

PROJECT MANAGEMENT IN ACTION

Showcase Project

ACTION

IMPLEMENTING PROJECT MANAGEMENT IN AT&T'S BUSINESS COMMUNICATIONS SYSTEM

Dan Ono, PMP, National Project Management Director
Business Communications Systems, AT&T

Editor's Note: This is truly an exciting and ground-breaking article. AT&T has explicitly adopted project management as an essential strategic philosophy for managing change. For the first time ever, to this observer's knowledge, a complete and detailed discussion is provided for the institutionalizing of project management as a way of life, complete with a career ladder. The thinking that went into this effort, as well as the considerable executive and resource commitment, provides a blueprint for other organizations to follow when developing their plans for implementing project management.

The theme of the recent INTERNET conference, MANAGEMENT BY PROJECTS, is clearly illustrated in this story. We believe it is one of the major trends to watch in the 1990s. It also portends a growing need for sophistication in systems as the knowledge and skills of the cadres of project managers being trained now become comfortable with existing systems and look for even better ones to aid them in decision making, managing and administering in the future. It promises to be an exciting decade in management.

Thanks to Dan Ono and the other authors for presenting this story and to AT&T for taking the decisive action that made it possible.

BUSINESS COMMUNICATIONS SYSTEMS DIVISION

Strategic Business Units within AT&T

In 1988, AT&T announced that it was going to split the Company into Strategic Business Units (SBU). AT&T had decided that this was the best configuration for the Company to use in continuing the transition from a heavily regulated environment to a fully competitive and open market environment. Each business unit is viewed as an individual profit center and is responsible for contribution objectives to the Corporation's bottom line.

Currently, there are some 19 SBUs and operating divisions within AT&T. Among these SBUs is Business Communications Systems. This business

unit has the responsibility for a line of business that is primarily focused on the customer premise PBX market. The responsibilities of the business unit include:

- Product Research and Development
- Product Manufacturing
- Product Management
- Product Servicing/Operations
 - Implementation
 - Maintenance
 - Day-to-day Moves and Rearrangements

Each of the major areas defined above is headed by a vice president, all reporting to the president of the business unit. The vice president of operations has five service vice presidents reporting to him, geographically dispersed across the nation, as well as a

staff director who heads up the staff organization, and a number of nationally deployed support organizations.

THE ENVIRONMENT

Pre-1984 Regulated Environment

Although competition in the network and customer premise equipment markets had begun, the Bell System and its operating companies were essentially the only game in town for most telecommunication needs. This position allowed the Bell System to establish and create the accepted methods for installation of major telecommunications systems, i.e., the "Phone Company" way. Most of these methods were based on a cost intensive, maximum duration, maximum risk reduction approach. Service, at any cost, was the overarching mentality.

During this period of a monopoly environment, most client telecommunications managers (TCMs) were evaluated on how well they got the "Phone Company" to do their bidding. Because of this orientation, most problems were usually blamed upon the "Phone Company" and the TCMs were exonerated from much of the responsibility.

Many of the Bell System's clients viewed the Company much like a government service, since it was publicly regulated and was so massive in size. To the Bell System's credit, its performance was viewed as significantly better than most government agencies. Generally, there were not many comparisons of Bell System performance with companies in highly competitive markets.

The Bell System companies were generally well protected by tariffs generated by local Public Utility Service Commissions, which meant that penalties their clients could extract were also limited.

These same tariffs also controlled the rate of return that the Bell System companies were allowed to produce. These margins were established by defining prices that would produce the desired margin level by taking the costs associated with the particular product or service and adding the approved rate of return. Generally, the local commissions would spend considerable auditing time reviewing the validity of cost data provided by the Bell Companies, which in turn developed cost justification expertise within the Bell System. This process provided an essentially guaranteed positive margin environment for the Bell Companies.

This environment also produced some very costly methods of operations, since service protection was the objective and not necessarily profit. Profit was generally taken care of by the cost-plus relationship with the local commissions. Adding resources was the primary problem solving approach in the cost-plus environment. One of the typical examples of the costly methods, was that development time, manufacturing time, and implementation intervals for major PBX implementations were extremely long. These long intervals were a form of risk reduction, since they allowed for costly

testing and retesting, and retesting, at every phase of the provisioning process. As an example of the order of magnitude of these durations, manufacturing intervals that used to be as long as 52 weeks are now down to less than 12 weeks and still getting shorter.

The Bell System Practices (BSPs) were the documented standards with which just about everything was done within the Bell System. Some were good, some were not so good. These practices covered topics from installing major switches to sweeping the floor. Although practices helped with reducing risks on just about anything that needed to be done within the Bell System, they sometimes would become pervasive by limiting creativity to find better methods for accomplishing goals.

The interface relationships between ...(organizational elements) . . . were not optimal in terms of communications, trust, and cooperativeness.

For 100 years the Bell System had been in existence. This time frame covered world wars, depressions, recessions, good times and bad times. In all 100 years, the Bell System had only laid off workers a handful of times. With this history, the Bell System employees had developed a lifetime employment expectation. It was not uncommon for many generations of a family to work within the Bell System.

Going hand in hand with the lifetime employment expectancy, the Bell System had become famous for its ability to pull off miracles in times of natural disasters such as earthquakes, floods, etc.; the perpetrator of these rescues were often treated as heroes. This mentality was carried over into the more mundane problem areas such as a botched up PBX implementation. Employees who could go in and rescue a botched up implementation were often commended, rewarded, and promoted. This spawned an employee work attitude of "working my 40 hours and I can be counted on in times of emergencies."

The Bell System also supported a mentality that people should move around within the various functions and organizations of the company. For instance, those managers who were identified as having potential for upward mobility were career counseled to spend about one or two years in a job and then move onto another job in another department. The rationale for this career counseling was that the employees could gain a greater understanding of how the whole company worked. Although in a Company the size of AT&T, this could become a lifetime undertaking, this job hopping was generally successful in achieving its objective. The downside to this mentality was that, except in the most technical positions, the Company generally was creating jacks-of-all-trades but masters of none in a large portion of its lower level positions.

During these pre-divestiture years, Project Management within the Bell System was more a project coordination responsibility. Intervals and durations were defined by the various systems and internal Bell System processes. Resource allocation and cost management in a project management environment were generally approached in an immature fashion, and scope was defined by the Bell System's standard product offerings with very little customization. In this type of controlled environment a task list mentality developed and could be reasonably successful.

The project management organizations were also susceptible to the two-to-three-years-in-a-job mentality and, as a consequence, typically did not have any project management experts.

One final characteristic of the old Bell System that deserves mentioning in the context of this article is that the operating departments within the Bell System companies had developed long-standing differences. These differences had been created over a long period of time and had become pretty ingrained in the employees of each department. For instance, the interface relationships between Marketing, Outside Plant Construction, PBX Installation and Maintenance, and Manufacturing were not optimal in terms of communications, trust, and cooperativeness.

Post-Divestiture

At divestiture, the split up of the Bell System caused many problems relative to separating the people into the Regional Bell Operating Companies (RBOCs) and the new AT&T. For those of us who chose to leave the RBOC and become employees of the new AT&T, it offered an opportunity to participate in a competitive marketplace.

Going into the new competitive environment, we decided that many of the old Bell System's ways of doing business were not adequate or appropriate for the new environment. Consequently, we threw out many of the old standardized methods. Unfortunately we threw some of the good ones out with the bad. Additionally, the timing of some of the replacement methods for the ones that were thrown out was not totally in synchronization. This caused many employees to develop their own methods for accomplishing their work. Process became a bad word and, since project management is very much process-oriented, it became a lost art.

Individual success received recognition and reward. Although, this type of creativity was refreshing, many times these local processes would not meld well with their interfaces into other departments and processes.

Project Management attempted to use the old methods of coordination that had worked with some degree of success in the Bell System days, but these methods relied on significant levels of discipline relative to methods within each of functional entities, which in the Bell System days were defined in the BSPs. This level of discipline was not present any longer; consequently, these early attempts at project management using coordination methodology did not generate consistently successful results.

The various SBUs began creating project management organizations to meet the ever increasing delivery requirements of AT&T's client community. As these groups began maturing in the project management discipline, it became apparent that many of the old ways of doing project management would not be sufficient in the new competitive environment. This recognition began taking place within many of the SBUs coincidentally.

With the injection of AT&T's premise organization into a highly competitive marketplace, the PBX market, as AT&T knew it, began to change in many characteristics.

Client expectations continued to rise as the competitive environment pushed the PBX vendor market into looking at every aspect of the provisioning process for points of differentiation.

Client decision-making criteria began to include greater weighting on the PBX vendors' implementation capability and past record. This was primarily due to the fact that the TCMs and their superiors in the new competitive environment now had a choice among which vendor they would select. The "Phone Company" was no longer the only game in town. Along with this new level of choice comes the respon-

Process became a bad word and since project management is very much process oriented, it became a lost art.

sibility for making the right choice and the liability of making the wrong choice. Consequently, the decision makers and their TCMs could no longer blame the "Phone Company" if something went wrong. This meant that the decision makers were making a commitment that often related to continued employment when they selected a telecommunications vendor.

Price cutting was prevalent in the industry. The various vendors were going for market share at the expense of profit. This also meant that very few of the major PBX vendors were making money in the industry. With each of the major PBX vendor companies cost cutting was the objective and downsizing was the trend. AT&T followed these same directions.

The Bell System family mentality had disappeared with the loss of 100,000 employees within the six years following divestiture.

Most of the old ways were gone and could not be successful in the new environment. Some of the old ways were modified and worked well in the new

environment. The difficulty was being able to ascertain which of the old ways would work in the new environment.

Within the BCS organization, it was determined that a major re-engineering of the whole provisioning process would be needed.

THE CHALLENGE

The changes that were caused by divestiture and the competitive world that it brought along with it offered many challenges for creating an effective differentiating project management organization. Project Management capability had become an area in which a vendor could differentiate itself in the marketplace and AT&T wanted to be the leader in project management in the industry.

Personnel

As in any re-engineering effort, the first consideration is the employee or people resource requirements. It had become apparent that within AT&T we needed to develop professional Project Managers, with a support system to maintain their ability to stay current on new developments and findings in the profession.

With the acknowledgment of the need to develop professional Project Managers, it was apparent that many cultural and attitudinal changes had to be instilled in existing AT&T employees that would be recruited for the Project Manager position. These changes included:

- The mentality of two-or-three-years-in-a-job and then moving on to another type of job needed to be changed to staying for the remainder of their careers in the project management field. A person does not become a professional within a two or three year term.
- No more 40-hours-a-week-and-available-for-emergencies attitude. The project management professional does not distinguish work time from personal time when it comes to his/her professional stature. Any opportunity to improve a professional's project management skills, resume, or qualifications is looked at with interest and willingness to participate regardless of the imagined work-versus-personal-time barriers.

- AT&T not only needed to develop the project management procedures that they wanted to be used on its projects, it also needed to identify the number and types of positions on its project teams as well as the overall head count requirement. Additionally, AT&T had to determine the education and training requirements and the proper amount and types of experiences required to develop their project managers.
- Ultimately, a Project Manager Qualification Matrix would need to be developed that would numerically place each Project Manager into a qualification level. This matrix would be used to match Project Manager qualification with complexity of project when determining Project Manager assignments.
- Once the above had been accomplished, a tandem of networks needed to be established among the Project Managers and the other project management personnel. These networks would have two objectives in mind.

The first objective was to provide a peer level support network among AT&T's project managers. This was necessary in order for them to keep current on successful new methods, pitfalls and processes that need to be immediately applied on our AT&T projects. They needed to understand that they can always get help from multiple sources within their own organization.

The second objective of the network was to meet the need to remain current within the general profession of project management so that state-of-the-art improvements could be applied immediately into the AT&T project management process.

Education

Within AT&T, we define education and training differently. Education relates to methods and principles that address the general topic and are not specifically related to an AT&T application. Training is taking those general methods and principles and putting them into an AT&T specific application.

The existing AT&T internal training courses were of a general nature and

were not founded on any particular body of knowledge. Additionally, they did not appear to have any overarching objective in mind other than to provide some non-specific bits and pieces of project management training.

The challenge was to develop an education track that would not only teach the general methods and principles of project management, but also be recognized by the outside world as a valid credential for a Project Manager. This curriculum would need to be evaluated and, if necessary, modified.

The challenge was to survive the years that it would take to gain experience, . . . education and training while evolving into a professional project management unit and at the same time maintaining a successful project delivery record.

Training

In addition to the education program, we needed a comprehensive training curriculum that would complement the educational curriculum as well as present the AT&T specific applications. This curriculum would need to take the methods and principles learned in the education courses and present direct AT&T applications.

Compensation

AT&T's long-term compensation philosophy relied on a fairly common bonus plan as well as a company results-based team award program and a salary structure that was essentially the same throughout AT&T. The unfortunate aspect of standardized commonly used compensation programs is that the project management organization was not able to effectively compete for the best quality employees, for the following reasons:

- The risk for the employee associated with the project management position was considered to be significantly higher because of the high visibility and the significant political

ramifications of these large implementations, which involved AT&T's largest customers.

- The Project Manager position as it was being used in these early stages after divestiture was clearly a burnout position. Consequently, an employee would do one project and look to get out of project management because they needed relief from the stress. Although, compensation was not viewed as being the single panacea for this burnout aspect of the position, it was thought that compensation could play a part in neutralizing the impact of burnout.
 - The amount of time that would be required to be in a subordinate position to compete for a Project Manager position was extraordinarily long, when compared to other comparably paid positions within AT&T.
 - Many Project Managers were unable to remain within the project management ranks because of the requirement to be mobile to project sites for up to a year on expenses. Although, AT&T would concentrate these people in the metropolitan areas where the majority of our projects would occur, there would be times when the Project Managers would have to go to locations that were not commutable, such as Hawaii, Lemoore (near Lemoore Naval Air Station in California), and other remote locations.
- This mobility requirement created a distinct disadvantage for the Project Manager position. Most employees within AT&T would prefer not to have to be away from home for extended periods of time. Given this reality and the fact that most other equally paid positions within AT&T did not have this type of requirement, it was anticipated that unless some solution could be found this would cause a significantly reduced potential for professional Project Managers to remain in the group for an extended period of time. This factor, indeed, did cause the loss of several of the initial project management group's personnel.
- The extensive education and training requirements needing to be completed while successfully fulfilling the responsibilities associated with project management positions added

to the expected amount of business and personal time that these employees would have to dedicate to their work.

- Finally, the requirement to participate in the service aspects of the Project Management Institute, such as attending after hours and weekend functions and pursuing certification in the Project Management Professional program, also differentiated the Project Manager position from other AT&T positions.

Another concern that was recognized at the problem identification stage was that given our objective of creating a group of professional Project Managers that would be the best in the telecommunications industry, we would need to evaluate the potential of losing these people to some other company. Consequently, our new compensation plan would have to address this issue in some manner.

Experience

One of the most easily recognized and most critical problems was the fact that we were not able to retain people in project management so that they would do one project after another. Consequently, the experience level within the project management group was very low. This in turn meant that we were not able to get the value of their experience into our future implementations nor our methods.

The following is an identification of a few of the many reasons for this inability to build an experience level within the Project Managers:

- The burnout factor mentioned above.
- Very often, a lack of organizational funding hampered the retention of Project Managers at the completion of their projects if they could not go on to a new project immediately. In the cases where the project managers did get a new project immediately it exacerbated the burnout problem, since they would not be allowed any "Rest and Recuperation" period. In those cases where a new project was not available, these Project Managers would become ex-Project Managers and do something else within AT&T.
- The issue of a non-differentiating salary and bonus structure as mentioned above.

- Naturally, another reason for people leaving was a lack of acceptable performance.
- The above mentioned mobility requirement was a large deterrent to retaining experienced Project Managers. Although the reality of the requirement was well understood and acknowledged as being valid, this requirement distinguished the Project Manager position in a less than positive manner from the majority of the other positions available within AT&T. Consequently, many Project Managers would opt for one of the more traditional positions at the conclusion of their project.

The Project Manager has the responsibility to watch out for the corporate/owner bottom line.

Career Path

Another key to creating a successful project management organization was the ability to allow future Project Managers to grow into their positions through a succession of subordinate positions on project teams such as the Cost Analysis/Schedule Engineer position, the Site Manager position, and managing small projects. This planned development experience path would need standards to judge successful performance at each subordinate position. This screening process would allow an objective assessment of the potential of all Project Manager hopefuls before we placed a large, high risk, high visibility project into their hands.

Additionally, the people would be able to make choices of their own throughout this process. It was viewed as being conceivable that any one of the subordinate positions could become a career position in itself; consequently, a number of these future Project Managers would probably decide on their own to remain in one of the subordinate positions.

This process would obviously take time and the state of project management dictated that we have Project Managers, immediately. The challenge was for the project management orga-

nization to survive the years that it would take to gain experience as well as receive its education and training while evolving into a professional project management unit and at the same time maintaining a successful project delivery record.

This need for time to gain experience would have to be sold to upper management, who would have to invest patience as well as money into the creation of this professional group of Project Managers.

Organizational Placement

Another consideration that needed to be addressed was the proper organizational placement of the project management organization. A unit like the project management organization should, as much as possible, be placed in a position which would provide some benefit to the work that the project management organization was designed to perform.

This position would best be where its goals would not conflict with overall project goals. Inherently this would mean that the project management organization should not be placed in any functional organization. Placement in a functional organization would potentially place undue pressure upon the project management organization. There would be a tendency to have the project management organization manage its projects with the functional organization's objectives in mind, often at the expense of some of the other functional units involved with the project. Whether or not this turned into a reality on a project, the other functional units would always have this as a concern when it related to any resource consuming decision the Project Manager made.

Ideally, the project management organization would be placed in an organization that would represent the entire corporation, which would be consistent with its position on a project.

The Project Manager has the responsibility to watch out for the corporate/owner bottom line. Sometimes this means directing some functional units to consume resources that would save another unit's resources at a beneficial payback ratio.

One company has placed the project management organization within their corporate financial organization. This may seem strange on the surface, but upon deeper reflection, it actually makes a good deal of sense. The financial group has the responsibility to manage the corporate bottom line just as the project management group's responsibility on a project. The problems of having an operations group placed within a financial organization have yet to be assessed; but, in principle, the placement into a corporate organization does make simplistic sense.

Additionally, the authority structure that is required for the Project Manager to run the project could come from a corporate organization as well as a high level within one of the functional entities. For the normally required escalation procedures to work within the functional entities without consuming the project management organization, the escalation process within the functional entities must be able to proceed to a high level within the functional unit without the direct involvement of the project management resources. The project management resource should be in a position to monitor the escalation, but not be directly involved. Should this high level escalation not be effective within the functional entity, then the project management resource must enter the escalation process at a level higher than the escalation went within the functional entity. This is the only way that escalations can work effectively and in a timely manner without excessive involvement from the project management organization.

The Project Manager is obviously susceptible to being involved in multiple escalations at one time. If they have to be involved in each and every situation requiring escalation within a functional unit, this would consume disproportionate amounts of the Project Manager's time; generally at the expense of some other project management responsibility.

Since the project management force was mobile to the project sites, it was anticipated that many of the normal geographically-oriented working relationships that were available to a local manager would not be available to the Project Manager. Consequently, a sub-

stitute for these valuable relationships would have to be found and implemented.

Standardized Methods/Tools

One of the most important operational objectives for AT&T project management efforts was to achieve consistency in the delivery of high quality projects. This challenge was pervasive in that when a project was delivered with high quality, many of the techniques and processes were not documented. Consequently, many of the successful techniques and processes were not retained for other Project Managers to learn. Conversely, when a project was delivered that was not up to the desired standard, this lack of documentation prevented planning that would avoid the pitfalls that led to the less than desirable results.

The carryover Bell System mentality of admiring heroic rescues of projects had to be replaced with admiration for doing a competent job time and time again.

The common requirement for standardized project management deliverables across the nation also posed a problem with the currently in place regionally managed project management groups. Although, many methods and principles were shared in common among the nationally dispersed regionally managed groups, there were considerable differences in the application of the processes that were derived from these principles.

The carryover Bell System mentality of admiring heroic rescues of projects had to be replaced with admiration for doing a competent job time and time again. Although not as glamorous as heroic rescues, it was in fact what our Corporation needed, both financially and operationally. This was in tune with throwing out the being-available-for-40-hours-a-week-and-emergencies mentality and taking whatever time it takes to follow the prescribed methods to produce a competent job.

Another challenge that would have to be resolved was the fact that the AT&T project management process was almost entirely dependent upon the individuals involved with the project. Reliance on an encompassing process or set of processes was almost non-existent, since many of the processes had to be developed on the individual projects. With the development of each of these new processes an added risk to the project was introduced, since each of these newly developed processes would be untried and unproven.

The various AT&T project management groups across the nation were using a wide variety of different tools in managing their projects. Unfortunately, this non-standard environment caused many typical problems with standardization of project management deliverables. Among the problems were the following:

- Although, many of the project management software packages offered a great deal of flexibility in reporting and graphics, creating identical outputs from each of the packages was an impossibility.
- When any new report was required or made standard across the nation, it would consume our project management resources because each owner of a non-standard project management software package or word processing package would have to develop their own methodology for each of their packages. When this kind of activity was repeated by the nearly 100 project managers across the nation for each standard report, it became very expensive. Additionally, in some instances, the Project Manager would not be able to define the process for the particular software used and would have to ask for help from yet another resource, usually within the project management organization or, worse yet, not produce the report at all or do it manually.

Standardized Methods for the Functional Entities

We have already mentioned an early identification of need for standardization in project management methods. This need was for identification of the

proper methods to be used on AT&T projects for not only the project management resource, but also the functional entities as well. These methods would need to be documented, disseminated, and presented for them to become effective. Additionally, these same methods would have to be sold to upper management before any of the working level management team would begin incorporating them into their everyday work routines.

These new methods would require a discipline throughout all of the functional entities as well as the project management unit. This discipline to adhere to standardized methods would be a challenge, since many of the employees had become used to doing their tasks in their own way consequently, it was critical to have the support of the functional unit's upper management. Unfortunately, it was anticipated that it would be the norm rather than the rule to have the methods followed because of executive decree rather than cooperation.

The standardization process would extend into even the more mundane areas of administrative office procedures and guidelines. This was an area that was consuming a disproportionate amount of the Project Managers' time. Consequently, it was viewed as being a way of providing the Project Managers more time to do their work, while these administrative items were taken care of by established processes and clerical staff.

Standardized Performance Reporting

The regionally deployed project management groups did not have a standardized performance evaluation process. Each entity pretty much did their own thing relative to Project Manager performance criteria, project success measurements, and financial performance criteria. This made it very difficult to truly differentiate performance and their related successful methods and processes from other project control activity.

Historical data was not consistently available nor was it in similar formats, which made it almost impossible to track progress relative to the overall effectiveness of the national project management group as a whole. Most

of the regionally deployed organizations would not freely publish much detail regarding their project performances; consequently, many difficulties were encountered repeatedly across the country. There was no mechanism in place to prevent AT&T's Project Managers from making the same mistakes from one area of the country to another.

Managing for Profitability

A cultural change would be necessary to get our Project Managers to manage for profitability at a priority equal to service. The Bell System culture dictated service at any cost because of the cost-plus revenue process

Yet, another challenge was presented by the need to establish clear criteria for determining under what conditions formal dedicated project management would be applied.

that was prevalent during the pre-divestiture days. During the Bell System days budgets had been developed for the entire project, but these budgets were of no real assistance in day-to-day decision making nor were they of any use in monitoring the project from a budgeting-versus-actuals point of view. This change would become one of the most difficult to implement, since budget production and tracking is one of the most tedious tasks for the Project Manager. It also is full of opportunities for a confrontational situation with the functional team leaders.

Another area that had changed at divestiture and related to budgeting and profitability was the requirement to implement our projects in a manner that would be legally consistent with the contract in order to avoid costly penalties for loss of schedules or law suits for inadequate delivery of scope to our clients. No longer were we protected from these types of cost generators by PUC / PSC tariffs.

Revenue generation from projects was somewhat new with the advent of a deregulated environment. Although

the Bell System expressed an interest in the revenue opportunities that were present on major project implementations, there was not a concerted effort to manage, track, and reward for maximization of these revenue opportunities. This attitude was perhaps justified in a regulated environment because the "Phone Company" would get the revenue eventually, since they were the only ones that were allowed to work on the leased phone equipment.

In the deregulated environment, there was no guarantee that AT&T would get the work after the implementation was completed. Consequently, the revenue opportunities on a project could very well be available to AT&T only in a window of time.

One of the most drastic changes in approach that AT&T would have to make as a result of the above was the management of change requests during an implementation. The Bell System companies had traditionally attempted to put "freeze dates" on their clients' end user community during the phases of a project prior to cutover. These "freeze dates" would require the client end user community to hold all changes for periods of up to several months. This was done primarily to assist in an effort to avoid complicating the switch from the old phone system to the new system, often at the dismay of the clients' end user community.

In the deregulated environment, we wanted to solicit these changes so that we could, among other things, ensure that we were the ones that got the revenue.

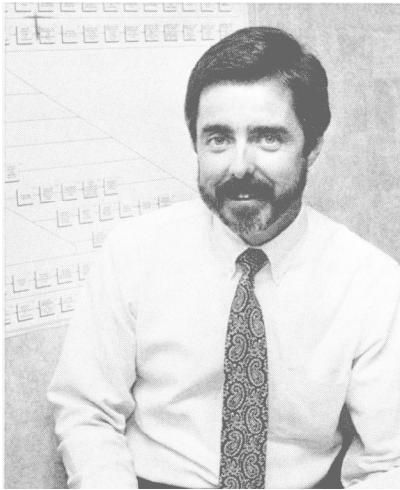
Another primary reason for wanting to handle all the changes in advance of the cutover to the new system was because that is what the clients' end user community wanted. This position would also allow AT&T to establish another point of differentiation from our ever present competition.

Project Determination Criteria

Yet, another challenge was presented by the need to establish clear criteria for determining under what conditions formal dedicated project management would be applied. The criteria would have to be a combination of different qualifiers. The following is a listing of some of those qualifiers that were identified as being relevant:

ALL YOU EVER WANTED TO KNOW ABOUT PM, BUT WERE AFRAID TO ASK"

Noel W. Ross, PMP, AT&T



WBS, PERT, Gantt—at first it seemed like I was learning a foreign language. What did they mean and why did I have to learn this new way of doing things? As Dan Ono, AT&T Projects Director, told me more about his systematic and methodical approach to projects, I bought into the program—hook, line and sinker. A group was being formed that would be breaking new ground and I was extremely honored and excited to be asked to become a part of this challenging new venture.

In August 1987, I was promoted from a sales position into AT&T's Los Angeles project management group. Although I joined the group with nine years experience selling AT&T telecommunications services/equipment (plus an MBA), I did not fully realize the intensity it would require to become a true Project Manager. In many industries, it takes 15-20 years to become a PM. Dan's goal was to develop our team so that we would be truly proficient within two years. I was assured that this was possible because we possessed the skills that were required: verbal and written personal interface skills, leadership, assertiveness, some computer literacy and, most of all, tenacity. Our entire team had been high achievers in their previous positions and we were committed to knock down any barriers standing in the way of our success.

Not only were we required to read PM material, attend Russ Archibald and PMI seminars, watch PM videotapes, and learn PM software, we were gaining on-the-job training by managing multiple projects (on time, within budget, and with the highest quality, of course).

My first Project Kickoff Workshop was conducted within one month of joining the group and I was off and running. By following the outline developed by Russ Archibald and Dan Ono, I was able to produce a work breakdown structure, responsibility matrix, master implementation schedule and PERT network for presentation to my client within one week of that first workshop. These deliverables were unheard of within AT&T's premise system installation group and were especially amazing because of the short turnaround time.

It was a very painful and frustrating process which took many long days. I'll admit that at the time I hated Mr. Ono for putting me through the pain of trial by fire. At one point I remember approaching him with the analogy that I felt like I was trying to drink from a fire hose. The learning curve seemed so steep, it was almost insurmountable (magnified by my slowness in becoming computer literate). If it hadn't been for a taskmaster with a strict schedule, I don't think I would have pushed myself as hard as I did.

However, with each new project, our team became more professional (and successful). We learned that the PM process was a building block approach and, once we had the basics down, Dan wanted us to add more layers (i.e., quality assurance programs, budgets). I believe the key to this program's success has been that it follows industry standard PM methods and principles (primarily PMI). Dan continually reinforced his position that in order for us to differentiate AT&T as system implementation experts, we needed to be true Project Managers and, not just meet, but exceed AT&T project standards.

By the summer of 1989, our team felt we were ready to face another giant

challenge—attempting to achieve Project Management Professional status. After several months of intensive study, the certification examination was taken and four of AT&T's project managers were certified as PMPs. Another remarkable accomplishment and what a relief for those of us who passed on the first try.

My 2.5 years working for Mr. Ono have been the most challenging, yet rewarding, in my AT&T career. Now I understand the meaning of critical path management, fail-safe contingency planning, monitoring and control, proactive management, risk reduction, quality assurance, staff development, communication, and accountability. Not only that, but WBS, PERT and Gantt no longer seem like a foreign language! The process continues, as new PMs join the group and are put through the same regimen of trial by fire. However, now the new members have some role models and additional PM mentors (other than Mr. Ono).

I will always look back on these times with great pride and I know that I would not have stretched to reach those goals without the drive of our leader, Dan Ono.

Noel W. Ross is the AT&T field services manager for Orange, Riverside, and San Bernardino counties, responsible for the installation and maintenance of AT&T Business Communications Systems products. He received a bachelor-of-business administration degree from Loyola University of Los Angeles in 1972, and an MBA from Loyola Marymount University in June 1980.

After five years with Bank of America, Mr. Ross joined AT&T marketing in January 1979 as a communications consultant for banking institutions and became certified as a financial services industry consultant in April 1982. Mr. Ross was promoted to project manager in AT&T's Services organization in August 1987. During his two year project management assignment, Noel successfully completed several mega-projects and was certified as a Project Management Professional by the Project Management Institute.

Revenue - The amount of revenue would have to be sufficient to justify the assignment of a Project Manager and/or additional project management resources.

Complexity - The complexity of the project in terms of technical as-

pects, as well as the number of interfaces, that would need to be involved would also play an important role in the criteria for a dedicated project management resource. The following is an example of a technically complex implementation in an AT&T environment:

AT&T would typically implement a new product offering with what we call a "CI" or Controlled Introduction. These CIS often required a dedicated Project Manager in order to minimize the risk involved with introducing one of these new products or services.

PROJECT KICKOFF WORKSHOPS:

Dan Ono, AT&T, and Russ Archibald, Archibald Associates

INTRODUCTION

Within a company the size and scope of AT&T, with annual sales of \$34 billion of diverse products and services, there is a wide variety of projects of all sizes, degrees of risk, complexity, and character of the end result. This article deals with projects in which AT&T has agreed under fixed-price contract with companies, institutions and agencies that it will design, manufacture hardware, develop software, install, test and cutover into operation complex, high-technology voice / data telecommunications and related systems. Such projects usually must be completed within a few months to perhaps a year, although some multi-project contracts cover several years.

Such projects must be executed so that the new facilities are in place and tested to enable a rapid cutover from the old to the new, usually over a weekend, with minimum disruption to the on-going operations of AT&T's customer.

PROJECT MANAGEMENT IN AT&T

A dedicated-full-time-project manager is assigned to a project when its value exceeds \$3 million. In some cases a project manager is assigned for smaller contracts if the project is unusually complex, either technically or organizationally. Other exceptions are made for smaller projects which are parts of a larger program.

The AT&T project manager operates within a classic matrix organization, usually as a one- or two-person project office, but using specialized staff support as required. In very large projects, the project manager will have several people on his or her direct staff. Many different parts of

AT&T must contribute to each of these projects: several engineering and technical disciplines, purchasing, manufacturing, field installation and test, provisioning and logistic support, software development, training, and various other services and operations departments. For instance, key persons contributing to a project in Southern California may be located in Denver, Oakland, New Jersey, and elsewhere in the country.

IDENTIFICATION OF THE NEED FOR START-UP IMPROVEMENT

The Director of Projects for Southern California and Hawaii identified a need for ways to accelerate the planning, learning and team-building processes which take place on every project. He saw this need within his own project managers as well as the functional managers who carried out the specific tasks on each project. Very importantly, he also saw the need within the customer's people who were involved with the project.

Typically, after a new project had been under way for a few months, good teamwork emerged. The Director of Projects wanted to achieve that teamwork in a few days or weeks, due to the short duration of many of his projects.

SATISFYING THE NEED WITH PROJECT START-UP WORKSHOPS

In mid-1987 the Projects Director decided to initiate project kickoff workshops on his new projects to see whether these needs could be met in this manner.

APPROACH

A three-day start-up workshop format was designed. The first two days, spaced

at least a week apart, involve only AT&T people. The third day, following the second day by at least a week, includes the customer people who are involved directly in the project and also senior customer managers

WORKSHOP OBJECTIVES

The kickoff workshop objectives are:

- To apply proven project management methods to the project, and develop-as a team-jointly agreed project plans, schedules and control procedures.
- To assure good understanding of the roles and responsibilities of all AT&T and customer project team members, thereby enhancing effective teamwork.
- To identify additional steps needed to assure project success.

While team building is not stated specifically as an objective, it obviously is one of the most important results to be achieved.

KICKOFF WORKSHOP DELIVERABLES

Emphasis throughout the workshop sessions is on the deliverables to be produced by the team. These are:

- List of key concerns and major open issues.
- A well-defined project / work breakdown structure (PBS).
- A task / responsibility matrix, based on the PBS.
- A list of key project interface events, linked to the PBS and showing the initiator and receiver(s).
- A project master schedule, based on the PBS, reflecting the key project interface events, and based on

Political Ramifications - On a number of occasions, it would be very prudent for AT&T to place a dedicated project management resource on a project because of what could be classified as a political requirement. These types of place-

ments were made in high visibility client groups such as the media, i.e., radio, TV, and motion picture studios, major newspapers, etc.

National Defense - Dedicated Project Managers would often be requested

for projects involving the military, which in some cases included ramifications related to national defense.

Future Business Opportunities - Marketing would identify projects that could have a potential bearing or

GATEWAY TO PROJECT SUCCESS-1987

the consensus of the project team on the overall allocation of time.

- Agreed procedures for project monitoring and control, including dates for periodic project review meetings.
- Action items resulting from the kickoff workshop discussions, with assigned responsibility and agreed due date for each.

WORKSHOP CONDUCT

The workshop sessions are the responsibility of the assigned project manager. The PM plans and prepares for the sessions, with the assistance of an outside consultant or the appropriate project management staff. Most of the kickoff workshops held to date have been with the assistance of an outside consultant.

For each topic listed in the agenda, the consultant briefly presents the underlying concept to be applied. Then the project team members roll up their sleeves and create the deliverable items for the project the PBS, task/responsibility matrix, key project interface event list, and project master schedule.

Some of these items, especially the PBS, matrix and interface event list, are usually developed by breaking into five or six person teams, with each team covering assigned parts of the project. These small teams then report their results back to the full project team (usually 15 to 20 people), to assure total team buy-in of the plans.

In this process, the consultant acts as a facilitator, assures that the overall process is adhered to, and is a source of industry-proven project management knowledge.

One of the overall objectives of the kickoff workshop is to position the project manager properly in the eyes of the other AT&T team members, and also of the client team members. The project manager thus must be seen as basically running the kickoff workshop sessions, with the assistance of the consultant or staff facilitator.

RESULTS ACHIEVED

The most direct indication of the overall benefits of using a well-organized process for starting up projects is that the system cutovers-project completion—have been on schedule and with better quality on projects using this approach compared to the projects that did not.

BETTER PROJECT AND FUNCTIONAL PLANNING

The kickoff workshops get the project team started quickly, with a good understanding of what needs to be done, who does each of the many tasks, and when each must be completed. This approach gets all of the functional organizations thinking about what kind of planning is required—before getting into the thick of the action. Previously, some functional managers would leave the planning until the last minute, or would not do any planning at all.

BETTER COMMUNICATIONS AND TEAMWORK

After the kickoff workshops, all project team members use the same semantics and planning terms. By jointly working through the planning deliverables, good teamwork is achieved much earlier on each project. This joint planning shows each

team member that everyone on the team has important tasks to perform, and how these tasks interrelate. There is a better realization that they all need to be involved in the planning effort to ensure project success.

IMPROVED CUSTOMER RELATIONS

There have been very positive reactions from customer team members and higher management to the kickoff workshop sessions and the resulting deliverables. AT&T marketing managers have given similar positive reactions, and point to the fact that the workshops provide a vehicle for the AT&T team members to work closely with the customer team members very early in the project. This has avoided the adversarial attitudes which have previously been experienced on some projects. An important result of the third-day session with the customer team members and managers has been quick escalation and resolution of open issues which threaten to delay the cutover.

CONCLUSION

The kickoff workshop process described here has produced beneficial results by bringing the project team members together early, and by concentrating intensively on a few basic fundamentals of effective project management. AT&T is committed to continued use and improvement of these project kickoff workshops, and has made them an integral part of its Project Management Process.

influence on subsequent major projects or sales or long term relationships with clients. Consequently, they were desirous of having dedicated Project Managers on these smaller related projects.

THE SOLUTIONS

The solutions identified below were developed based on a number of inputs. Included in these were:

- Direct observation of AT&T projects,
- Input and work from independent consultants such as Russ Archibald, John Russo, and David Hamburger,
- Counseling and direct work from training organizations such as Educational Services Institute and AT&T internal training organizations, and
- The many contacts and the knowledge gained from participation in the Project Management Institute functions such as the annual Seminar/Symposia, local chapter dinner meetings, and various committees.

Personnel

The first area that needed solving was defining the criteria for selecting the people that would become the nucleus for the new project management organization.

The composition of the group relative to the type of people was the first thing to consider. AT&T identifies its people with the most potential to progress to middle and senior management in a program known as the Leadership Continuity Plan (LCP). The participants in the LCP generally would not stay in one organization for more than a few years. This group typically had bachelors and masters degrees and had excelled in the positions they had held within AT&T. A department would sponsor each of these participants and would maintain that sponsorship as the participant progressed through other departments.

It was determined that about 30 percent of the new project management organization would be composed of these LCP people. The reasons for this high percentage of upwardly mobile people is that they generally:

- Are very fast learners, which facilitates the education and training that required to be assimilated over a very short period of time.

- Are natural leaders, which is exactly what a project Manager needs to be.
- Possess high interpersonal skills, which is another critical skill for a Project Manager.
- Are computer literate, another critical attribute for our new Project Managers. Our standards for communications, scheduling, budgeting, and monitoring project progress all depended upon PC-based application programs.
- Would benefit from experience in the Project Manager position in that it would offer them the best opportunity to experience general manager type responsibilities at a lower level position.

These LCP-identified people would be expected to remain in project management for only a few years. Since they would need to move on to other departments and developmental assignments, there would not be enough time to make these people Project Management Professionals, but the ultimate payback to the corporation would be high. Accepting these people into the project management organization would instill a naturally high turnover rate. This high turnover rate was evaluated as being worth the penalty to get this kind of leadership into our initial projects and to get the input from this elite group of people early in the process defining period.

The remaining 70 percent of the new project management force would be career people. They would form the nucleus of the permanent project management professional resource within Business Communications Systems. People with college degrees and/or previous successful project management experience were sought. They would be educated, trained, and allowed to build an experience level that would be unmatched within the industry. This group had already acquired significant experience in project implementation and were familiar with many of the common problems that afflicted telecommunications implementations.

Prior to coming into the project management organization these people

had to commit to becoming professionals at project management including pursuit of the Project Management Institute's Project Management Professional certification program and obtaining the Masters Certificate from the George Washington University that Educational Services Institute created for AT&T (see page 33). Additionally, these people had to commit to mobility on expenses to the project sites for periods up to a year. The personality traits that were considered critical were defined as follows:

- Interpersonal skills that would enable potential Project Managers to provide their projects with leadership and control through persuasion as much as authority.
- Communications skills that were at the presentation level, but also could be effective in one-on-one discussions such as necessitated by the budget negotiation process. Additionally, these communications skills needed proficiency in both oral and written formats.
- Although it was not viewed as being critical to have a high degree of technical skills, it was viewed as being important for the potential Project Managers to have the ability to grasp the big picture relative to functionality to the client and the AT&T architecture. It was felt that the Project Manager needed to stay out of the technical detail or the potential would be that other project management responsibilities would suffer.

We also identified the type of behavior that was desirable for the potential Project Managers. Some of those attributes are described below:

Presidential View - They need to operate from a presidential point of view of the project. This means that they need to act as if they are the president of the company; i.e., "the buck stops here." In fact, from some perspectives they are the president of the team that is implementing the project. This requires a culture change, since the Bell System nourished the culture that each department had its own set of responsibilities and that the discipline that was

instilled by the Bell System and its BSPs would ensure that the project would come together. Each of the functional entities, to some degree, had this attitude remaining from the Bell System days.

Politically Astute - The Project Manager needs to be politically astute to be able to effectively operate in many of our client environments. This is also another significant change from the Bell System days. During the pre-vestiture days, when products and services were limited to what was offered by the Bell System company, life was considerably simpler. Most client politics could be avoided or at least have minimal impact on the project. In the deregulated environment, a wide array of products and services are often included in the implementation contracts as well as products and services from third-party vendors and not necessarily AT&T developed or maintained. This greater opportunity for a unique combination of products and services from multiple vendors combined with the tug of wars going on within our client organizations for who gets how much of what, will have a tendency to impact the schedule, scope and ultimately cost of many of the contracts that are consummated during the deregulated period.

Problem Solver/Solution Delegator - The Project Manager has to be a problem solver, who is willing to delegate the responsibility for solution finding to the functional entities, while maintaining control over the solution process through commitments and follow up. We found that people who tried to solve every problem themselves often came up with less effective solutions than the functional experts, in addition to spending too much of their time solving functional problems. This generally meant that they would be neglecting another area of their project management responsibilities. While we advocated the delegation of problem solving to the functional entity experts, the Project Manager still has to be willing to accept the responsibility for ensuring that the problem is solved.

Optimistic/Can Do - The Project Manager has to always maintain an attitude of optimism. There always seems to be pessimists on every project. The Project Manager needs to be solid, when it comes to believing that the project or even a task could and would be done. Consequently, this "Can Do" attitude was very critical for the Project Manager to possess.

Planner - The Project Manager absolutely needs to have a planning mentality to be successful. One of the most significant portions of a Project Manager's job is to not only be a planner, but also to ensure that detailed planning is being done by the functional entities. While doing and directing this planning, the Project Manager needs to be able to maintain an attention to detail to ensure that all bases are covered. This attention to detail trait needs to span all of the activities and responsibilities that belong to the Project Manager.

Kaizen - The Project Manager needs to have the spirit of "Kaizen," which includes looking for ways to constantly improve the project management process, improve the quality, and reduce the cost of project deliverables.

In Charge - Finally, the Project Manager needs to be perceived as the person in charge of the project from not only the functional managers, but more importantly, the client's perspective.

SELECTED EXPERIENCE PATH

It was determined that the experience path for these potential project managers needs to be tightly controlled and carefully directed. The management of this experience path would follow the philosophy that these people would be given exposure and responsibility in ever increasing proportion as long as they were successful at each position. Additionally, each of these positions would be designed to provide the future Project Manager with education and training at each function that was viewed as being critical to the future success of a project management practitioner.

Trainee

The initial entry position for a potential Project Manager would be the position of Trainee. This position would ideally last for about six months. During this time, the trainee would study books on project management such as Archibald's *"Managing High Technology Programs and Projects,"* Stuckenbruck's *"Project Manager's Handbook,"* etc., view selected video tapes on project management such as Harold Kerzner's *"Project Management, A Systems Approach,"* read the AT&T *Project Management Guidelines*, become familiar with the AT&T Project Management Process documents, attend AT&T project management training courses such as ESI's Advanced Project Management Curriculum and internal AT&T-specific applications courses such as the Kickoff Workshop course and the Cost Analysis/Scheduling course, assist Project Managers on specific tasks or activities occurring on their projects such as kickoff workshops and cutover help desks, and assist in the response preparation for Requests For Proposals. Upon successful completion of the above assignments and experiences the trainee would progress on to a project team.

Cost Analysis/Schedule Engineer

The Trainee would be assigned to a project in the Cost Analysis/Schedule Engineer position. This position would be subordinate to the Project Manager and be responsible for cost analysis, scheduling, and tracking project progress for the Project Manager. This assignment would last for approximately 6 to 18 months dependent upon how well the employee learned, implemented, and performed in the position.

Site Manager

At the successful conclusion of the Cost Analysis/Schedule Engineer position, the next increased responsibility assignment would be that of a Site Manager. This position would be responsible for the implementation of a large site, i.e., 1000-3000 lines on a program involving several sites. This position would be under the direct supervision of an AT&T Program Manager. Consequently, the employee

would in fact share the responsibility for the site with the Program Manager. This Program Manager is usually supported by other Site Managers, potentially a Cost Analysis/Schedule Engineer, and a clerical staff. The assignment as a Site Manager would generally last 6 months to 12 months.

Small Project Manager

After a number of successful performances at the Site Manager position,

the next higher level of responsibility and exposure is being named the Project Manager for a relatively small project of about \$1M to \$3M of revenue. This Project Manager position is the first exposure that the employee will have where they will have the sole responsibility for the project delivery. Although, they will be under the supervision of a Project Director, the employee will now be a full fledged Project Manager.

Project Manager

The next higher level of Project Manager will be responsible for the larger projects in the \$3M to \$25M of revenue. These projects will generally have multiple project management team members involved, minimally a Cost Analysis/Schedule Engineer, and as the project size becomes larger, additional Site Managers will be assigned. The larger projects in this range also are usually of longer duration, which

Developing AT&T's Project Management Process:

Russell D. Archibald, CMC, PMP Archibald & Associates

My involvement with the AT&T project management process began in 1987 when I happened to sit at the same table with Dan Ono at a dinner meeting of the Southern California Chapter of PMI. (It pays to go to those chapter meetings!) Dan was then in charge of project management for Southern California and Hawaii for AT&T's major projects to install new telecommunications/information systems on a client's premises. We met a few days later to discuss how their current project management process might be improved to respond to the tremendous competition AT&T was getting after their divestiture of the Bell operating companies and the accompanying deregulation of the telecommunications industry. In addition, these projects were becoming more complex, with higher risks, and entailed many more interfaces with the client's facilities, separate telecommunications companies, and other parts of AT&T itself.

THE NEEDS WERE CLASSIC

The needs were how to shorten the project life cycle, come in on budget, and meet the technical specifications for performance and quality. The budgets were tighter than ever before, due to the competitive pricing of newcomers trying to buy their way into the market. Additionally, consistent high quality performance was an imperative brought on by the competitive environment and the ever increasing expectations of AT&T's clients.

RAPID PROJECT START-UP

Responding to Dan's comments that it seemed to take too long for a new project team to get their act together after a major contract was signed, we initially focused on the start-up phase as a fertile place to attack the problem. I had been active for several years with the INTERNET Committee on Project Start-Up, and proposed to Dan that we apply some of the techniques that we had developed in that committee to his projects. The result was, after testing the approach on two or three projects, the incorporation of an intensive Project Kickoff Workshop into the AT&T Project Management Process. I facilitated quite a

number of these Project Kickoff Workshops across the U.S. and trained several staff members in the approach. For the past two years these have been conducted almost entirely by AT&T people.

THE PAYOFF OF THE WORKSHOPS

Realistic plans and schedules that the project team is committed to; more rapid development of really effective teamwork; improved understanding and acceptance of the project manager role; on-time completion, with improved quality. The teams have learned that high quality can be achieved under tight schedules and budget-if they work together and do each job right the first time.

PEOPLE AND PROCESS

Dan Ono has always emphasized to his people that excellent results are achieved through having good people and a good process. As he pointed out, it takes an exceptional person to produce good results with a poor process and weak tools, but exceptional people can produce breakthrough results with a good process and good tools. So he focused his improvement efforts on both of these aspects. He asked me to help develop and present a number of seminars on project management practices, which was done over several years. While these were directed primarily to his project managers, we invited and encouraged functional managers and specialists to participate as well. The seminars were designed to be highly participative, and to contribute to the development of the Project Management Process. Wherever possible and appropriate, we broke into small teams to explore and analyze the difficulties in the AT&T environment of applying a particular project management practice; the resulting recommendations often had direct impact on the final process.

The Project Kickoff Workshops were also used, and continue to be used, to provide training in the basics of project management. If an experienced team has been through several Kickoff Workshops, the length of the workshops were shortened by reducing the training portions of the agenda.

provides the opportunity for assignment of multiple subordinate project management team members for development.

Program Manager

The position of Program Manager is the highest Project Management title within the new project management organization. This position is responsible for AT&T's largest premises projects ranging from \$ 25M to

over \$100M of revenue. These programs usually span multiple years in duration and are comprised of multiple sites cutting over to their new telecommunications systems at different times. Generally, these programs have multiple Site Managers and Cost Analysis/Schedule Engineers assigned to them as well as a clerical support staff. This position is reserved for the very best Project Managers that AT&T has. It is viewed that

these programs need the full range of project management skills that are addressed above.

ORGANIZATIONAL CONSIDERATIONS

Executive Support

The president of Business Communications Systems, Jack Butter, began providing support for the Project Management discipline in his internal pre-

A Consultant's View

ADOPTION IN OTHER AT&T UNITS

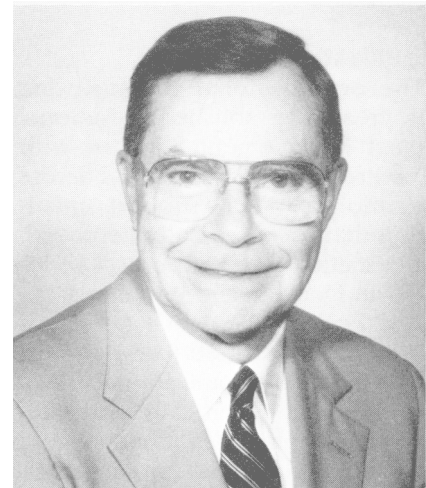
Having a good process that is well documented does not guarantee that it will be used in all parts of a large organization, as those of you who are in such organizations well know. To foster wider use of the Project Kickoff Workshops, for example, I developed and conducted, with Wes Wolford and his staff (then responsible for AT&T Network Projects in the Western Region of the U.S.), a series of two-day workshops on the process of starting up these projects. We presented the concepts behind the intensive Project Kickoff Workshops, and then simulated such a workshop with the project managers that reported to Wes. The concepts were adapted and applied to their projects, which have a much different character from the premises projects that Dan was responsible for at that time.

Similarly, through my facilitation of these Kickoff Workshops in other regions across the U. S., project management staff members in those regions were trained to be able to carry on facilitation on their new projects themselves.

DEVELOPMENT AND DOCUMENTATION OF THE AT&T PROJECT MANAGEMENT PROCESS

In addition to reviewing the content of the AT&T Project Management Process documentation as it was developed, to assure that accepted principles and terminology of project management were observed and to comment on the overall structure, I assisted the National Project Management staff in preparing the Performance Evaluation Review Package. This provides guidelines for reviewing and evaluating the performance of project teams at four specific points in the overall process. These points are at the end of the conceptual, planning and implementation phases, and after completion of the project. Initially this was targeted toward only the project manager, but we decided that the entire project team should be evaluated, looking at how well they followed the process as well as their performance in meeting the project objectives.

This was a challenging opportunity, and the results were achieved through the excellent teamwork of all the involved persons, with a hard-driving project manager, Dan Ono, in the lead.



Russell D. Archibald has broad international experience as practitioner, consultant, and teacher in program/project management for a wide range of clients. He has participated in a number of management audits and has presented expert witness testimony to regulatory bodies and courts.

Mr. Archibald has been director of several major projects, vice president of international planning of a U.S. multinational corporation, staff director department manager, aerospace design engineer, and construction engineer. He has taught numerous seminars and courses in project management in eight countries, and for ten years was on the faculty of the Engineering and Management School at UCLA. He is an internationally recognized authority on project management and has published two books and numerous articles on this subject.

Mr. Archibald earned a master of science degree in mechanical engineering from the University of Texas and bachelor of science degree in mechanical engineering from the University of Missouri. He is a fellow of the Project Management Institute (PMI), a founder (member #6), past vice president, and is now a Certified Project Management Professional as well as Certified Management Consultant.

sensations and during his client interfaces. The operating vice president, Bob Egan, delivered strong support in a speech to the project management organization itself, as well as providing significant funding for personnel, equipment, training, and education.

Reporting Relationships

The National Project Management organization was created to facilitate the standardization of methods, to focus direction, and to consolidate leadership. Additionally, this established a direct reporting relationship with the operating vice president within the service organization of AT&T's Business Communications Systems.

Organization Structure

The organizational structure that was created established a National Project Management Director with three Project Directors spread across the nation, a systems support organization that was nationally deployed, and a methods and support staff located in Denver. The Program Managers, Project Managers, and their subordinates reported to the Project Directors. This organizational structure provided a vertically and geographically integrated organization, truly a self-contained project management group.

Organizational Placement

Although, the organizational placement of the project management organization is with one of the functional units, being a national organization and part of the headquarters staff instead of in one of the line organizations has somewhat mediated being a part of a functional unit.

Authority Structure

The authority of the Project Manager is derived from multiple sources within the Services organization. The direct authority comes from the project owner, who is one of the Service vice presidents deployed in five areas across the nation. The operations vice president, who is the officer for the Services group and the services vice presidents' superior, has also been a source of authority on some

nationally deployed or highly complex projects.

COMPENSATION

One of the most significant areas for change was the compensation area. It was felt that to attract the best people for a career in project management, it would take a significant change in the compensation structure for AT&T's Project Managers.

With the assistance of an outside compensation consultant and the internal compensation and management job evaluation organizations, a comprehensive modification to the project management compensation structure was proposed to Mr. Jack Bucter, president of Business Communications Systems.

One of the most significant areas for change was the compensation area.

Salary Determination Plan

The Salary Determination Plan was created to place the appropriate level Project Manager on a project. This plan used an evaluation matrix that included technical complexity, revenue value, number of interdisciplinary products and services, and political sensitivity of each project among other criteria.

Initially, it was hoped that this plan would provide sufficient motivation for each Project Manager, while maintaining a relationship with the existing standardized salary structure. After about a year or so, it was recognized that this salary plan was not sufficient to produce the right behavior and did not offer any long-term motivation to remain in project management. Consequently, it was determined to continue to use the plan in a modified format and also to supplement it with additional forms of compensation incentives.

Bonus Plan

It was determined to establish an additional bonus plan that would serve to provide short-term incentives to motivate high level performance on the projects that were being implemented. The bonus plan, to be competitive and to be sufficient

to motivate the desired high level performance, would have to be equal to approximately twice as much as the average bonus level among the other AT&T management positions, but within acceptable range of similar positions outside of AT&T.

Upward Promotions Within the Project Management Organization

To address the longer-term issues related to retaining AT&T employees in the Project Management organization, it was determined that we needed to establish a career path within the Project Management group, which would positively influence Project Managers to remain within the Project Management organization. The ability to progress upward within the Project Management organization needed to be established in order to create this career path. In order to create an early perception of credibility, it was critical to produce a very tangible, very visible record of promotions within the Project Management organization. This career path would have to generate a progression through a number of the lower level management and into the middle management level positions. Not only would this tend to attract career Project Managers, but also attract the LCP type, upwardly mobile employees. The LCPs would want to come to Project Management for not only the education and experience, but also for the relatively quick promotions.

Recognition (Non-Monetary)

Additional forms of recognition that could essentially be non-monetary could contribute to motivating high level project performance. These types of awards would present recognition for all project team members as well as the Project Manager. It was planned to have this type of recognition activity occur at some regular interval and be presented by some upper level manager. Additionally, it was hoped that this type of recognition could build teamwork for future project undertakings by the same project team members. This form of recognition had been successful in previous similar situations. It was noticed during that previous time that the individual function team leaders responded very well to this type of recognition.

EDUCATION

The first Project Management Institute (PMI) function that I attended was the annual Seminar/Symposium in Montreal in 1986. During this symposium, I experienced a revelation relative to the value of these PMI functions and the Project Management Body of Knowledge (PMBOK). What caused this revelation, was the fact that I could be involved in a discussion with a group of attendees from all different industries such as aerospace, heavy construction, pharmaceutical, utility companies, software development, and many others; in fact some of these attendees were from different countries and we could communicate despite our different industries and even our different countries. We had the same problems, e.g., scope definition and changes, schedule and cost problems, quality problems, and problems with functional managers. It was during this time that I recognized that PMI had been building a body of knowledge about the solutions to these problems for 20 years and I was sure the PMBOK had a number of the answers that AT&T was looking for.

It was at this point, and after reviewing the internal project management expertise within the AT&T training organization, that AT&T determined there was a need to go to outside organizations and consultants who had already accumulated a body of knowledge in the project management discipline.

Subsequent to the Montreal Symposium, I began attending local PMI dinner meetings at the Southern California Chapter of PMI in Los Angeles, where I was home-based. It was at one of these dinner meetings that I met Russ Archibald in early 1987. Russ and I began working together to develop a Kickoff Workshop for AT&T (see "Project Kickoff Workshop"). This process was developed and implemented within Southern California and soon expanded to the entire Western Region. Eventually, it was implemented nationwide.

During this time frame, AT&T's ubiquity entered the picture. Several different initiatives from various parts of the country began. Our Western Region Project Management staff began working with the University of California at

Berkeley to develop a certificate program within the curriculum offered at the University. Meanwhile, Russ Archibald and I continued to develop additional basic training and educational sessions for the Southern California Project Management group. These sessions included Project Management Methods and Principles; Managing the Functional Entities; Project Documentation and Communications; and, in conjunction with Wes Wolford, Western Region Network Project Management, a Project Kickoff Workshop Training Session. A little later but in the same general time frame, the National Project Management staff based out of

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Denver began developing consultant led project management courses in Methods and Principles, Project Budgeting, and Subcontractor Management.

Another area that I felt was an important credential for my Project Managers to possess was the Project Management Professional certification from PMI. I initiated an effort for my Project Managers to seriously pursue the Project Management Professional certification program. Consequently, with the cooperation of several people including two AT&T Project Management Professionals, a professor from San Diego University, and Russ Archibald, we developed and presented a four session—each being one day in duration—Project Management Professional Certification Preparation series to the Project Managers of Southern California. This effort resulted in about a 50 percent pass rate, which gave the Southern California Project Management group, four Project Manage-

ment Professionals with two others being just two modules away from certification. I was especially proud of this achievement of my Project Managers. From my perspective, they had done almost the impossible. They had spent many of their personal, as well as business hours, going to training classes and studying for the certification examination, while they were setting records in consistently high quality delivery of our largest projects.

The next step in the continuing evolution of the project management discipline within AT&T's Business Communications Systems Business Unit was a larger-scale undertaking at formal education. Three business units became involved with development of a formal curriculum that would lead to a master's certificate from George Washington University and also prepare our Project Managers for PMI Certification. This development is described in the sidebar, "Innovation In Education".

To ensure that we maintained the appropriate development environment for our Project Managers, we had each one become a PMI member, which would bring them the regular publications of PMI, the Project Management Journal and the PM NETWORK, the professional magazine of the Institute. Additionally, we subscribed to a number of project management-related newsletters and publications such as WBS-Words By Specialist from Project Management Mentors in San Francisco.

We purchased Harold Kerzner's video tape series and book as well as Russ Archibald's book.

TRAINING

The above activities covered the education requirements at the general level, but left the specifics yet to be addressed. These specifics needed to cover AT&T applications of the methods and principles that were taught in the education activities described above into the actual processes that we used on our implementations.

We shifted our emphasis in the consultant-led and -developed training courses from applications of the general methods and principles taught in the education curriculum to our specific AT&T applications.

STANDARDIZED METHODS

Simultaneously, with the development of the education and training curricula, an equally important supporting effort was initiated. This was the documentation of the Project Management Process (PMP) that AT&T had decided to standardize across the nation. Without a standardized process, it would be very difficult to achieve any large degree of consistent performance across the country. This task was broken down into two parts; the development of a high level description of the Project Management Process, which would serve as an overview tool for use in the introduction of the Project Management Process to new Project Managers as well as for use in responses to Requests For Proposals.

The high level description consisted of 105 steps, starting with the proposal stage through the planning and implementation stages, and concluding with the close out stage. These steps, as well as the stages they were included in, were graphically displayed on a 2'x3' chart. Each step was also defined in an accompanying document.

The second part of the task was the more detailed description of each activity underneath the 105-step high level outline of the process. This second part would take considerably more time to develop and ultimately ended up in an eight volume document called the *AT&T Project Management Guidelines* (PMG).

These Project Management Guidelines would become the source material for the AT&T specific applications training courses. This PMG would also be used as the bible for our staff managers based in Denver but supporting all of the nation's field Project Managers. Each Project Manager was supplied with a copy of the PMG. Consequently, they were surrounded with the PMG. It was used in their training classes, supported and reviewed by the field support staff managers, and included in the standard tools for each Project Manager.

Standardized Appraisal Criteria

One final area was addressed to insure adherence to the PMG, and that was inclusion of the use of the PMG in the appraisal process for each Project Manager as well as being included in

the AT&T Project Manager Qualification Index, which related to project assignment and indirectly to salary position.

Standardized appraisals were developed for application to all Project Managers across the nation. These standard criteria now leveled the playing field for all Project Managers and offered the opportunity to evaluate and compare Project Managers across the nation for not only project assignment, but for ranking and rating, salary and bonus treatment, and promotional opportunities.

"AT&T promises its customers integrated solutions that are tailored to their requirements and superior in both conception and execution. To fulfill that promise, we are committed to developing and supporting the best project managers in the industry."

The appraisal criteria is comprised of three major categories, weighted for appropriate priority. These categories were Operational, Financial, and Administrative. Within the operational criteria are areas relating to usage of the project management tools, scope and schedule compliance, cutover results, and client satisfaction. Within the financial criteria were areas covering budget-to-actual comparison, change management revenue, add-on sales revenue, and acceptance results. The third category was comprised of administrative responsibilities, i.e., due dates, commitment deliverables, etc. This category was primarily created to facilitate keeping "the boss, the boss."

Standardized Results Measurements

Of course, along with the standardized appraisals, a standardized set of success measurements was created so that we would always be comparing apples with apples. The means of measurement for each category were also identified.

Standardized Interface Agreements

Standardized Interface Agreements were written between Project Management and most of the internal AT&T functional entities. These agreements established expectations for project management deliverables from the Project Management organization as well as the functional units for each project that was managed by the Project Management organization. These agreements would help avoid the time consuming debates that would sometimes occur on each individual project when attempting to determine the methods that each functional entity would follow. Additionally, these Interface Agreements also addressed the need for getting high level agreement from the functional entities, since they were negotiated at the high level.

Work Tools

In order to facilitate the use of the standardized methods, appraisals, measurements, and the production of standardized deliverables, a common set of tools needed to be identified. It is only common sense that to produce standard deliverables, the tools that are used to produce those deliverables need to be standardized.

The first area that was standardized was the creation of a proprietary database for exclusive use on AT&T premise implementations. This database, known by the acronym SIMPLE (System for IMPLEMENTATIONS), was designed to handle all the information management requirements on the AT&T implementations such as initial data purification, change management, cable administration, and cutover control requirements. This proprietary database operated on AT&T UNIX computers and was supported by computer personnel within the Project Management organization.

All Project Managers were equipped with laptop or desktop DOS computers. The choice of laptop versus desktop was left up to the Project Managers and depended upon the unique requirements of their individual projects. These DOS computers were provided to give the Project Managers access to the standard software

packages that were identified, such as word processing, scheduling, access to electronic mail, spreadsheet, and graphic packages. These computers were also configured to provide the Project Managers modem access to the SIMPLE program.

Along with the laptops and desktop computers, standardized peripherals were identified and provided. These peripherals and the software standards consisted of the following:

- 300 DPI Printers
- A/B and D Size Plotters
- Wide Carriage Dot Matrix Graphic Printers
- 2400 Baud Modems
- Harvard Project Manager
- Harvard Graphics
- MSWORD
- ATTMAIL Access Plus
- Lotus 123
- AT&T 4410 Terminal Emulation
- Precursor Menu System

CONCLUSION

The AT&T Business Communications System's Project Management organization was now positioned to maximize the potential for success with a criteria for obtaining the right people, a proven education and training curriculum, a competitive and attractive compensation plan, an appealing career path, a well defined and documented process, a strong support structure including staff and self-sustaining networks, an excellent and well documented process, a standardized appraisal, a documented set of measurements of success, a good set of standardized project management tools, **and** it was properly placed organizationally.

From my perspective, this organization is the best equipped, best trained, and most capable Project Management organization in our field. I believe that we have set the pace for our competitors to follow.

The most important contributing factor to achieving what was done with the AT&T Project Management organization was the support in terms of encouragement and financial backing that was extended by our business unit executives. Their farsightedness, patience, and willingness to gamble was the key to this development.



Daniel P. Ono has been involved with various aspects of project management within AT&T for the past seventeen years, including being the project manager for projects ranging in value up to \$50 million. He is currently National Project Management Director for AT&T's Business Communications Systems (BCS). The BCS Project Management organization includes a staff in Denver and groups of project managers in Los Angeles, San Francisco, Atlanta, Chicago, Washington D. C., and New York City, as well as individual project managers at numerous locations around the country. The organization is currently managing over \$500 million in projects ranging in size from \$1 million to \$92 million.

Mr. Ono is an active member of the Project Management Institute and a PMI Certified Project Management Professional. He has served as vice president of the Los Angeles Chapter, the registrar for the Northern California Chapter 1990 Asilomar Symposium. He presented a paper at the PMI Seminar/Symposium in San Francisco and has been a chapter speaker and a guest lecturer at USC. He holds a BS in personnel and industrial relations from San Francisco State University and is a graduate of the Executive Development Program at the Golden Gate University.

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