

**KNOWLEDGE CREATION AND TRANSFER ACROSS ORGANIZATIONAL
BOUNDARIES AND MINDSETS: CROSS-FUNCTIONAL TEAMWORK IN
FUNCTIONAL ORGANIZATIONS**

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Abstract

Learning at work in real organizations is a social phenomenon that involves communication across individual and organizational boundaries, collaboration, and knowledge and information transfer within and across organizational structures. In this paper we highlight the role of organizational design and project structure and management on the development and experience of two “communities of practice” inside large bureaucratic organizations. Since we believe that organization and management structures shape organizational behavior (and not vice versa), and also that institutionalized occupational, organizational, and social processes serve as cognitive constraints and “mindsets” that guide participants in their work of knowledge creation and organizational problem-solving, we focus our attention on the manner in which structure and institutionalized organizational processes serve to facilitate or inhibit the processes of learning and knowledge creation in learning and problem-solving teams. As practitioners and as organizational scholars, our goal is to outline a set of actions that grow from our narratives and analysis that will enable other practitioners and researchers to enhance organizational learning, to develop organizational capabilities, and to improve organizational performance in their own organizational communities of practice.

Cross-functional teams are useful in developing innovative and optimal solutions to many types of business problems. In this paper, we are concerned with the particular challenges faced by cross-functional, multidisciplinary (and often cross-cultural) learning and problem-solving teams working inside deep organizational, occupational, and national cultures that are functionally, hierarchically, and geographically organized and structured. Collaboration is not a norm in these companies and cultures -- the requisite work processes, organizational structures and reward systems, leadership models and practices, and interpersonal and team competencies for working in collaborative work systems are often absent, underdeveloped, or forbidden. Barriers are formidable, and a cross-functional, multidisciplinary team’s internal alignment often runs counter to that of the prevailing organizational structures, culture, and norms.

After presenting a conceptual framework outlining the challenges facing multidisciplinary, global, cross-functional teams embedded in deeply functional organizations, we present two organizational stories of cross-functional, multidisciplinary teams working inside telecommunications operating companies. First, we chronicle a business process and system improvement team charged with designing and deploying a new system. The second team crossed international, occupational, and functional boundaries to develop a successful international marketing strategy. In the final section of the paper, we suggest some lessons that can be drawn from the teams’ experiences, and we relate the teams’ challenges, leadership, internal practices and processes, activities, and solutions to the challenges of knowledge creation, information transfer, organizational learning and collective problem-solving.

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1. Introduction

Learning and innovation at work in organizations is a social phenomenon that requires communication across individual and organizational boundaries, collaboration, and knowledge and information transfer within and across organizational structures (Lave 1988; Brown, Collins, and Duguid 1989; Lave and Wenger 1990; Brown and Duguid 1991; Wenger 1998; Brown and Duguid 2000). When a newly-created knowledge-based project team receives a challenging assignment to perform or a novel, non-routine problem to solve, it must quickly come together as a unitary group with a clearly defined mission, identity, and structure to work as a creative problem-solving team. Then it must set to work to address its task. From each member's previous individual and group problem-solving experience and professional knowledge, interpersonal competencies, networks, and resources, the team must work collaboratively to determine an effective strategy and methodology to be used in analyzing and solving the problem at hand. In so doing, the team members must skillfully negotiate an intricate social and political process of influence, trust and relationship-building, decision-making, and information-sharing to create an optimal solution.

In the reality of a learning and problem-solving team, however, this task is greatly complicated by several factors that can serve as enabling conditions or constraints on successful group learning (Figure 1) (Perkins and Shaw 1992, Slepian 1992). First, the group's external **environment** (its company's structure, strategy, and design; its industry and technological conditions, alongside economic, social, and political conditions) provides the context for the work. It presents the strategic business need that the team must address, allocates critical organizational resources to the team, and assigns formal leadership to the problem-solving effort. Moreover, formal and informal organizational structures and institutional mores shape the manner in which the team members interpret and assess their problem, identify and assess the resources available to them, and provides the basis for the team's work. Secondly, the **group structure and composition** impacts performance and interaction and provides much of the raw material for the group's own process. Individual and group organizational tenures, group heterogeneity, and network linkages influence type and mode of communication, group norms and leadership, cognitive flexibility, social linkages and other patterns of group behavior. Additionally, the

problem characteristics – its type and structure, complexity, criticalness, technical requirements, schedule, and resource availability – shape the parameters and methodologies chosen to address the team’s task. The organizational context and culture of the group provides each of the group members (and the group as a whole) with a set of cognitive constraints or mental models that comprise the **group belief system**, a set of relevant cognitive scripts from which the group’s learning and problem-solving process emerge.

In this paper, we focus our attention on the manner in which structure and institutionalized organizational processes serve to facilitate or inhibit learning and knowledge creation and transfer in learning and problem-solving teams. We highlight the role of organizational design and project structure and management on the development and experience of two “communities of practice” inside a large bureaucratic organization. In addressing the relationship between organizational structure and project team performance, we focus our attention on the challenges faced by two cross-functional teams in a telecommunications operating company¹.

We address the following three questions:

6. How can cross-functional, multidisciplinary and/or cross-cultural work teams be successful in an organization whose structure, culture, and norms often run counter to those that are needed for successful organizational learning and innovation?
7. How can cross-functional projects be structured and managed to enable teams to be successful under these adverse conditions and optimize their capacity for successful knowledge transfer, innovation, and learning?
8. What cultural and organizational barriers do teams experience in their work as learning systems, and what do they need to overcome them?

In this paper, we recount organizational stories of two project teams working inside highly bureaucratic and regimented organizational communities. Following each narrative, we highlight the ways in which organizational structure, composition, and culture shape the way in which the teams approach their task and complete their work. As practitioners and as organizational

¹ Two premises underlie our work. First, with structural organizational sociologists, we maintain that organization and management structures shape organizational behavior (and not vice versa): Formal and informal organizational and project structures drive individual and team effort, outcome and performance. Second, from Neoinstitutional organizational theorists and researchers, we maintain that institutionalized occupational, organizational, and social processes serve as cognitive constraints and “mindsets” that guide participants in their work of knowledge creation and organizational problem-solving.

scholars, we seek to outline a set of actions that grow from our narratives and analyses that will enable practitioners to enhance organizational learning, to develop organizational capabilities, and to improve organizational performance in their own organizational communities of practice.

After presenting a conceptual framework outlining the challenges facing multidisciplinary, global, cross-functional teams embedded in deeply functional organizations, we present our two organizational stories of cross-functional, multidisciplinary teams working inside a telecommunications operating company. First, we chronicle a business process and system improvement team charged with designing and deploying a new system. The second team crossed international, occupational, and functional boundaries to develop a successful international marketing strategy. In the final section of the paper, we suggest some lessons that can be drawn from the teams' experiences, and we relate the teams' task and challenges, leadership, internal practices and processes, activities, and solutions to the challenges of knowledge creation, information transfer, organizational learning and collective problem-solving.

2. Cross-functional teams as learning systems

Cross-functional teams are believed to be useful in developing innovative and optimal solutions to many types of business problems (Deming 1986, Juran 1989, Hammer and Champy, 1993, Davenport, 1993, Parker 1994, Mohrman, Cohen, and Mohrman, 1995). They bring significant competitive advantages and enhanced capabilities to those organizations that use them. Successful cross-functional teams, it is argued, can provide: 1) faster problem solving, 2) enhanced capability to address complex problems, 3) increased ability to maintain an end-user, customer-focus, 4) enhanced creativity and innovation, and 5) and, most importantly in this case, optimal organizational learning and knowledge generation (Parker 1994, Mohrman, Cohen, and Mohrman, 1995).

Given the increasingly competitive global business environment, the rapid development and diffusion of new technologies, alongside the pressure for rapid innovation and optimal organizational efficiencies, cross-functional project teams have been increasingly adopted across companies and organizations worldwide. For example, McDonough (2000) reported that as product development organizations were replacing traditional, sequential models of new product development with reciprocal processes that included cross-functional development teams (Adler 1995), fully 70-75% of companies had implemented the new structures and cross-functional teams (Cooper and Kleinschmidt 1994, Griffin 1997).

Functional diversity has been found to provide both assets and liabilities to groups and teams. It has been associated with increased group innovativeness, increased strategic choices, and increased scanning and selection activity (Bantel and Jackson, 1989; Hambrick and Mason, 1984; Dearborn and Simon, 1958). Moreover, the use of multifunctional teams has been touted as a solution to improved product development processes (Ancona and Caldwell, 1992). On multifunctional teams, greater and more direct access to information and expertise is available to the team; product transfer can be facilitated since representatives from each functional area are represented.

Functional heterogeneity also provides liabilities to groups: Functionally heterogeneous groups have difficulty in developing a common goal (Dougherty, 1992; Ancona and Caldwell, 1992). Differing "thought worlds" (belief systems) of functional groups serve as obstacles to the development of shared purposes and goals (Dougherty, 1992), while functional heterogeneity also increases group conflict and inhibits interpersonal communication (Wagner, Pfeffer, and O'Reilly, 1984). In actual studies, conflicting results have been found when evaluating the performance outcomes of cross-functional teams in operation (cites).

In the rest of this paper, we examine the particular challenges facing cross-functional, multidisciplinary (and often cross-cultural) learning and problem-solving teams working inside deep organizational, occupational, and national cultures that are functionally, hierarchically, and geographically organized and structured. We move to the world of US telecommunications operating companies, where we investigate the work of two cross-functional learning teams in action. Collaboration is not a norm in these companies and cultures -- the requisite work processes, organizational structures and reward systems, leadership models and practices, and interpersonal and team competencies for working in collaborative work systems are often absent, underdeveloped, or forbidden. Barriers are formidable, and a cross-functional, multidisciplinary team's internal alignment often runs counter to that of the prevailing organizational structures, culture, and norms.

3. The challenge of organizational mis-alignment: Cross-functional teamwork in functional organizations

My career started in 1966, the summer between my junior and senior years in high school. I was a long distance operator, working on the "old cord board" in a small town. I worked for the local telephone company that belonged to the family of Bell System companies including AT&T and Bell Labs. "Family" is what it was, we were all one big family, and each work group had its roles and responsibilities, and its place in this hierarchy.

I was required to wear business attire to work: a dress, or skirt and blouse, hem below the knee, nylons and heels. If my dress was not appropriate, I would be sent home to change, or if a second offence, sent home without pay. Training was serious, I had to memorize what I was to say, and I would be reprimanded if I deviated from the standard phrases. I was to have my headset on and standing behind the operator I was relieving on the minute, not one minute before or one minute late. Bathroom breaks taken outside of my scheduled break time were by approval of the Chief Operator and only if the demands of the service would allow it. The pay was excellent for a high school student, the company would allow me to take a school leave and pay for my college education if I maintained a "C" average. There was no finer place to work.

I was only going to work until I graduated from college, however the Bell System allowed me to transfer to different cities, and change jobs when ever I met the "time in title" requirements. I spent the next 30 years changing jobs within the Bell system every two years. I attended college, was promoted and attended over 5,000 hours of training, including various Technical and Management classes. These classes were always the latest and most up to date in the industry.

The culture within the Bell System allowed those who could follow rules and live within the structure to be successful.

– Priscilla, 30-year Bell system employee

The organizational model that AT&T President Theodore Vail introduced in 1909 for the Bell telecommunications operating companies lasted for over half a century, and its groundwork holds to this day (Temin and Galambos 1987). The telecommunications operating companies that provided services to businesses and residences within their geographic regions were all organized along the same three functional lines: Plant, Traffic, and Commercial. Since each of the functional departments was similar in skills, training, and personnel with corresponding functional departments in the other operating companies, this facilitated communication and operational efficiencies and allowed greater coordination and control by central headquarters. In this way, until the 1984 break-up of the Bell system, AT&T centrally managed the decentralized Bell operating companies in a highly efficient manner.

The company that President Vail built and where Priscilla built her career is the prototypical bureaucratic organization². Changing the rules and operating practices of functional hierarchies

² Weber (1947) characterized organizational bureaucracies as having:

1. **Rules and standardized procedures** to ensure that activities are performed in a predictable and replicable manner.
2. **Specialization and division of labor** to ensure that each person has a clearly identified job to perform.
3. **Clear hierarchy of authority** to facilitate control, supervision, and lines of accountability.

are nontrivial tasks. Deep organizational cultures aligned in traditional, functional bureaucratic manner are highly resistant to change and realignment. Moreover, workers who have built successful organizational careers by following the rules and living within the structure find it confusing and stressful to learn new rules: They have learned to be risk adverse, to be rewarded for successfully being so, and they are justifiably skeptical and distrustful. Cross-functional collaboration (which can move the organization forward) can be viewed as individual and organizational threats³.

We find today's American telecommunications operating companies, as a result of their historical legacy as part of a huge private sector bureaucratic monopoly, to be excellent examples of successful functionally-aligned organizations. They have developed strong and deep organizational cultures that are characterized by a rigid chain of command, and "command and control," directive leadership styles. Work processes are formalistic and rule-driven, methods and procedures are meticulously recorded and followed, and deviations are prohibited. Decisions are usually made at the highest possible organizational level, thereby shielding loyal subordinates from responsibility (blame) if the decision turns out to be wrong. Information is a commodity that is shared vertically on a "need to know" basis – management is the center of the formal information network, and accurate information is a cherished commodity to be collected, shared, and traded; however, informal communication and organizational networks are important and necessary vehicles and for successful organizational performance and survival. Selection and training in the companies is based on acculturation and technical competence, and reward and recognition systems reinforce desired organizational behaviors via individual and functional competition, financial compensation that is monitored and allocated by executives. As might be expected, workers who have built successful organizational careers in the operating companies by following rules and living with the organizational structures often tend to become technically

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4. **Technical competence and job performance as the basis for employment and promotion**, rather than friendship or family ties.
 5. **Separation of position from incumbent** to ensure that individual people do not have an inherent right to a position, and they can be removed for poor performance or other reasons.
 6. **Written communications and records** to document organizational activities, history, procedures and policies.

³ See, for example, S.K. Bishop, (1999) Cross-functional project teams in functionally aligned organizations. M.D. Hutt, B.A. Walker and G.L. Frankwick, (1995) "Hurdle the barriers to strategic change. J. R. Katzenbach, and D. Smith (1993). *The Wisdom of Teams: Creating the High Performance Organization*. G.M. Parker (1994) *Cross-Functional Teams: Working with Allies, Enemies, and Other Strangers*.

sophisticated and competent, yet risk-averse and distrustful, conflict avoidant, rule-driven, leader focused and decision-avoidant.

Consider the challenges such an organization faces when it attempts to pursue cross-functional teamwork.

[Insert Table 1]

Table 1 presents some characteristics of functionally aligned organizations alongside those of organizations that are aligned to support cross-functional, collaborative teamwork, organizational learning and information transfer. The distance between the two organizational cultures is striking. The organizational structure, norms and values, leadership styles and practices, decision-making, information systems, performance goals and metrics, and reward and recognition systems in functionally aligned organizations are not aligned to support collaborative enterprises. Without a conscious plan to support the cross-functional collaborative enterprise, well-intentioned organizational experiments in cross-functional, collaborative teamwork will be doomed to fail. Viewed from the perspective of workers such as Priscilla who might be selected to become cross-functional team members, while it might seem like a conceptually good idea to work together as a cross-functional team to achieve a common objective, their environment is not aligned to support their success.

In the remainder of this paper, we chronicle the journeys of two cross-functional teams working inside BOPCO, a telecommunications operating company⁴. We believe that much can be learned from both of the teams. First, we examine a joint IT – Finance system development team charged with designing and deploying a new technology and system. The second team crossed international, hierarchical and functional boundaries to develop a bid response to an international telecommunications tender. In presenting each case, we will present an overview of the team and its task (composition and team structure, charge and the constraints), and a chronological discussion of the life of the team from the perspective of Task, Group Process, Leadership, and External Environment. In both cases, we use *italics* to indicate direct quotations from team members. Finally, at the conclusion of each case, we highlight some lessons learned from the teams, and we relate the team's challenges, internal practices and processes, activities, and solutions to the challenges of learning and collaboration.

⁴ The names of all companies and other identifying characteristics of the teams and projects have been disguised.

4. Case 1. Team composition and functional ownership, leadership, and learning: BOPCO IT – Payroll Voluntary Deductions system development team

This section chronicles the journey of a cross-functional system development team at BOPCO, an American telecommunications company with over 61,000 employees in the United States and overseas. Like the other Regional Bell Operating Companies (RBOC's), BOPCO was formed as a result of the 1984 break-up of the Bell System. Since that time, BOPCO had diversified into several subsidiaries, some regulated, others not. The largest subsidiary employed 50,000 employees and provided communications service for approximately 16 million lines across its US geographic market; this subsidiary also provided payroll and other services for all BOPCO companies.

BOPCO Finance and Information Technology (IT) organizations were functionally organized as indicated in the organization chart (Figure 2).

[Insert Figure 2]

Payroll was part of the Finance organization reporting to the corporate Chief Financial Officer (CFO), while IT reported to the Chief Information Officer (CIO). While within each organization there could be as many as 6 levels of managers: VP's, Executive Directors, Directors, and mid and lower level managers, the common manager between IT and Finance was the President of the company. BOPCO's Payroll department consisted of the Line Office and Staff Office. The Line Office directly interfaced with the 61,000 employees of the company to process the payroll and provide the day-to-day support activities. The Staff Office supported the Line Office; they were responsible for implementing legally required changes (tax laws), system updates, and process improvements. The Line and Staff offices were located in different buildings several miles apart in a major city in the BOPCO service region. The Information Technology (IT) organization consisted of two separate groups, Systems Support and Maintenance and New Systems Development. Systems Support and Maintenance maintained and enhanced existing systems: it was usually collocated with the functional organization it supported. The New Systems Development organization was responsible for new system development projects; its work groups were located in many of BOPCO's major cities. IT had specific and detailed processes and documentation explaining how their systems were to be developed, used and maintained. Deviations from these procedures were minimal and often prohibited.

The preceding December, executives at BOPCO had decided to reduce operating costs, streamline operations, and decrease headcount. They challenged IT and Payroll to eliminate

manual processing in Payroll, since they had determined that employee voluntary deductions were both labor intensive and inaccurate (80% error rate!!). The organizations were charged to replicate the recently completed, successful IT/Finance Accounts Payable new system development project and implement an optical scanning system for voluntary payroll deductions. Over the next 2 years, a joint IT – Finance/Payroll team created and implemented a mechanized system for processing voluntary payroll deductions (Figure 3 – BOPCO IT-Voluntary Deductions Timeline).

[Insert Figure 3]

The Team and Its Task -- Phase One

Composition and Initial Team Structure. Since a joint IT/Finance Accounts Payable project team had recently completed the successful optical scanning process implementation and the team was disbanding, the IT team members and Finance project manager were selected to implement just such an optical scanning project for time reporting and payroll voluntary deductions. Nine team members from the original IT team joined this new IT project intact. They were split into two sub-teams, each with a project leader: Six IT team members joined the Time Reporting team, while four IT Team members joined the Voluntary Deductions group. A representative from each team also worked on the overall architecture of the new system.

Table 2 shows the membership of the IT – Pay Voluntary Deductions team for the first phase of the project.

[Insert Table 2]

Four IT members were assigned to the IT Voluntary Deductions team, with one member assigned to be the IT team lead. Their responsibilities included the coding and programming required for this project and sharing the lessons learned on the Accounts Payable project with the rest of the team. From the Finance organization, the Project Manager on the previous successful imaging system in Accounts Payable was appointed project manager for the new project. Her responsibilities included: upward management – attending to upper management in both the IT and Finance organizations, managing the boundary between the team and the rest of the CIO and CFO organizations, working team roadblocks, empowering her team members, and growing her staff with necessary skills, competencies and experience. Three members of the Payroll organization completed the team.

Life of the Team -- Phase One

In December, a kick-off meeting was held at the IT location 1355 miles from the payroll office. The existing IT Team hosted this event, with the functional designers (Payroll) traveling. The team would start in earnest in January, in office space provided by IT or the “Home Team”. The functional designers would travel for most of the next three months. They soon became known as the “Invading Designers”. These names the team members used reflected the initial perceived relationships between the two groups.

Initial Task Structure and Strategies: Rapid Application Development (RAD). As it had in its successful Accounts Payable application, the new Voluntary Deductions team formally employed the Rapid Application Development (RAD) methodology⁵.

Group Process and Emerging Relationships. An IT member stepped out of her IT team member role and facilitated the process of identifying the business requirements.

This was the time the team jelled. The expertise each of had-picked team member was recognized. We were a bare bones team -- To succeed as before we needed to become one, and we would need to draw on each other's strengths. Being hand picked also gave us each a sense of being valued for what we brought to the team.

For the next three months, the team, together with their customers, employed an intensive set of focus group and working meetings that they called “Lock- Ups.” Using focus groups with clients and customers, teams mapped business processes, information flows, and handoffs, and

⁵ Rapid Application Development (RAD), a common system development framework guided the work of the team for this stage of the project, and it usually consists of four stages (University of California, Davis 2001):

- 1) **Requirements Planning** – Initial review and planning with users.
- 2) **User Design** – Focus groups with end users to create a detailed business analysis and model and system prototype
- 3) **Rapid Construction** – Small teams of developers work directly with users finalize design and build system. Consists of a series of “design and build” steps in which the users fine-tune requirements and review implementation.
- 4) **Implementation** – Planning and managing the changeover to the old to new systems. May include bridging systems, converting data, and user training. User acceptance is the endpoint of this stage,

they developed prototypes of new systems. Opportunities for improving current methods and procedures emerge as well. The entire team also attended a training class together to learn a common software development tool. This training included a methodology for defining functional business requirements in English that would then translate directly into code at the push of a button. The functional designers joined the programmers.

Group Process and Team Empowerment.

*I'm not sure exactly when it happened, but it is around this time it became apparent there wasn't anything we couldn't accomplish, we were designing a system, changing the way we had done deductions for decades, simplifying the process, and we would be reducing headcount. What couldn't we accomplish? **Joni shielded us from upper management, fought tooth and nail to keep us as a separate and unique entity.** Give us another few months and we would change the world. These were very intense lock ups, I can't remember a time I was working so hard and having so much fun*

Conflict often emerged during the intense "Lock-ups", and team members learned to resolve their differences and reach shared objectives and understandings.

The end user, our fellow employee, was always the center of focus. One "Home Team" member told an "Invader" "I disagree with you but you always have the customer in mind and you're right." "It was difficult to keep our customers needs the top priority and not to let ourselves go wild." Another success was having the customer involved in the lock ups. It was difficult to get a commitment for 4 hours to help us during the design phase, but it provided the team with the grounding we needed and came to rely on throughout the project.

Completing Phase One Work. As a result of the Lock-Ups and meetings with customers, the team realized there was a serious problem with the proposed technical solution. While every employee would probably use this system, not every employee had access to a computer or a fax machine, the data entry mechanism for the optical imaging system. In contrast to the previous accounts payable application, where a clerk working in a fully quipped office processed the vouchers and invoices, in this case, each of the 61000 employees would enter his or her own data directly into the system. Directory assistance operators, cable splicers, and installers who worked in remote non-office locations or in the field simply could not use the proposed solution.

What happened next? The financial vice president challenged and charged the team to explore and develop a telephone-based voice response system to replace the optical system. The original team members voted on whether to proceed with the optical imaging system or to use a telephone-based voice response system. On April 6, optical imaging was voted out for voluntary

User involvement is critical in every stage of the Rapid Application Development (RAD) process.

deductions. The IT team as a whole was disbanded and assigned to other projects. The “Invading Developers” went home to develop a system based on the “ubiquitous telephone”.

At the next steering committee meeting, our vice president asked, “What about using the ubiquitous telephone?” What does ubiquitous mean? To me it means. I have just spent 2 ½ months away from home, designing a new system, using proven technology, working with a great team, being empowered, being unstoppable and you want me to.....keep on being empowered and unstoppable and change course in mid- stream. I can do that the team can do that and we did.

The Team and Its Task -- Phase Two

The Steering Committee charged the Finance Voluntary Deductions team to implement its new strategic decision. With the Finance organization taking the lead, a new project team was formed to design, construct and implement the new Interactive Voice Response (IVR) system for Voluntary payroll deductions. The project completion date remained unchanged, the budget was unchanged, but the technology had changed significantly. Moreover, the team (and the company) knew little about Voice Response Systems.

Composition and Team Structure. Table 3 shows the membership of the Pay – IT Voluntary Deduction team for the second phase of the project.

[Insert Table 3]

This time the Finance/Payroll organization took the lead. The original Finance team members continued in their roles, while the IT- Payroll support organization provided gave two voluntary deduction programmers “part-time” to develop the voice system.

IT gave us only part-time help. The programmers had retained part of their real work. Had IT taken over leadership we would have fallen into the written-not-to-be-deviated-from-procedures, the project would have failed.

Life of the Team -- Phase Two

The Payroll team’s previous work together enabled them to build on their past learning, and to move their interpersonal and work process forward with a minimum of disruption. Integrating the new IT-Payroll team members into the working group was facilitated by their pre-existing working relationships (the joint IT-functional groups were located on-site with their functional organizations).

Knowing each other as we did we were able to jump into the new phase of this project with previously defined roles and responsibilities. WE knew the strengths and

weaknesses of each other; the new IT members had an existing relationship with the other payroll members and they soon knew the rest of the team.

Once on-site in their home city, the Payroll functional team members were separated from their usual work locations and co-located on a separate floor of the building, away from both IT and Payroll. The functional developers sat back-to-back in an area modified into a square with a large circular worktable in the middle, where each team member was able to hear all conversations. Being part-time, however, the IT-Pay team member stayed in their usual work locations and they still retained some of their day-to-day activities

Initial Task Structure and Strategies. The team's first objective was to learn as much about the new technology as quickly as possible, in order to decide the best and quickest strategy for developing the new system. Given the scheduling constraints, after gathering documentation on IVR systems, the team decided that they would buy off-the-shelf software and modify it as needed.

Their next challenge was vendor selection, and the team was propelled into the Request For Information (RFI) and Request For Proposal (RFP) world. How do you pick a vendor? One team member's prior experience was invaluable, as his contacts in the corporation provided the necessary assistance to ensure that the team met all legal requirements. At this point the team again utilized the "Lock-Up" technique to learn the new technology and define their system requirements to a vendor. The team developed a process to select the final vendor.

We did most of the work ourselves and we were able to avoid getting bogged down in the bureaucracy of a major corporation. We were on a mission: empowered, and unstoppable.

At this time we were feeling abandoned and unsupported, but in hindsight it was freedom, something we who were used to the 3 inch white binders were not used to at all. I remember going to the VP to discuss our choice, he seemed rather upset that we would bother him with an expense of less than 7 figures. Again the team had feelings of abandonment. In reality, we had been empowered and allowed to succeed.

During the next three months, from November to January, the team worked with the selected vendor to develop a system prototype. Two "souped-up" personal computers, a back-up power source, a table, and some chairs were placed into a closet that was rapidly becoming a makeshift computer lab; a lock was put on the door and the system developers went to work. Since they had already developed a network of engaged employee volunteers, they enlisted them to test the prototype system and assist in its modification. The team had overcome yet another obstacle.

This was a direct result of upper management and project leadership's "hands off," empowering attitudes, as well as the team's own internal commitment and belief that they would be successful.

Had we followed usual procedures and put the PC in the computer center, we would have been required to follow the written procedures for installing a new system, and the associated problems with installing a PC in a mainframe environment.

Communication with External Stakeholders and End Users. The Steering Committee was instrumental to the project's success. They saw the importance of empowering the team and giving them the freedom they needed to succeed, even though it was often perceived as a lack of support. The Project Manager dealt directly with the Steering Committee, either on a weekly or monthly basis. The core team occasionally met with the Steering Committee as well. .

Group Process and Decision-making.

*Our company had a myriad of project management processes. Each with its own 3-inch binder or multiple 3-inch binders defining in great detail each step necessary to complete a successful project. Each of the team members had been on previous projects and was experienced in one or more of these methodologies. **Our strength was picking and choosing what pieces of our previous experience worked and what didn't, since we didn't have a binder to follow we had the flexibility to freelance.** Again, this was another example of our success, had we followed a strict step-by-step process would we have achieved as much as we did?*

Throughout its existence, the team made most of its day-to-day decisions using a simple "Majority rules" voting process. Sometimes discussions became heated, but, for the most part, people presented their arguments, discussion ensued and options discussed, and decisions were made. Since each team member was a trusted, recognized expert in their area, ideas flowed easily back and forth and, in most cases, the team members were in concert before the final decision was made.

Completing the Team's Work. In April the Voluntary Deductions IVR system went live. Although there were some problems during the first several months, the system was a resounding success. Calls to the system increased dramatically day-by-day, and employee usage and feedback on the system were enthusiastically positive.

Team Reward and Recognition. Senior Financial organization leadership recognized the success and hard work of this team by encouraging its participation in the BOPCO Corporate Finance Quality Competition. The winner of this yearly competition represented the Finance organization

and competed with quality teams from all sectors and subsidiaries of the BOPCO organization. This team went on to represent the entire Finance organization in the BOPCO Quality award competition.

We took our professional presentation, new khaki slacks, and polo shirts with embroidered logos to the competition. We had great fun and a way to share our success with the many quality teams within the family of companies, the competition was tough, but we had already won our Academy Award back home.

Eventually the team was formally disbanded. A small core team remained to maintain the system and to implement additional IVR applications, the rest returned to assignments in Payroll and IT-Payroll. At last report, 6 years later, the system continued to receive over 250,000 calls a month.

5. Discussion: BOPBO IT-Payroll Voluntary Deductions as a collaborative learning team in a functionally structured organization

Changing Team Composition and Functional Ownership. The Voluntary Deductions team composition and the configuration of its team members' roles influenced its effectiveness in managing its external relationships with other groups, its problem analysis and problem-solving approach and procedures, and also its internal decision-making and interpersonal processes ⁶.

In the Phase One team, the IT members were the dominant group, and the Finance/Payroll functional developers were secondary members. The IT problem systems analysis and development and problem-solving frameworks were adopted and rigorously followed by the team. The team's meetings were held in the home city of the IT team members, where the Finance/Payroll team members were viewed as the "Invaders." Since the RAD methodology engaged customer and end user involvement in all phases of system development, Payroll team members' end-user knowledge and expertise were included as input into the development process, but their contribution and other competencies were limited to the roles the IT members permitted them to play. When the team discovered that the intended optical technology would not be appropriate given the constraints of the end users' work environment,

⁶ See, for further examples, Alderfer, C.P. "An Intergroup Perspective of Group Dynamics". In J.W. Lorsch (Ed), *Handbook of Organizational Behavior*. Englewood Cliffs, NJ: Prentice Hall, 1987. Ancona, D.G. and Caldwell, D.F. "Rethinking Team Composition from the Outside In." *Research on Managing Groups and Teams*, 1998, 1, 21-37. Dougherty, D. "Interpretive Barriers to New Product Innovation in Large Firms." *Organizational Science*, 1992, 3(2), 179-202. Phills, J.A., Jr. "Reflections on the Practical Implications of Group Composition: Lessons from a Field Study of Creative and Artistic Teams." *Research on Managing Groups and Teams*. (1998), 1, 229-254.

the problem and task was re-defined, the team disbanded, and a new team was created to develop and deploy the new technology into an innovative and useful system.

When the Phase One team was disbanded and the Phase Two team created, the project and ownership shift from IT-dominant to Finance-dominant was both striking and significant. The composition of the team was realigned under the sponsorship of the Finance VP; the joint IT/Finance project steering committee lost an IT representative who was not replaced. Since the Finance/Payroll team members were not experts in system development or IVR technology, they approached the problem as an opportunity for learning and innovative process improvement that could transform the way work was done in their department and throughout the organization. Their management had empowered them.

Changing Team Norms: The Emergence of Conflict, Communication and Trust, and Empowerment. In companies like BOPCO, there are often strong group norms inhibiting the overt discussion and exploration of differences between members' approaches and priorities, and also in the expression of "unacknowledged-yet-present" conflict (Hackman 1990). Problematic difference and conflict are spoken of only in behind-the-scenes and out-of-the-room conversations and meetings. In extreme cases, problems and conflicts are escalated to the group manager to resolve outside of the group meeting. "Management by escalation" becomes the norm in these organizations. Communication is vertical, rather than horizontal or even circular.

Successful cross-functional teams employ strikingly different norms values, and practices. Many of these new norms – conflict expression and resolution, communication and trust, individual and team accountability and decision-making, team empowerment and the capacity to act and make real decisions – were inconsistent with the operating norms in the usual BOPCO organizational culture. For team members, this often presented an unusual paradox and feelings of discomfort. Old team behaviors that in the past were functional and appropriate were no longer useful or encouraged. Empowerment was experienced as abandonment and neglect by authorities, while physical workspace designs that prohibited "hidden" conversations and facilitated open information-sharing were perceived as violations of privacy and respect.

Several leadership and process interventions served to establish contradictory norms for the Voluntary Deductions team. First, the initial phases of group formation were well-designed and formally facilitated to help team members establish new ground rules, become familiar with each other as individuals and groups, create a shared understanding of the team charge and mission, and establish a common strategy and methodology for approaching the task. In so

doing, leadership and the team established its own “super-identity” as a team with its own set of norms and operating procedures. Intensive, early “Lock-up” meetings quickly created a team ethos and camaraderie that were later the basis of genuine communication, respect, and trust. Moreover, they also established a common methodology based on collaborative teamwork among and across disparate organizational and functional groups.

Finance Executive and Project Leadership were aligned in their commitment to the team’s success, and they were in agreement on the necessity for the development of an empowered, collaborative, problem-solving team. This leadership alignment and its consequent actions supporting and preserving the team’s autonomy and capacity to act were critical to the team’s success in establishing and enacting counter-cultural norms and values.

Changing Leadership: Leader as Protector, Coach, Enabler, and Facilitator. Successful cross-functional team leadership requires a different set of competencies than those usually in the standard repertoire of functional managers (Parker 1994, Fisher and Fisher, 1997). Functional managers in hierarchical organizations sit in the center of their organizational function’s activity: they command, control, oversee and participate in all decision-making, supervise individuals in their work in the function, and direct all aspects of its operations. In contrast, leaders in successful cross-functional teams sit off to the side of their project team, listening and observing the team’s activities, stepping in to influence the team’s direction forward, protecting the team from external distractions, managing relationships and communications with external stakeholders and making sure that the team has the resources and organizational support that it needs to accomplish their objectives (Donnellon 1995).

In acting as Facilitator, Enabler, and Coach, Joni believed that her primary responsibility was to her team. She set the team in motion in its initial stages, provided the structure, resource and facilitation to ensure that the new team got off to a good start and that they developed strategies, procedures, practices and group norms that would enable them to achieve their goals. When she saw that the team was lacking in a particular technical or group competency, she coached the team in developing the requisite skill, or she made sure that the needed resource became available to the team for its use. She created a workspace that would foster the development of requisite communication, decision-making, and conflict resolution skills, and she empowered her team to become autonomous and empowered.

An essential responsibility of cross-functional team leaders is managing the complex set of boundary relationships among organizational and functional stakeholders in such a way that the team’s work is not adversely affected or distracted (Ancona 1990, Ancona and Caldwell

1992, Yan and Lewis 1999). She kept the Steering Committee informed and communicated their ideas and feedback directly to the Voluntary Deductions Team. As Boundary manager and team Protector, Joni found a separate location for her team to work, and she protected them from the needs of their functional departments. While Joni was not at the center of the team's activities, she was not absent from their process. She was an observant and present manager who assisted, enabled, and empowered her team to do great things.

6. Case 2. Time, task, loyalties, and learning: BOPCO International proposal bid team

BOPCO International, a new, non-regulated subsidiary of BOPCO was facing a new challenge. Its parent company had charged its fledgling subsidiary to develop new business through the formation of new partnerships and joint ventures in new geographies around the world. Fortunately for BOPCO International, they had identified just such an emerging opportunity: The government of a Developing Asian Nation (DAN) had issued a bid tender for wireline and wireless telecommunications service provision in DAN, and BOPCO International had located a local DANian company that was willing to join in partnership with BOPCO in preparing a joint response and bid. This section recounts the story of the BOPCO International team that, during the two-month window from January – March prepared BOPCO International's response and bid for the DANian operations.

BOPCO International had a US-based office that contained its central administrative functions – accounting, finance, human resources, public relations, business development, and operations support (including marketing, customer services, information technology, and engineering). Of BOPCO's 52,000 employees, 2500 were BOPCO International. Its Asian headquarters were located in Hong Kong – satellite offices were located in Bangkok and Jakarta. Expatriate American BOPCO International directors managed the Asian offices, supported by Asian nationals who were BOPCO employees.

Team and its Task

Composition and Initial Team Structure. The twenty-five team members who were assigned to prepare BOPCO's response originated from three functional groups across BOPCO International – finance, marketing, and technical/engineering (Table 4). To these were added five team members from the DANian partner company. The team reported to the BOPCO senior directors located in Bangkok, who in turn reported to the Asia Senior VP- BOPCO and the

President of the DANian Company. The BOPCO expatriate directors who were located in Asia selected the BOPCO team members. Since most of the team members were US-based, the final decision as to an individual's participation was made by his or her US director. The team members from the DAN-based partner company were assigned by their directors. Figure 4 shows the membership of the BOPCO Bid team.

[Insert Figure 4]

The team was organized by bid topic (wireless, wireline, marketing, and technical), financial issues, and document management. Primary streams were wireless, wireline, financial, and document management, and leads were assigned from the Hong Kong office.

Charge and the Constraints. Given the rigid submission deadline imposed by the DAN government, the team had only two months to prepare the BOPCO/ DAN response. The DAN tender provided clear, concise, and very specific guidelines for the response. The timeframe and deadline were concerns from the beginning of the project: It was clear that there were no extensions, and the project operated within a limited time frame.

Unfortunately, however, detailed and specific information on DAN and its telecommunications needs were unavailable to the BOPCO team at the project's onset. Accurate demand, marketing, and technical information depended on this utilizing these data. Unless the information could be quickly obtained, the team's ability to do its work would be adversely affected.

At the site in Bangkok, a "War Room" was set up where the entire team would be able to work together. PC's, printers, and LAN connections were set up, and administrative support was available. Project directors' offices were located in the area so that they were easily accessible and available for inquiries and problem resolution (escalations).

All team members made their own travel arrangements to Bangkok. Through correspondence from the team lead, everyone knew project start dates, critical dates, etc, so team members and their supervisors knew when to make travel arrangements to arrive in Bangkok in a timely fashion. Once the entire team was on site, introductions were made and weekly status meetings commenced.

Life of the Team

Becoming a Working Group. Prior to the initial on-site project commencement, individual team members received much correspondence regarding time frames, project structure, logistics, and other general information.

All of the correspondence was very upbeat as well as informative. We were all treated respectfully and as professionals.

People arrived on-site within two weeks of the beginning of the intense work. Because of this, no formal kick-off meeting was held, but the project stream leads oriented members to the tasks and resources for work to commence.

Initial Task Structure and Strategy. Upon arrival on site, the members of each project stream immediately set to work researching DAN and locating the necessary information that would be required to complete the relevant sections of tender as described and outlined in the bid requirement: The structure of the tender and its specific requirements served to structure the team's working approach to their task. The project streams worked independently preparing their deliverables. Again, the rigid deadline served as a major constraint on the team's strategies and activities.

Based on the results of the research and the project streams' results, financial implications of multiple strategies and scenarios were created and, based on the competitive bid information, the team cautiously began to map several alternative response strategies. As the project streams began to prepare concrete deliverables, they were submitted into the LAN Master Document, and they were monitored and tracked by the Bid Manager / Project team lead. The entire team came together weekly for formal project status meetings.

Group Process and Emerging Relationships. As the team began its work in earnest, project streams formed the formal subgroups of the project. Each stream had a leader, and the set of stream leaders and the project director comprised the project leadership team. Informally, subgroups based on functional area (engineering, marketing, etc.) bid topics (wireless, wireline, etc.), and culture (Thai, DANian, American expatriates, US-based Americans), and gender emerged as well.

Pre-existing relationships among various team members and newly emerging friendships across formal and informal subgroups, served to link the subgroups together and act as communication conduits across the project. Communications were formal in the early weeks of the project, with the exception of the informal network based on pre-existing relationships.

Working Together – The Middle Phase. By the third week of the project, the team was working non-stop 16-hour days, seven days a week. While individuals were exhausted and tense, the team worked steadily toward its goal. The task and work strategies and structure continued in much the same manner as before, while the team moved forward toward its goal.

Group Process and Emerging Relationships. In terms of interpersonal process, however, the group began to experience serious intergroup stress and cross-cultural challenges. Early cross-cultural stress emerged around perceived social exclusion of some of the DANian engineers by the Americans and Thais.

One issue that arose was a reaction from the DANian engineers on the team – There were only two of them among a majority group of Americans and Thais. They felt that the Americans were being exclusionary to them in terms of going out to lunch and the informal social network. The Americans made efforts to extend lunch invitation and the situation was smoothed over.

As the deadline grew closer and the stress continued to increase, the cross-cultural stresses and conflicts continued to escalate as well.

Constraints involved differences in sense of urgency from one culture to another. Americans were “hyper” – everything must be done yesterday. The Asian personnel worked at an entirely difference pace, and this became more of a factor since the deadlines were growing increasingly near. The American tendency to get mad did not play well in the Asian culture, and growing frustration in isolated instances did not resolve the situations.

Also during this phase, a more extensive informal communications network emerged as friendships and relationships outside of the formal groups were formed and solidified. An additional layer of informal news reporting on the project appeared, and information was disseminated in this fashion outside of the formal status meetings.

Leadership. Much of the energy of the executive and project leadership focused on building and managing the relationship between BOPCO and the DANian partner company. As the project evolved, the project leadership team started to splinter as more and more issues between BOPCO and the DANian partners became strained. Serious high-level discussions and negotiations between the partners were being held at high executive levels in the US and DAN. Executive project leaders became consumed preparing responses to this: While this information was clearly “not the rest of the team’s business,” the team’s mandate was to continue on course.

But as the leadership became more and more consumed with these issues and more stressed by these activities, project leadership and guidance was absent from many of the project's activities.

The bid team lead specifically was a brilliant person from a strategic perspective and a technical perspective. He was the closest to the bid team members and kept an eye on things, including managing cultural and personnel aspects of the project. He met his responsibilities to a large degree, but went silent toward the end of the project. From a speculative standpoint, he perhaps became disenchanted by his leadership and disengaged once the bulk of the project was completed.

Completing the Group's Work. In the last three weeks before the deadline, the actions of the entire team became more focused on supporting the preparation of the final deliverable. As the team members and project streams completed their work and provided their input to the final document, they refocused to support the administrative team. By this time, most of the team members shared a high level of accountability for the final project.

External Events Impact Team's Work. Meanwhile at BOPCO International headquarters, concerns had emerged regarding some business consequences of the project. These issues and concerns impacted the energy, commitment, and activities of the project in its final stages: There were noticeable changes of in the pace of the project, and some team members left the project or changed priorities.

Group Process and Leadership. Just at the point where the team was completing its deliverable, external events and executive decisions served to derail the group's process and progress. Ambiguity, anxiety, and confusion regarding the project's status and future impeded the group's ability to complete its task.

Group members were confused and kept trying to conduct daily activities or whatever needed to be done. The "rumor mill" was in high gear, but no one knew even the basic facts (e.g., whether to return to the States or stay in-country on the project.)

Additionally, just at the time when they were most needed, the weekly formal communications meetings stopped as well. Executive and project leadership failed to communicate changes in the project to team members.

In fact, top project leaders changed priorities and were not present on project activities at all.

Project Outcome and Closure. Once the leadership disengaged, some of the team members and project leaders whose sections were submitted left the project. Other team members stayed on site to assist with the document preparation. The bid was finally submitted.

The team members who were among the stragglers did “mourn” by discussing, speculating, and gossiping about what had happened. No leadership was present to tell the remaining people that they were dismissed, stay, or whatever. The project unofficially concluded in this manner. The DANian team members left earlier when their leadership told them to return home, and they said farewell without aplomb or emotion. But this was a portent to the rest of the team. There was little obvious expression of the disappointment of how the project had evolved; instead the emotion was reserved among the informal groups in terms of expressing and discussing disappointment, hurt, surprise, and confusion. After milling around for a few days, the final team members decided to make travel arrangements and left for home.

6. Discussion: BOPCO International Proposal Bid team as a learning system

Task, Time, and Organizational Structure in Proposal Bid Teams. Roxanne Kent-Drury (2000) points out that proposal bid teams, like the BOPCO International bid team, are project teams that are configured to respond to a single RFP and then disbanded once the bid has been made or the contract awarded. They are rapid, short-term, temporary project teams whose members represent their respective functions. Like BOPCO’s team, most bid teams are structured with linear, functional work streams corresponding to the actual sections of the RFP converging in a cross-functional, matrixed team setting.

The BOPCO project lead, or Bid lead, oversaw the administrative and financial sections of the proposal, and made sure that schedules and deadlines were adhered to. The actual content for each of the sections resided in the functional work streams and functional overseers and executive functional owners who were not formal members of the team. Thus the team was set up in such a way that the primary hierarchical authorities were the functional executives who may or may not have been on-site during the bid preparation at all. In this case the Wireless and Business Development VP’s, in the US, while not formal members of the Bid Team, nonetheless held the greatest authority regarding the project outcome. On paper, then, the team appeared to be a single cross-functional project team, while in reality its structure was functionally based, with the primary functional authorities residing outside of the external boundaries of the team, but whose active presence and activities were ever-present as the team performs its task of bid preparation. If the actual group power resides outside of the cross-functional bid team, can this team ever be “autonomous” or “empowered” to act and succeed on its own?

Group Composition, Norms, and Organizational Loyalties. Since cross-functional team members carry with them multiple memberships in many organizational and identity groups (Alderfer 1987), most cross-functional team members commonly experience some degree of conflicting loyalties and pressure. In the case of the BOPCO International Bid team, however, individual identity as a functional specialist took precedence over the “super-identity “ of the cross-functional bid team. Differences that were based on culture and culturally-based stereotypes were primary as well, as work styles and habits became irritants and the bases for antagonism and misunderstanding. Conflict was managed informally or ignored, ostensibly due to the primacy and urgency of the bid task.

The norms and values of this team were more closely aligned with the functional, hierarchical parent organization, BOPCO, than with those commonly associated with cross-functional teamwork. Group process neglect, lack of attention to the necessary conditions for successful teamwork, upper management-focus, and externally driven activities and outcomes served to disempower some team members to the extent that they did not know when it was time to leave after completing the bid. Leadership styles were directive and outward-focused, which led to an abdication of the cross-functional leadership functions. Project leaders fell into their usual functional leadership roles. Formal communication channels were abandoned before the end of the project, with informal communication networks providing information to team members at lower hierarchical levels. As the project drew to a close, team members became individuals and again placed individual interest above group values.

Communication, Knowledge Transfer, and Learning Capabilities. While the BOPCO International team successfully completed its task and submitted the bid proposal on schedule, it did not function as an efficient learning system. This project team came together from multiple cultures, nations, functions, locations, and companies to address a complex set of challenges. Most of the team members’ experiences were limited to those of an American, regional telecommunications service provider, however, and they were immediately confronted by “foreignness” and incomplete information. The team needed to quickly learn about DAN – its geography, economy, government, educational system, and population; its existing telecommunications infrastructure, markets, and resources; its telecommunications laws and policy objectives, and so forth. While it would seem that an obvious source for this knowledge and information would be the DANian partner company team members, the US BOPCO-focused team instead chose to rely on BOPCO’s marketing research organization in the US. Since the manner in which the team was put together (no team-wide Kick-off meeting on-site, formal

written pre-work focused only on the BOPCO International team members) precluded initial introduction and information-sharing, the DANian team members and the BOPCO participants did not view each other as resources in learning and problem-solving. Moreover, given the time pressure and external events, when the weekly formal communications meetings ended, further opportunities for team-wide self-reflection, corrective action, and learning ceased as well.

The manner in which the team was organized (functional project streams) and structured further ensured that information would be formally transmitted and shared only vertically within the project. Communication between project stream sub-groups was limited by design, so cross-stream knowledge and information transfer was limited. As the project progressed and the leadership team focused its attention on upward management, the on-site working project team members became more self-directed in practice, Without sanction for decision-making or cross-team communication and without knowledge of other team members' knowledge and capabilities, however, locating resources for problem-solving and fast decision-making became an even greater challenge for the team members.

An organization's learning capability rests on its capacity to build on its past experiences and use them as leverage in facing future challenges. Companies that routinely reuse solutions and reflect on their learning from past experience (both successes and failures) build unique and invaluable self-knowledge and organizational learning capability. For example, in this case, had BOPCO International built a core cross-functional bid response team to serve as a continuing foundation for future international bids, it could have drawn on the experience of past teams and developed competencies in this area. Not only would this have served to develop global, cross-functional leadership competencies, but it would also have created a core team of individuals to carry invaluable learning for future teams. Additionally, such routine reflection, reusability, and recycling could create a process and methodology for future teams working under the rigid conditions of international bid response to follow.

7. Conclusion: Cross-functional teamwork and organizational learning in functional organizations

In this paper, we have examined how organizational structure and institutionalized organizational processes affect the work of problem-solving teams. We have highlighted the role of organizational design and project structure and management by presenting two case studies of cross-functional project teams working inside a large bureaucratic organization. In addressing the relationship between organizational structure and project team performance, we identified

particular challenges faced by two cross-functional teams in a telecommunications operating company. We asked three questions:

- How can cross-functional, multidisciplinary and/or cross-cultural work teams be successful in an organization whose structure, culture, and norms often run counter to those that are needed for successful organizational learning and innovation?
- How can cross-functional projects be structured and managed to enable teams to be successful under these adverse conditions and optimize their capacity for successful knowledge transfer, innovation, and learning?
- What cultural and organizational barriers do teams experience in their work as learning systems, and what do they need to overcome them?

Although extrapolating from two case studies drawn from an extreme organizational example is dangerous, we believe that our study can provide some excellent learning lessons for practitioners (and also suggest some fruitful areas for organizational researchers).

To address our underlying question, we have come to believe that, although cross-functional teamwork and learning is particularly difficult in functionally structured organizations, it can be successful under four conditions. Cross-functional teams **can** be successful in functionally structured organizations:

- If they are carefully and thoughtfully constructed in such a way as to maximize the technical, interpersonal leadership, and team resources and competencies that are available to the organization,
- If they are charged with a clearly defined and appropriate task and given the requisite resources to achieve their objectives,
- If they are supported by senior management and led by experienced and effective coaches and managers, and
- If they are protected and buffered from external pressures.

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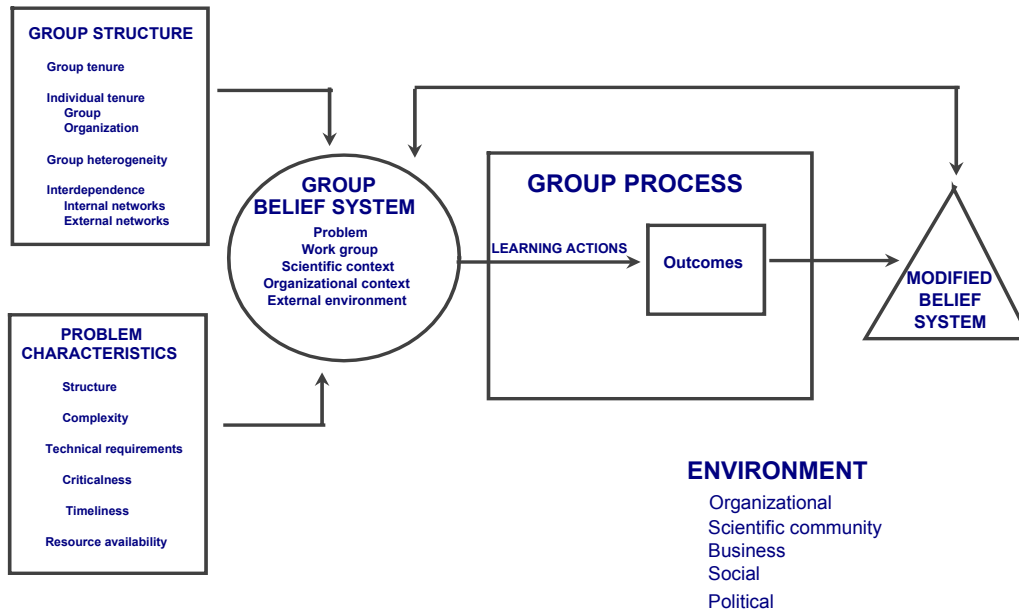


Figure 1. A model of work group learning.

Figure 2. Organization chart for the BOPCO Information Technology and Finance organizations

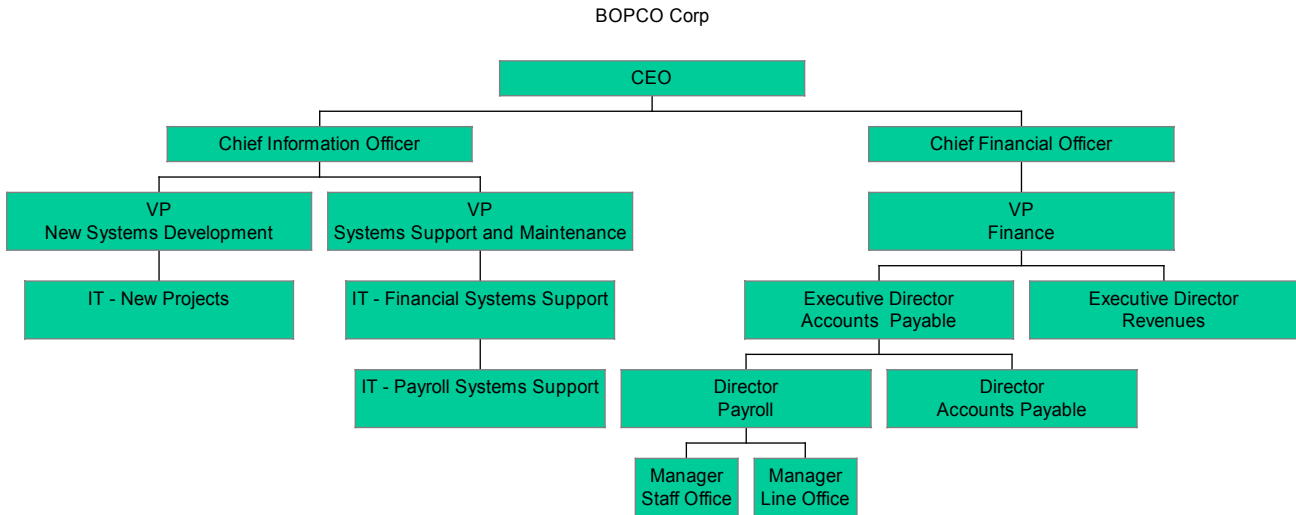


Figure 3. BOPCO IT-Payroll Voluntary Deduction team timeline

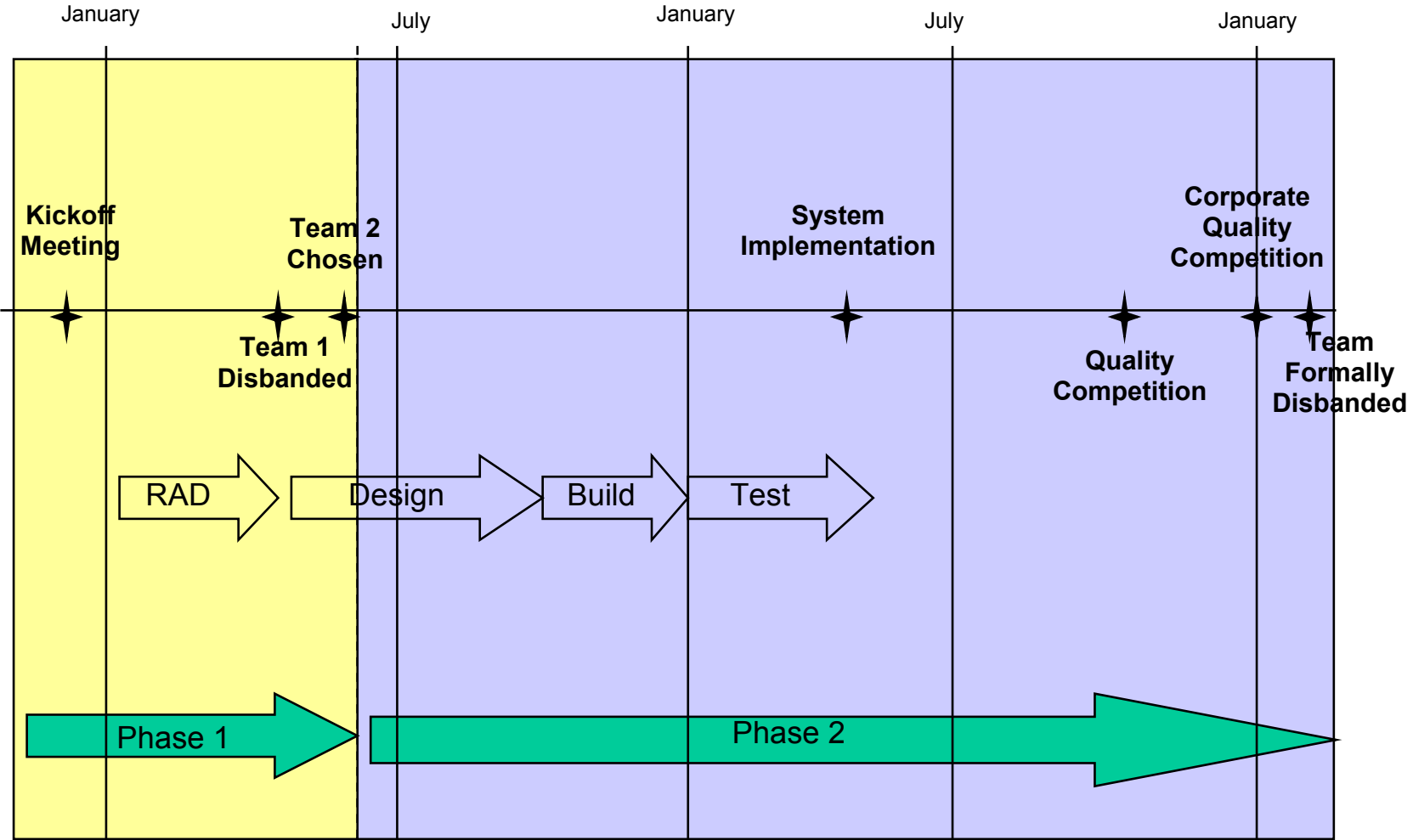


Figure 4. BOPCO International Bid Response Team timeline

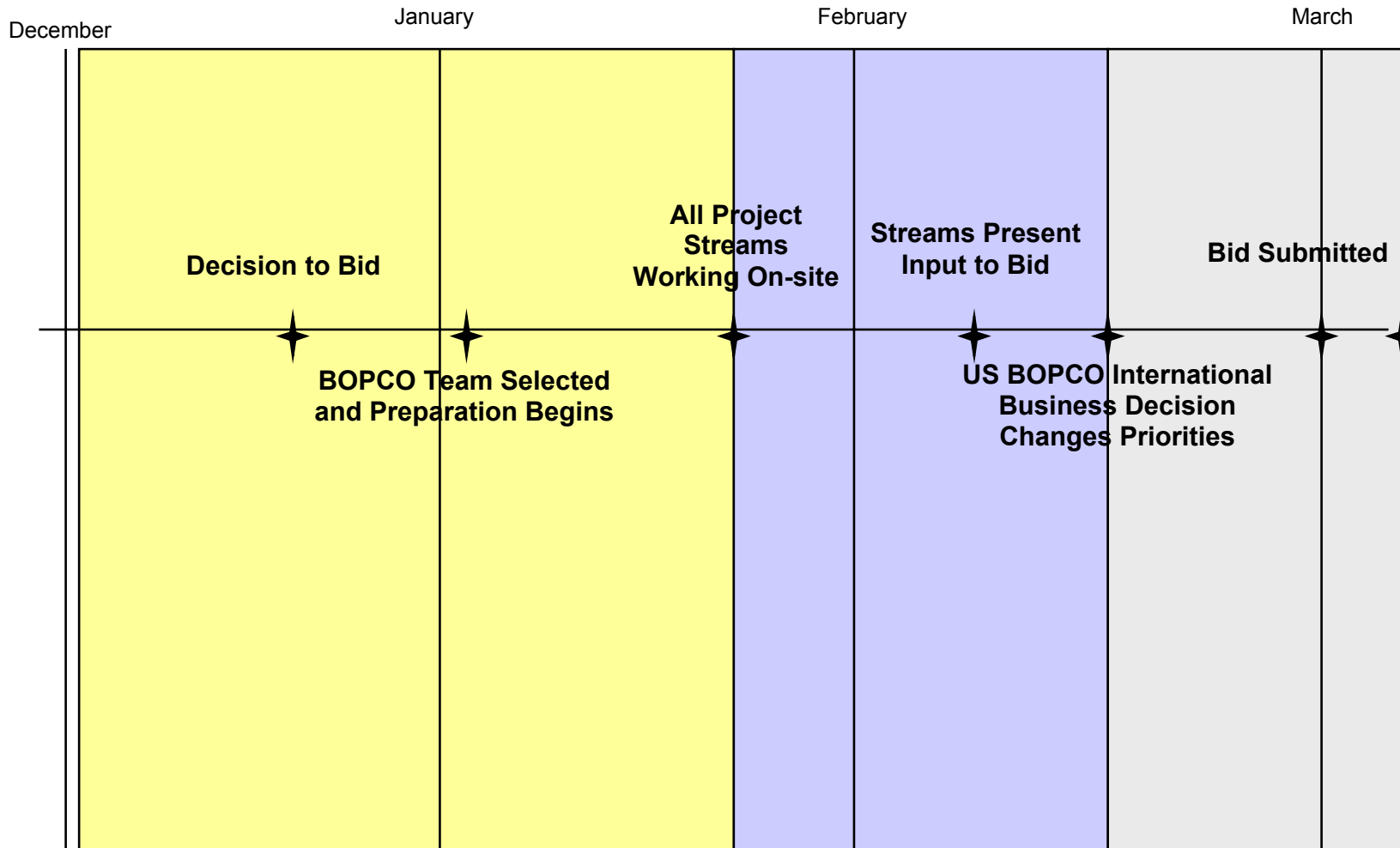


Table 1. Challenges of Cross-functional Alignment

	Cross-functional Alignment	Functional Alignment
Organizational structure	Project Matrix, Cross-functional Circular Temporary / flexible	Departmental, Pyramid, Vertical Permanent
Norms and values	Collaboration, trust, information-sharing Shared power, accountability, Consensus authority in team Openness, responsibility	Direct chain of command, based on position in hierarchy Command and Control value set Leaders organize, allocate resources, and direct work Conflict avoidance, blaming
Leadership style	Leader as Boundary Manager, Coach, Facilitator, Enabler	Command and control Directive
Decision-making	Consultative and participative	Manager-focused, with structured participation
Information systems	Information flows through team (in and out) Knowledge management	Top – Bottom, Bottom – Up
Goals and metrics	Collaborative goal-setting Financial plus team Self and team monitor progress	Individual and Function-based competition Financial Executives monitor progress
Reward and recognition	Team reward and recognition	Individual performance and reward
Selection	Technical, Initiation, Facilitation, Persuasion, Communication,	Technical competence
Training	Technical, Problem Analysis and Decision-making, Leadership and Group/Team Competencies	Technical

Table 2. IT-Payroll Voluntary Deductions Team – Phase One

Name	Organization	Title	Role	Area of Expertise	Experience in Telephony (yrs.)	Prior Experience with Team Members
Joni	Finance	Program Manager	Project Lead	Project Management, Leadership, prior experience as a programmer	15	Yes, with Priscilla & IT Optical Scanning team
Priscilla	Payroll	Functional Developer	Lead Voluntary Deductions	Payroll Voluntary Deductions & Project Management	25	Yes, with Joni, knew Beth
Mike	Finance	Design Architect	Functional Design Lead	Project Management, prior experience as a programmer	28	No
Beth	Payroll	Functional Developer	Communications and Training Lead	Communications, Trainings, Payroll Time Reporting	8	Yes, knew Priscilla
Anita	IT- New Projects	Lead Programmer	Lead Voluntary Deductions	Programming& Optical Scanning	8	Yes, with IT & Joni No, with functional
Bob	IT- New Projects	Programmer	Voluntary Deductions Programmer	Programming & Optical Scanning	10	Yes, with IT & Joni No, with functional
John	IT- New Projects	Programmer	Voluntary Deductions Programmer	Programming & Optical Scanning	4	Yes, with IT & Joni No, with functional
Marti	IT-New Projects	Programmer	IT Project Lead & Time Entry Programmer	Programming & Optical Scanning	15	Yes, with IT & Joni

Table 3. IT–Payroll Voluntary Deductions Team – Phase Two

Name	Organization	Title	Role	Area of Expertise	Experience in Telephony (yrs.)	Prior Experience with Team Members
Joni	Finance	Program Manager	Project Lead	Project Management, Leadership, prior experience as a programmer	15	Yes, with Priscilla & IT Optical Scanning team
Priscilla	Payroll	Functional Developer	Voluntary Deductions Lead	Payroll Voluntary Deductions & Project Management	25	Yes, with Joni, knew Beth,
Mike	Finance	Design Architect	Functional Design Lead	Project Management, prior experience as a programmer	28	No
Beth	Payroll	Functional Developer	Communications and Training Lead	Communications, Trainings, Payroll Time Reporting	8	Yes, knew Priscilla
Kris	IT Payroll	Programmer	Voluntary Deductions Programmer	Programming	20	Yes, with Priscilla & Beth
Grace	IT Payroll	Programmer	Voluntary Deductions Programmer	Programming	5	Yes, with Priscilla & Beth
Dave	IT	Programmer	IVR Programmer	Programming	17	Yes, Jim
Jim	IT	Programmer	IVR Programmer	Programming	9	Yes, Dave

Table 4. BOPCO International Bid Response Team

Organization	Title	Role	Functional Area of Expertise	Group
BOPCO International	VP, Asia	Senior Executive	Marketing, Senior Executive, Asia	US Expat
BOPCO International	Director, Regional Office & Country Manager, Thailand	Managing Director	Marketing, Asia	US Expat
BOPCO International	Director, Business Development	Project Manager/ Bid Team Lead	Marketing	US-based
BOPCO International	Director, Rapid Response	Document and logistics control / Manage local admin support	Administration	US Expat
BOPCO International	Consultant	Document Control and LAN / Systems Management	Marketing	US-based
BOPCO International	VP, Wireless	Oversees wireless section	Engineering	In US – not formal part of team
BOPCO International	VP, Business Development	Oversees negotiations with partners	Marketing	In US – not formal part of team
BOPCO International	Wireless Team Lead	Oversees technical and commercial aspects of bid for wireless technology	Engineering	US-based
BOPCO International	Wireline Team Lead	Oversees technical and commercial aspects of bid for wireline technology	Engineering	US-based
BOPCO International	Financial	Coordinated demand, cost inputs from wireless and wireline teams, built models, and calculate IRR, NPV, ROI for bid	Financial	US-based
DAN Partner Company (5)				DAN-based