and budget appear reasonable for the requirements of the system, but skirmishes between various functions are causing the schedule slips and turnover among the team. The database analysts and the programmers are unable to agree on the proper ways to pass information back and forth between the interface and the database, and the requirements analysts and testers are sparring over what specific requirements mean in practice. In this scenario, the OD practitioner can work with the IT project manager to examine the barriers to collaboration and provide opportunities for the teams to make changes in their approaches. A possible approach might be a series of short workshops providing opportunities for mutual definition of norms and goal setting. Note that this scenario begins with tests of alignment between organizational strategy, project purpose, and requirements, schedule, and cost.

Future Trends

IT projects will continue to consume organizational energy, time, and money. Yet, the approach to managing and learning in IT projects can, with incremental

adaptations, result in far greater effectiveness and organizational impact in IT projects. With hundreds of billions of dollars in waste being chalked up each year, IT projects are going to face increasing scrutiny before they are started and throughout their life cycles. With some incremental change, IT can continue its growth with less of the burden of failure it bears today.

The model and approach presented here provides a framework for planning, implementing, and evaluating OD efforts in an IT environment, allowing organizations to envision success and make course corrections as necessary. As this model becomes more common, it will be useful and informative to perform benchmarking within and among organizations in order to assess effectiveness and illustrate the possibilities presented by this approach. It will also be useful to track organizations using this approach over a period of years, and to compare their performance to those with different approaches. Organizations might also consider augmenting this approach with a system for capturing and reinvesting IT project savings in a measurable way.

IT and the projects that create it are going to be an increasingly integral part of modern life in the years to come. Most organizations already depend upon a robust IT infrastructure. The challenge in the coming years will be to integrate rather than compartmentalize, building the capacity of human systems and technological systems in tandem to produce the most effective collaboration between people and technology. The IT environment of the future must embrace the concept of the learning organization, "where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together" (Senge, 1990, p. 3).

Conclusions

This chapter has explained the common issues causing IT failure and waste, and it has described the magnitude and consequences of the problem. OD is a field uniquely qualified to collaborate with IT to address these issues. This chapter has presented a model for managing and practicing OD in an IT environment. Using this model, the OD practitioner or team can establish a collaborative,

mutually beneficial relationship with the IT project manager. The outcomes of this partnership will be more effective teams, better organizational alignment both within the team and with the organization it serves, and the promotion of results-oriented organizational learning.

This is one of the first efforts to address the persistent problem of waste in the IT environment by codifying the relationship between OD practitioner and IT project team, and it is only the beginning. Some other issues to be explored are:

- how to gain entry into IT projects;
- specific techniques for negotiating the roles and expectations between the OD practitioner and the IT team;
- which techniques are more appropriate than others in improving IT project team communication and performance;
- possible areas of focus beyond the IT project team's effectiveness;
- how to establish a baseline for measuring results of interventions; and
- what the differences between various types (software development, upgrades, off-the-shelf product implementation) and stages of IT projects (requirements analysis, development, implementation) imply for the OD practitioner working to create the most useful outcomes for the IT project team.

What this chapter has established is a general context for and overview of work for OD professionals in an IT environment. While establishing the technical context of the IT project is an important step in enabling team development, Lewin's core principle for OD ultimately still applies: *We are likely to modify our own behavior when we participate in problem analysis and solution and likely to carry out decisions we have helped make* (Weisbord, 1987, p. 89). Yet, participation alone will not solve the issues of IT project waste. Participation requires *goal focus* and *active leadership* (Weisbord, 1987, p. 85). The two are brought together through a structured collaboration between the IT project manager and the OD practitioner. The opportunities for each are bound only by their mutual will and discipline in creating IT project success.

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