Chapter IV

Business Reengineering at a Large Government Agency

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ABSTRACT

A team of consultants undertook reengineering the delivery of compensation and benefits at a large quasi-governmental agency. Benefits included six programs which accounted for several time intensive processes such as "cafeteria plan" options for individual and family health coverage, a health benefits open enrollment period where information is dispersed to assist employees in plan selection; thrift spending account; and retirement accounts. In addition to the benefits portion, a myriad of compensation programs existed. Many of these hadn't been used in years, although available to all employment levels in the agency. In all, thirteen programs were to be reengineered in a twelve week period. A complicating factor was the structure of the organization. The organization included five senior vice presidencies, ten area vice presidents, eighty-five district managers, and many more levels of functional managers. The many levels and sheer number of vice presidents created overlapping spans of control stretching across the agency's domain with regard to people management, resulting in a negative effect on operations. Notwithstanding some of these factors that were outside the dominion of the reengineering team, the team created its own set of obstacles.

Personalities, management styles, skill levels, expectations, waffling team membership and leadership were shared concerns among the team members. However, these concerns remained largely unspoken and certainly were not resolved. Despite what could have become a disastrous experience, the core team survived to build a telephone call center that will one day grow into a national center, handling all the compensation and benefit needs of this organization.

BACKGROUND

A team of highly trained consultants was hired to direct and facilitate the reengineering process for a compensation and benefits program supporting nearly 800,000 employees across the United States.

Due to the efforts of several managers, the agency had already developed a reengineering methodology of its own that became known as *The Methodology*. A merging of Hammer's *Business Process Reengineering* (BPR) (1993) with Tom Davenport's Process Innovation (1993), the company's methodology blossomed into a three phase design consisting of Investigate, Innovate and Implement. Company team members were supplied with a copy of Hammer and Champy's (1993) book and encouraged to read it during the week before the contractors reported to the assignment.

When the three contractors arrived, two of three team members had returned to their offices to finish a few last minute responsibilities prior to participating in the very exciting task of improving the workplace. One of the three team members would be absent for two more weeks. Project duration was scheduled to last three months. The task was to reengineer compensation and benefits delivery for the company's very large workforce.

The team room was a well appointed and outfitted area. Four desks outfitted with personal computers networked via a LAN to a small server. The server housed software that was used throughout the project to record progress and store data. The L-shaped room afforded a place for a conference table, removed from the work area and yet accessible should team members want to continue working and participate in meetings which may be taking place. In the conference area were several white boards and a memory-write white board.

Figure 1. Methodology


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                        The Methodology

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    │ Investigate  │  ‡   │   Innovate   │  ‡   │  Implement   │
    └──────────────┘      └──────────────┘      └──────────────┘
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THE REENGINEERING PROJECT

Overview of the Client

The client is one of the largest employers in the United States. Education levels of employees spanned a continuum from high school degrees to doctorates from Ivy League schools.

The company advocates promoting from within the organization. In fact, the company is very proactive in this regard. Many employees are promoted to higher level staff jobs for various reasons. The employee may have attended a successive number of courses, spent time-in-the-job, or has the necessary number of hours in a requisite job.

Organizationally, the company has several layers of management. Following is the company's organization chart.

All policies and procedures are issued from Headquarters with information disseminated to the field offices through two other levels of management. Naturally, before the information is received in the field where policy is implemented, the news is old news, having traveled faster by "grapevine" to reach the field units. Often, Headquarters has refined and reissued the edict before it has arrived in the field initially. Sometimes the information never officially reaches the field — instead a summary is passed along from the second tier management structure. It is safe to make the judgment that communication in this very large organization is convoluted.

This helps to create a dysfunctional culture where Headquarters personnel are held as suspect by field personnel, while Headquarters views field personnel with impudence. This imbalance in relationships and conflicting perspectives played a significant role in hindering the documentation of the "AS-IS" process necessary for developing improvements.

Purpose of Study

Team members were charged with developing work flows of current processes surrounding the delivery of twelve separate compensation and benefits programs. Once

Figure 2. Organization chart
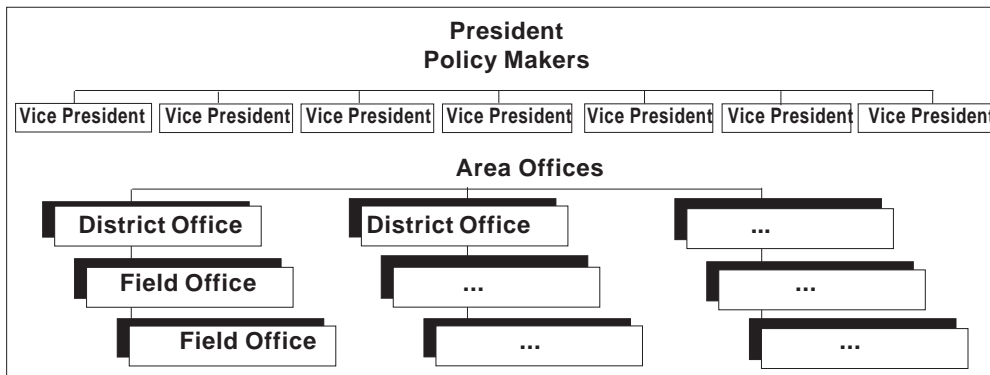
documentation of current processes was complete, the team was to engage in "out-of-the-box" thinking, develop improved processes, summarize the benefits, and provide an explanation of the improved processes. And finally, the team was to develop an implementation plan for future delivery of employee programs.

To assist in the above process, the team was to use the company's in-house reengineering methodology. A binder with the methodology was presented to each team member. For further education, company team members were presented with a copy of Hammer and Champy's *Reengineering the Corporation* (1993).

Company team members were brought into the project two weeks prior to the consultants. Since most of these team members were subject matter experts and unfamiliar with reengineering methodology, they were instructed to become familiar with the company's methodology and to read the BPR textbook.

Once the consultant team arrived and most of the company's designated members were in attendance, the team began work on a variety of tasks: sorting through available information; determining who is the client and what would be investigated; assigning tasks; and the documenting the current workflow processes.

Software tools were provided to expedite process mapping. In addition to email, other software supplied included word processing, project plan, and a simulation tool. Four desks were outfitted with desktop PCs and a laptop was provided to augment any shortages. Two consultants had PCs of their own.

Immediately, the team realized that investigating all thirteen processes to the detail expected by the company within the allotted twelve week period would be impossible. In fact, one consultant was adamant that the time period allotted was totally unrealistic

An complicating factor in the reengineering effort was the knowledge that the company was recovering from a recent reduction-in-force (RIF). Many of the company team members had seen friends of theirs pushed out of jobs or offered lucrative retirement packages. The effect of the RIF was low morale, furthering suspicions toward anything Headquarters did, and cynicism of the new BPR agendas. In fact, many of the company team members explicitly stated that they wanted to participate on the project just to make sure their job was not in jeopardy — not exactly conducive to radical redesign of processes and jobs.

Organization/Hierarchy of Team

A team of highly skilled consultants was brought in to facilitate the reengineering process with the client. Additional team members of subject matter experts were selected by the company from field units. Selecting consultant team members was the responsibility of one office, while selecting company team members was the responsibility of the office managing the compensation and benefits programs.

The consultant team was selected in three steps: (1) Provide the solicitation; (2) Submit a proposal; and (3) Interview teams by the contracting officer.

Everyone on the consultant team had a master's degree or higher. The designated project leader had a doctorate in organizational behavior. Of the remaining team members, one held a master's in Human Resources, and the other had a master's in Management Information Systems.

Selection of company team members was more involved. The selection process involved company sponsors soliciting participation, waiting for a response, interviewing

prospective participants, making a selection, arranging for the detail begin date and duration, arranging for accommodations, sending an acknowledgment letter to the participant and their manager. From the start, acquiring company team members was difficult.

Requests were sent to all Area Offices. The Area Offices were requested to solicit District and Field offices for recommendations. From ten Area Offices and 80 District Offices, only seven applicants were found. Of the seven interviewed, two asked to have their application rescinded. Of the remaining five, three were selected. From these three a project team leader was appointed.

The selected team members were considered subject matter experts in compensation and benefits. All three had worked their way into their current positions. One had a college degree. The college educated person and one other person were at the same pay and responsibility level. The third member was one pay level lower and ostensibly, had less professional responsibility.

When the two teams met for the first time (the consultants and the company), only one company team member was present. Of the other two, one member was on home leave to acquire personal effects to make the stay away from home more enjoyable; the other would arrive in two weeks due to work related responsibilities which precluded BPR participation.

Although only one company member was present, the team began its mission — to document current delivery processes for the compensation and benefits programs.

The core team comprised more than just these team members. To manage the project, a company project team leader was appointed. In addition to the company appointed project team leader, the consultant team also had its designated team leader — as determined by the contracting officer. Furthermore, the sponsors also designated a project team leader. The team consisted of six present members, one member in route, one member who dropped-in, and three project leaders.

It's no wonder that from the beginning ownership of the program was confusing. While the consultants were instructed to provide weekly reporting to their contracting officer, the company team members felt allegiance to their Headquarters manager — the one ultimately responsible for their jobs. To add to the mixed bag, the Headquarters designated project team leader was also the manager responsible for one of the programs to be reengineered.

One of the project teams first tasks was to introduce itself to the management team. The management team was selected by the contracting officer and the sponsoring organization. The management team consisted of interested parties from the legal, information technology, labor union, accounting, and payroll divisions in the company. Although none of the management team were vice presidents, they were only two levels removed from the policy makers, and were therefore considered influential.

Regrettably, as the BPR team discovered later, these same management team members were management team members for nearly all BPR projects undertaken by the company. What resulted was a lack of freshness and enthusiasm for redesigning the processes. What occurred was a reluctance to give credence to another BPR project.

Sponsors for the team communicated via the Headquarters project team leader. On two occasions team members were able to make presentations to the sponsors. These mock presentations were requested so that the sponsors could anticipate questions and

avoid any potential difficulties with senior management. It was made very clear that access to the sponsors was only through the Headquarters project leader.

Building the Project Plan

As was stated earlier, the team began the project feeling pressed for time. The breadth of the exploration, the size of the organization, the limited resources available to the team added to the sense of desperation. From the outset, the team knew that to understand the processes, visits would have to be made to field units.

However, before anything could be approved, including travel, the contracting officer had to receive a project plan. Although the entire team was not yet assembled a project plan had to be devised. Only two of the six team members had computer experience. The most computer-experienced team member was tasked with completing the project plan on available project scheduling software.

Attempts were made to develop cohesive team behavior in order to capture the steps necessary to successfully complete the project. From the onset, it was very difficult to get the group to focus. The team was seeking a leader and several had stepped forward to claim the role. Attempts to develop a timeline without facilitation from the designated group leader were cumbersome.

Furthermore, clear comprehension was lacking regarding the BPR process. The group proved unable to develop a project plan and schedule, issues were discussed again and again, absent members caused reluctance to commit to any timeline, and drop-in leadership by the sponsor designated project leader was disruptive.

Atempts at decision making resulted in one of the team members stating that the team should wait until the sponsor designated project leader arrived in order to win approval. The sponsor designated project leader was unpredictable in arrival times, limited in the amount of time spent with the group, and nearly always recommended reviewing alternatives.

The team agreed to address milestones. What were the immovable dates? For one, three Management Review Board (MRB) meetings were mandatory. Is it reasonable or responsible to schedule a meeting when there was nothing to report? And, by the way, one team member was still missing.

Three dates were selected from the remaining calendar. The sponsor project team leader agreed to take the lead in securing a time, place and forwarding announcements to the MRB members. A timeline for these activities was created. As responsibilities started to be assigned, the team became aware of other tasks that had to occur in order to prepare for the MRB meetings.

It was understood that at the first MRB meeting the team would present its scope and charter as well as propose a plan of action to investigate the AS-IS delivery process. However, the team also realized that to acquire a full understanding of the processes, a variety of offices would have to be visited. In addition, to fully understand the processes, visits would have to be made to management centers in other parts of the country. A considerable amount of travel was mounting. Placing travel on the project timeline shortened even further the remaining time for the full project.

Despite the team's perceived schedule, the contracting officer insisted that his schedule also must be met. Milestones on the contract officer's time line which directly impacted the first three weeks of project work included an MRB meeting, conducting team

building exercises for two days, and initiating change management. All of these activities are reasonable as long as nothing slips prior to these tasks. Our team, however, was still missing a team member. We had yet to define our scope. Definition of scope and charter was delayed because one team member was adamant that the project could not be finished in the allotted time frame. Team morale was slipping fast.

Teambuilding

Team building finally occurred well into the project. As a matter of fact, the team was six weeks into the project. During the prior six weeks, we had acquired three new team members — two were designated as advisors. Team members had very strong feelings towards these new members. Two were viewed as agents spying for other divisions.

By the time the team building activity was undertaken, the consultant team leader had been removed from the job, a new consultant team leader had been designated, the sponsor project team leader realized that more attention needed to be spent on this BPR effort, a new team member from one of the very political regions was assigned, and two additional team members arrived from another division within the company. Team composition had expanded to ten.

The team was told to participate in team building exercises. The exercises were completed off-site, away from the office and phones. We were encouraged to wear casual clothes. Prior to scheduling the sessions, each team member had to complete a lengthy personality test survey. The results would be presented at the session. The team building exercises consisted of visualization, dividing into teams, developing a vision, brain-storming relationships, and reviewing survey results.

To say the team was cynical would truly be an understatement. We were civil during the first session. When it came to presentation of personality survey results, the team became very disjointed. The recommendation of the analyst was to display the team survey results so that each member would better understand how to interact with other team members. Several team members were receptive to this idea. Several team members were adamantly opposed to the whole idea of personality tests and particularly opposed to having the results posted on the wall for all to view. As a result everyone went home with his own results and never shared the outcome with each other.

In some strange way we did coalesce. The team yelled because an intruder to our group. The intruder told us we were ill and instructed us on how to cure our illness. Many of the members felt pressured to select an allegiance to one group or another. Hurt feelings continued that stemmed from the quick dismissal of the previous consultant team leader. The new consultant team leader began with numerous obstacles to overcome from the consultant team as well as the company team. And now during this team building exercise we were to discover the blocks and overcome the barriers.

Documenting the AS-IS Process

Early on, the initial five team members determined that in order to acquire a fair and comprehensive perspective of the full spectrum of programs, local viewpoints and process variations would have to be addressed. Therefore, geographic locations, size of organizations, and political sensitivity would influence any process mapping that would occur. Immediately, the team set-about identifying locations to visit.

The team split into three subteams based on geography. One team would focus on the West/Northwest area, another team would direct its attention to North/Northeast, and the third team would focus on the South/Southeast. In each area, a team would visit a large, medium and small installation. And at each site, compensation and benefits delivery processes were to be mapped. The intent was to discover a best practice process being used in the field which would shorten the lengthy delivery time frame.

In all, eighteen sites were visited. However, selecting eighteen sites took well over two weeks. In a task scheduled for twelve weeks, one fourth of its duration was already spent. Additionally, site selection had to be modified as two sites were considered excessive travel and removed from the list. Further, the one team member still not on site had refused to travel to certain locations causing reassignment of travel plans. And one more wrench, one team member refused to travel on weekends further delaying completion of site visits.

Nevertheless, the team now felt as though it was moving in a direction. The consultants developed a list of questions to be used as a guideline while visiting the sites. Instructions were to map the delivery process and timelines at the site host, and bring back the data and reconvene as a team. The trip was scheduled for six days, analyzing and summarizing data was allotted three days, and further discussion one day. The team was on a roll.

Each site was contacted by telephone and a follow-up letter was sent securing a time and date and delineating the purpose of the meeting. The members set off on their investigation. Prior to making travel arrangements, the core team members met with Headquarters subject matter experts who were not on the team to map their perspective of the delivery process for each of their respective areas of expertise. Three days were devoted to this endeavor with four hours allocated to each area of expertise. A Headquarters review process was included.

Just as the team was to embark on its lengthy and extensive travel, two Headquarters experts raised doubts regarding the consultant team leadership. These experts felt that their processes were not adequately captured, and that this was undoubtedly the result of poor information exchange. The core team members agreed to not use Headquarters processes as a talking point while on travel but rather would conduct a full field investigation.

Midway through the trip, the North/Northeast team was informed that a new team member would be joining them in New York City. The remainder of the trip would be made with this new member.

 All teams were instructed to let the company team member ask the questions while the consultant team member captured the data using the authorized process mapping tool. All team members were told to reassure the host sites that this was purely an investigation, that site cooperation and data were essential to success, and that the results would be shared with the sites. In addition, after each site visit, each team member was to jot down their impressions of the site visit, the perceived comfort level of participants, any other observations worth sharing.

When the teams reassembled it became apparent very quickly that everyone used a different data collection methodology, that not everyone completed an after site visit narrative, and that our consultant team leader was being released from duty.

One team used the computer technology exclusively for collecting and documenting the AS-IS process. The response from the field to this team was favorable. The site

host was actively involved in creating the map, assigning time frames, and assuring the accuracy of the data. Conversation was open and comfortable. The team introduced the site team to the tool being used, proposed a method for data collection, and positioned the computer so that all could easily view what was being developed. As a result, this team's process maps needed very little modification upon returning to Headquarters.

The second team, however, did not use a computer. The company team member handwrote all processes in shorthand and came back to Headquarters and transcribed the notes. Little, if any, confirmation of processes occurred. Additionally, due to the lack of computer experience of the company team member, all notes were transcribed into a word processing program and then transcribed again into the process mapping tool. The Headquarters project team leader was a member on this site visit team and as a result, extensive amount of time was spent addressing the subject area of expertise and little information was gathered in other areas of interest.

The third team did not use a computer, nor did they take adequate notes. Each night, this team returned home. During the evening, one member would try to capture the day's events.

All told, site visits to capture field unit processing of delivery compensation and benefits was dismal. The only reliable data was from the one team that captured processes using the software tool. However, at one of their site visits, the host read from the Headquarters manual. Many of the participants at this site were unfamiliar with the required forms. It was doubtful that a process was even in place, let alone followed.

Presenting Process Findings/Recommending Change

With site visits now complete and new team members added, including a new consultant project leader, it was now time to document the AS-IS process flows. As was already mentioned, before the team set off on its journeys many of the process flows had been reviewed by the Headquarters subject matter expert. One expert was extremely dissatisfied with the process flow and refused to let it beused during the field sites.

Once the teams began amalgamating the flows from each site, many similarities were noticed. In spite of poor data collection, the team was able to document excessive forms handling, incomplete employment history which affected benefits, non-productive tasks, numerous sign-offs, and confusing forms.

Each company team member was assigned at least one benefit program to investigate. The tasks were to: develop the process flow for the assigned program, determine through telephone interviews the amount of time and resources needed for each process in the flow, develop a matrix of every step involved providing details, time allotment, cycle time and to what process the step was allocated — either service delivery, forms handling, error correction, wait state, or miscellaneous. Software tools, access to a computer attached to a network and a printer were available to each team member.

There was now about one week to prepare for the first MRB presentation. The team requested indulgence from sponsors due to team membership changes to combine the first and second MRB presentations. Therefore, the scheduled MRB agenda would address the project scope and charter, present AS-IS findings, and ask for permission to continue the reengineering project to the next phase, Innovation.

Realizing that a lot was riding on this initial MRB, the team drove themselves especially hard. Since most had no computer skills, paper and pencils were used to draw

the process flows. The one computer literate member of the team was assigned the tasks of inputting all the hand-written notes into the tool, verifying the accuracy of data, making any changes as needed, creating the associated matrix of data, again verifying accuracy, printing the data, and providing a printout to each company team member. This process was repeated for the number of processes being mapped.

However, before the next process could begin, the previous team member had corrections. Furthermore, the Headquarters experts wanted to review the field work flows. As a result, additional changes were made. The outcome were process flows representing transactions in the field, sanitized by Headquarters staff, and released as original work. One flow was changed so many times that in the end it looked nothing like what the field sites reported but had a striking similarity to the steps provided in the policy and procedure manual.

The team grew more frustrated as the days progressed. Lack of computer skills prevented all but one team member from inputting data. This person assumed the role of typist. One team member made gallant attempts to help but regularly deleted files to the complete dismay of both consultant team members. One company team member cooperatively typed data only to have files lost on the network. The other company team members tried to understand what was transpiring but they had all they could handle trying to remember how to use the mouse.

In addition, presentations had to be assigned. Clamoring for who would present and what would be presented at the MRB consumed team members attention. Some expressed a desire to not present to the MRB while others felt that all company team members should make a presentation. It was determined that all company team members would present their assigned process flows. During presentation, the flow would be presented, business concerns and impacts identified.

The MRB had agreed to meet for no more than two hours. The agenda was a combination of the first and second MRB and, therefore, a lot of issues had to be discussed. It was agreed that all team members would present their process flow but only one would address the business concerns and impacts.

In hindsight, this selection was not a bad choice. Presenting the process as defined showed that 67% of a staff person's time is spent completing forms. The pie chart depicting time allotted to each step had "wow" affect. The MRB was very impressed. Another team member presented the scope and breadth of investigation. The MRB was again impressed. Finally, the consultant team leader presented the scope and charter of the project and asked the MRB for guidance on how to proceed to the innovation phase for so many programs in such a short amount of time.

The MRB agreed to reduce the number of programs investigated, extend the project to 16 weeks, and approve the scope and charter. The team was empowered to move forward with their investigation. The presentation of the next phase was scheduled for a future MRB meeting.

A celebration luncheon was held and the team rejoiced. What the team didn't realize was that the hard work was just about to begin.

Delivering compensation involved not just the agents who met with the employee, completed forms, and entered data into a computer database; it also involved payroll department's database and human resources' database. Because benefits were being addressed, union officials became very interested in the project. The sponsors insisted

that everything that transpired in the room must be kept within the room. Shortly, rumors erupted and staff members worried about job security.

If there was a single pivotal point in the project it would unquestionable be at this time. It was the managers sitting at the MRB table who chose to avoid change. It was this very group who chose to not launch the experimental voyage. These managers need to learn how to improve through "personal bests"; to give up the security of tidy charts; to immerse themselves in the culture of learned willingness and individual accountability; and to gain control by relinquishing control.

Thinking "Out-of-the-Box"

The team allocated two days for developing an innovative approach to resolving the identified business issues. Team members became combative with each other. The consultant team was also splitting. Subcontractors were overheard questioning the abilities of team members. The creative process began with team members suspicious of each other.

A vain attempt was made to develop team cohesiveness using one of Peter Drucker's (1995) metaphors — baseball, football, or tennis teams. None of these approaches worked. The prevailing attitude among the company team members was a gross lack of trust. All members not only wanted to know, but in fact needed to know, what other team members were doing. This need was taken to extremes. If a member went to the company store to purchase supplies, a general announcement had to be made. An atmosphere of paranoia clouded the room.

The contractors moved the group towards using a groupware software tool hoping to build on other team member ideas while maintaining open communication. The reaction to the one day in which the tool was used was very disappointing. The team members opined that the groupware tool was being used as a guise to hide behind.

Next the consultants moved to a traditional, facilitated session. An agenda was proposed to the team, times for each segment were agreed upon, a timekeeper was responsible for keeping the schedule, and work began. A combined total of four hours was allocated to the process. Two hours in one afternoon, a night to think things over, and another two hours the following morning were agreed upon. In this brief span of time, the team worked cohesively. All goals and objectives were met. This was undoubtedly a rewarding time the team spent together.

Upon conclusion, the team had created its mission statement. Using the existing mission statement, expanding upon this theme to incorporate new found knowledge from field visits, the team developed a thorough and comprehensive mission that everyone agreed upon.

When the group moved to consider ideas for providing *customer-first* service, the euphoria dissipated. If a similar company was mentioned, nearly every voice from the company would claim that processing couldn't occur that way because "they aren't like us." Even though it was emphasized that the intent is not to emulate but to extrapolate best practices and make them better, the team members were in disagreement. In reengineering, it is the responsibility of the consultant to recommend what the "to be" conditions ought to look like, without spending much time understanding the reasons for the "as-is" conditions. The credo of reengineering is to forget what you know about your business and start with a clean slate to "reinvent" what you would like to be. After

an additional two hours the team decided to put future consideration to rest. The team report would address the mission statement and leave the process vision untouched.

Developing an Implementation Strategy

During the next phase, the team had completely dissolved to the point where polarized groupings occurred. The sides split among those who were a certain grade level or higher, those who were males or females, those who were contractors not from the West coast, and an infinitesimal number of other groupings.

With time running out and many tasks remaining, the contracting team decided the best approach for them was to create and sell. As a result, one contractor was given the task of creating an implementation plan. This contractor was selected because of the perceived acceptance by all team members. The task was to investigate and document financial rewards and risks associated with automating compensation processing.

The contractor worked over the weekend developing formulas for implementing a plan. Never mind that the plan had not been agreed upon. This was a doable plan from the contractor's perspective. The contractor felt confident that what he would propose would be endorsed by company team members.

Instead, what transpired was two days of coaching the contractor in how to develop an implementation plan. The first hurdle was assessing the business impact. Who would be affected, how to account for change, and the cost of implementing a change management plan were just a few of the oversights. In the end, the three contractors spent all night before the final MRB meeting throwing together a plan, designing graphic representation, and attaching language for the 9:00 a.m. presentation.

Last and Final Phase

The final outcome was no surprise. The company was dissatisfied with contractor performance. The contractor was dismayed by the persistent resistance of team members from the first day. One company member was incensed that someone else was selected as team member and took every instance to insinuate that it was a gender choice. The irony was that company team members each received a reward for their participation and contribution, but another contractor received the follow-on work.

Several attempts have been made to review the process and discuss areas of improvement. The company has been reluctant to this point. However, we believe that one day, after much consideration, the company will redress the work completed and once again begin process improvement for the benefit of their customer.

Business Reengineering Methodologies

Business process reengineering first burst on the management consulting scene in 1990 through the work of two pioneers: Michael Hammer (1993) and Thomas Davenport (1993). Hammer coined the term "Reengineering," while Davenport preferred "Process innovation." Originally the focus was on dramatically improving the performance of business processes. During the last three years, many practitioners have expanded reengineering to include an organization's entire business system. Occasionally, products and services were also redesigned. Infrequently, market and customer relationships were influenced or redefined.

The field's most ardent and influential proponent, Michael Hammer (1993), defined reengineering as "The fundamental rethinking and radical redesign of a business process to achieve dramatic improvements in critical measures of performance." Beckman has expanded this definition as follows: "The fundamental rethinking and radical redesign of an entire business system to achieve dramatic improvements in critical measures of performance and customer value." This definition embodies the most important concepts in reengineering:

- **Fundamental Rethinking:**
  - Means challenging existing assumptions and biases, and reformulating the business strategy
  - Not just accepting existing perspectives and culture, and existing markets and customers
- **Radical Redesign:**
  - Means creating innovative designs by applying IT, creative thinking, and best practices
  - Not just incrementally improving the existing system
- **Entire Business System:**
  - Means redesigning most components such as product, service, process, management, IT, expertise, and workforce
  - Not just redesigning the process
- **Dramatic Improvements:**
  - Means achieving measureable gains of at least 50% in organizational performance and customer value
  - Not just 10-20% gains in organizational performance

Fundamental Rethinking

The first concept in the definition involves two types of fundamental rethinking. Hammer's (1993) "Thinking outside-the-box," challenges habitual and comfortable thought patterns and actions based on rules, policies, assumptions, biases, and culture — and replaces them with a new attitude that promotes learning, creativity, and receptiveness to new ideas.

The second type of fundamental rethinking involves strategy. According to Beckman, an organization's business strategy must be formulated before proceeding with the reengineering initiative itself. Otherwise, considerable resources might go into redesigning a product or service that the marketplace cannot support or available customers do not want. First, an environmental assessment analyzes the market/industry, customer, competitor, stakeholder, and socio/political/economic forces. Next, the following questions are answered: what industry should we be in; what customers should we serve; and what products/services should we offer. Then the overall business strategy is formulated, consisting of the grand, competitive, market segment, and resources strategies. Finally, the proposed reengineering project is examined to ensure that it is aligned with the business strategy.

Innovative Redesign

The second part of the definition, radical and innovative redesign, has been the weakest aspect of most reengineering methodologies, although it is critical to success. According to Beckman's methodology (1996), creating superior designs requires the following activities and enablers:

- Identify customer groups
- Assess customer needs, values and expectations
- Identify industry and work system component best practices
- Determine gaps between current and desired performance
- Transform customer needs and gaps into business requirements
- Surface and challenge rules, assumptions, and biases
- Apply creative thinking methods
- Apply design guidelines to each work system component
- Apply innovative IT to each work system component
- First, create an ideal or highly desirable future state and only then apply resource and feasibility constraints.
- Create several promising design alternatives.
- Develop and test designs jointly with customers using iterative prototyping

Work System Components

The third aspect of the definition involves the redesign of an entire business system. This involves more than simply mending the process or automating the work. The decomposition of a business system into its constituent components is one of the most powerful concepts of the reengineering approach. Most analysis, design, and development work is first organized around components and only later integrated during testing. With the exception of IT and the organizational culture, this compartmentalization strategy works very well.

Hammer's methodology lists four work system components:

- Processes
- Management and measurement systems
- Jobs and structures
- Values and beliefs

In addition, Hammer considers IT to be the most important enabler of design. Based on his experience and a review of the reengineering literature, Beckman's methodology (1996) consists of eleven components depicted in Figure 3.

Improvement Dimensions

The final aspect of the definition focuses on improvement. Organizations should look for dramatic improvements in performance and customer value in one or more of the following areas:

- Increased product functionality
- Improved customer service

Figure 3.

1. Customer	Needs, values, perceptions, expectations
2. Market	Competition, strengths/weaknesses, strategy
3. Environment	External influences, impact, trends, regulatory, social, political
4. Product	Features, service, price/cost, net-value-added
5. Expertise	Theory, experience, learning, innovation, problem-solving
6. Process	Inputs, resources, controls, procedures, outcomes, triggers, cycle time
7. Management	Workflow, workforce, resource, change, measures, rewards
8. Workforce	Empowerment, development, motivation
9. Structure	Organization, center of expertise, teamwork, job profile
10. Technology	Computing, communication, interfaces, tools
11. Culture	Values, beliefs, norms, biases, assumptions, expectations

- Reduced costs
- Increased productivity
- Improved quality
- Reduced cycle time
- Increased flexibility and customization
- Improved customer satisfaction
- Increased revenue
- Increased market share
- Increased learning and innovation

Hammer's reengineering methodology (Hammer & Champy, 1993) consists of four phases:

1. Mobilize (establish project governance and assign team members)
2. Diagnose (understand current system and set targets)
3. Redesign (design, test, iterate)
4. Transition (implement through pilot and rollout)

Beckman's reengineering methodology (1996) is similar although it places more emphasis on formulation strategy, determining customer and business requirements, and creating a robust, innovative, detailed design through exploring promising design alternatives:

1. Determine strategy
2. Assess current state
3. Determine business requirements
4. Develop conceptual design
5. Build and test detailed design
6. Implement design

In addition to the sequenced phases, most reengineering methodologies also include several additional continuous activities that span the life of the project:

•   Manage project
•   Manage change
•   Ensure alignment (to the business direction and other change initiatives)

Reengineering Life Cycle

In the abstract, reengineering methodologies are rather similar to System Development Life Cycles (SDLC), and perhaps more specifically, to Systems Engineering (SE). Reengineering deals with business systems, rather than information systems (IS). Both reengineering and SDLC/SE have a structured process consisting of a series of phases, and both are often decomposed into components to more easily deal with system complexity.

The traditional SDLC decomposes into five phases:

1.   Analyze
2.   Design
3.   Build
4.   Test
5.   Implement

The main distinction between the IS and reengineering approaches is the importance accorded executive sponsorship, commitment, and involvement in the reengineering model. In Beckman's Phase 1, Determine Strategy, business executives validate or create the mission, vision, and values statements, as well as explore and determine the preliminary project scope and deliver a signed charter approving and funding the project through its next three phases.

For IS, Alter (1995) proposes a comprehensive System Life Cycle model consisting of four phases:

1.   Initiate
2.   Develop
3.   Implement
4.   Operate and Maintain

A related Enterprise Life Cycle (Beckman, 1996) can be conceived that integrates four complementary business improvement methodologies:

1.   Strategic Management (direction, vision, and change initiative portfolio)
2.   Business Reengineering (radical change)
3.   Business Process Improvement (incremental change)
4.   Systems Management (operations and continuous improvement)

One of the main distinctions between reengineering and IS development is a matter of scope. Reengineering is conceptualized at an enterprise level, where IS is simply one component in a business system. In similarity, business systems are comprised of from five to 14 components; IS are usually subdivided into hardware, telecommunications, and software. Software can be further divided into several subdisciplines (Beckman, 1996):

- Numeric computing
- Symbolic computing (expert systems)
- Repositories/stores
- Human/machine interface
- Operating systems
- Perception
- Language

And expert systems, for example, can be further classified as case-based, rule-based, or model-based.

Futuristic Design Example for Workforce Management

In 1993, Tom Beckman and Rick Schreiber were asked by the IRS Assistant Commissioner for Management and Administration to develop a detailed future vision for management systems (Beckman & Schreiber, 1993) in six areas: workforce management, training, logistics management, acquisition, financial management, and management reporting (MIS). Beckman also articulated visions for workload management, assessment, research and analysis, planning and policy formulation, and management/office support. Both Beckman and Schreiber had extensive background and experience in artificial intelligence (AI) and IS applications. As a result, they developed a revolutionary design that made extensive use of AI, specifically expert systems, as well as sketching out the necessary data stores and more conventional IS applications needed to support these futuristic concepts of operation.

What is presented here is the workforce management component of this vision. The creativity of Rick Schreiber is responsible for the great majority of the ideas presented here. This example presents the reader with one possible design alternative that the case study reengineering team might have achieved if their members possessed the necessary AI and IS expertise, and if the team was receptive to such ideas.

Employee

The workforce management system of the future should empower the individual employee in a variety of ways. The employee will be able to directly enter transactions of interest. This includes changes to the payroll system (health benefit plan, amount of withholding, leave bank, bond selections, combined federal campaign, insurance, etc.). The system will serve as a focus of communications with the employee being able to examine mail (preferable with a filter) to learn of meetings, training sessions, health appointments, open seasons, job announcements, etc. Employees will have electronic access to their own personnel folders and may supplement the electronic drop file maintained by the manager.

Expert systems will provide a variety of online advise. These systems will enable the employee to obtain advice about benefits, payroll options, retirement planning, grievances, leave and hours of duty, EEO programs, employee assistance, individual career development, training, making suggestions, selecting an insurance program, etc. The expert systems will replace routine counselling from managers and resourcing specialists. Managers and resourcing specialists will still be available for non-routine counselling.

Employees will express their preferences for training courses, details, and job vacancies to a data base that can be examined by system programs whenever courses, details, or job vacancies occur. The job vacancy system, in particular, should be well developed. The employee will be able to express an interest in specific positions as well as in general types of positions.

The employee should also have access to limited cost and performance data for those process in which the employee is involved. This will enable the employee to establish a frame of reference for his own performance and may also serve as analytical data for improvements and, changes suggested by the employee.

The employee locator system will help communication with other employees. The locator system eliminates the need for telephone lists, voice mail, and other cumbersome locator systems. The employee will be able to key on employee name (approximate spellings also permitted), the employee's organization, or the employee's job title. The locator system will return the sought employee's telephone number, electronic mail address, voice mail number, physical location, or organizational location as appropriate.

Manager

The manager will have greater control and more current information about the workforce management programs of interest. In particular the manager will have access to current performance data, to the local financial plan, and will be not only to compare plan and performance, but will be able to make what-if assumptions and replan given changes in staffing, workload, training, logistics, acquisition, financial constraints.

System applications will enable the manager to have more direct control over functions currently performed mainly by resourcing specialists. The manager will be able to initiate some functions directly. For example, the task of developing position descriptions and justifications should be largely automated although it will require interactive input from the manager mainly to identify the major tasks to be performed in the new position. A simplified or broad-based approach to position descriptions will reduce the need to a large number of PDs. For tasks that require direct participation of resourcing specialists the system will provide systematic status and tracking information to the manager.

For a task like an accession, the manager will be able to determine from the local financial plan if the resources are available to fill a vacancy. The manager will input a request to fill the vacancy. This will cause an automated system agent to be established to control and track the status of filling the vacancy. An Expert System using rules established by the Resourcing Specialist can make routine determinations about the proper source for filling the vacancy. The expert system may routinely help the manager to consider the diversity or developmental implications of certain types of announcements. In more complicated cases, the job of making this determination will be automatically assigned to a resourcing specialist. Automated system agents can prepare the vacancy announcement, identify and notify the individuals who have expressed an interest in the specific position or in a position of that type. After a specified period of time an automated system agent may ask the manager for selection criteria, of course, after proposing some standard criteria. Another automated agent may request evaluations or may extract them from the online employee file. Yet another automated agent may perform a preliminary ranking of candidates for review by a review panel automatically selected

from a pool of reviewers. An automated scheduling agent may schedule interviews and notify employees selected as best qualified. The status of the process will be tracked and electronically available at any time to the manager. The appropriate training, financial, and logistics subsystems will be notified.

The process described above is not completely automated but is designed to provide a controlling framework and to minimize the administrative details and tasks to which all parties currently involved are now subject.

Expert advisors provide counselling and advice to employees. This will not eliminate the consultative role of the manager, but will reduce it and will allow the manager to focus on consultations that really do require managerial input. By the same token a variety of expert advisors will be available to the manager. These advisors would include grievance advisors, awards advisors, suggestion advisors, adverse action advisors, etc.

Because routine decision making will be invested in the system it will be necessary for manager to establish rules, to set parameters, or to specify their policies. For example, a manager might specify the organization's leave policy leaving an automated system agent with the task of approving or disapproving leave and notifying the manager and the employee. Most useful to the manager will be a schedule prepared by another automated system agent which incorporates all leave decisions and graphically shows available workforce or the whereabouts of all employees. Such a schedule will include details and training as well as leave.

The manager should be equipped with a variety of tools that enable analysis of staffing, training, workload, etc, within the managers area. These include standard reports periodically generated and distributed to the manger, the ability to generate special reports based on selection from a report library, and the ability to input ad hoc queries and to specify statistical analyses.

Resourcing Specialist

Many of the functions of current resourcing specialists will be invested in the system either in the form of specific programs or as expert systems. Counselling, advising, process verification, and routine decision making will be delegated to a certain extent to expert systems. Employees or managers will enter the data to initiate a process while the system will control and track each process.

Resourcing specialists will need to develop the rules for the expert consulting and counselling systems and develop the rules or criteria for the systems performing routine decision making. This includes such systems as those provide counselling on retirement, adverse actions, grievances, etc. In a sense, the rules and procedures that would go into Internal Revenue Manuals will be input to the system in the form of rule bases or other system specifications.

Related to establishing knowledge bases for expert systems is the translation of policies into system parameters. For example, definitions are needed for open seasons, cutoffs for initiating acquisition actions, the length of time a vacancy announcement is open, etc. Rather than directly compiling these into program they should be contained in separate knowledge bases. The programs using this information should refer to the knowledge base when they are run. Updating such a knowledge bases should be made through a user interface that controls access to the knowledge base and maintains a complete audit trail of updating transactions.

Resourcing specialists will be furnished with the same statistical and analytical tools provided to managers. These tools will enable a Resourcing Specialist to analyze staffing, diversity, grievance, employee assistance, benefit, or organization needs, etc. at a selected organizational level. Resourcing specialists will also have access to the same planning and scheduling system available to managers.

The resourcing specialist will still have a role to play in a variety of semi automated processes. For example, although many parts of the accession process will be controlled and performed by automated system agents, the resourcing specialist will be particularly active in processes such as recruiting. This will require establishing and having access to a variety of local and external data bases.

Since the system will contain a variety of text retrieval systems, it will fall to the Resourcing Specialist to obtain or create the electronic text to input to these systems. In the workforce. management area, text data bases will primarily include Internal Revenue manuals and policy statements. Other text files will include data from vendors about health plans, insurance, IR regulations, etc. Although information from these source will be incorporated into the advisory expert systems, the complete text may also be made available in text retrieval systems.

One of the roles played by resourcing specialists will be to enter into agreements that enable an exchange of data or the furnishing to the IRS of data bases and text *corpora*.

WORKFORCE MANAGEMENT

Important Data Stores

Authorized Staffing. For each organization identifies the authorized staffing.

Awards. A data base of all awards in process. Also a data base of historical data.

Calendars/E-Mall Data. Each individual will have a calendar and access to e-mail. The data bases of these programs may be accessed by a variety of other applications and system functions.

Employee Data. Employee personnel file. Contains all information about each individual employee. One sections includes evaluations and can be updated by the employee's manager. Another section includes both the managers and employee drop files. The employee drop file section permits the employee to make the manager aware of events the employee believes are significant to the appraisal process.

Employee Locator data. A data base of employees which includes all information associated with finding and communicating with the-employee including telephone number(s), electronic mail address, voice mail address, organization, office location, and current location.

Employee Options Data. A data base of options available to the employee. This data base includes the background, explanatory information about various options available to the employee.

Financial Data. The financial plan data relevant to each level of the organization.

Grievance Data. A data base of all grievances in process. Also includes a case base of historical data.

Job Interest Selections. This data base represents the interactively selected job preferences of each employee. May be viewed by employee, by preference, or by
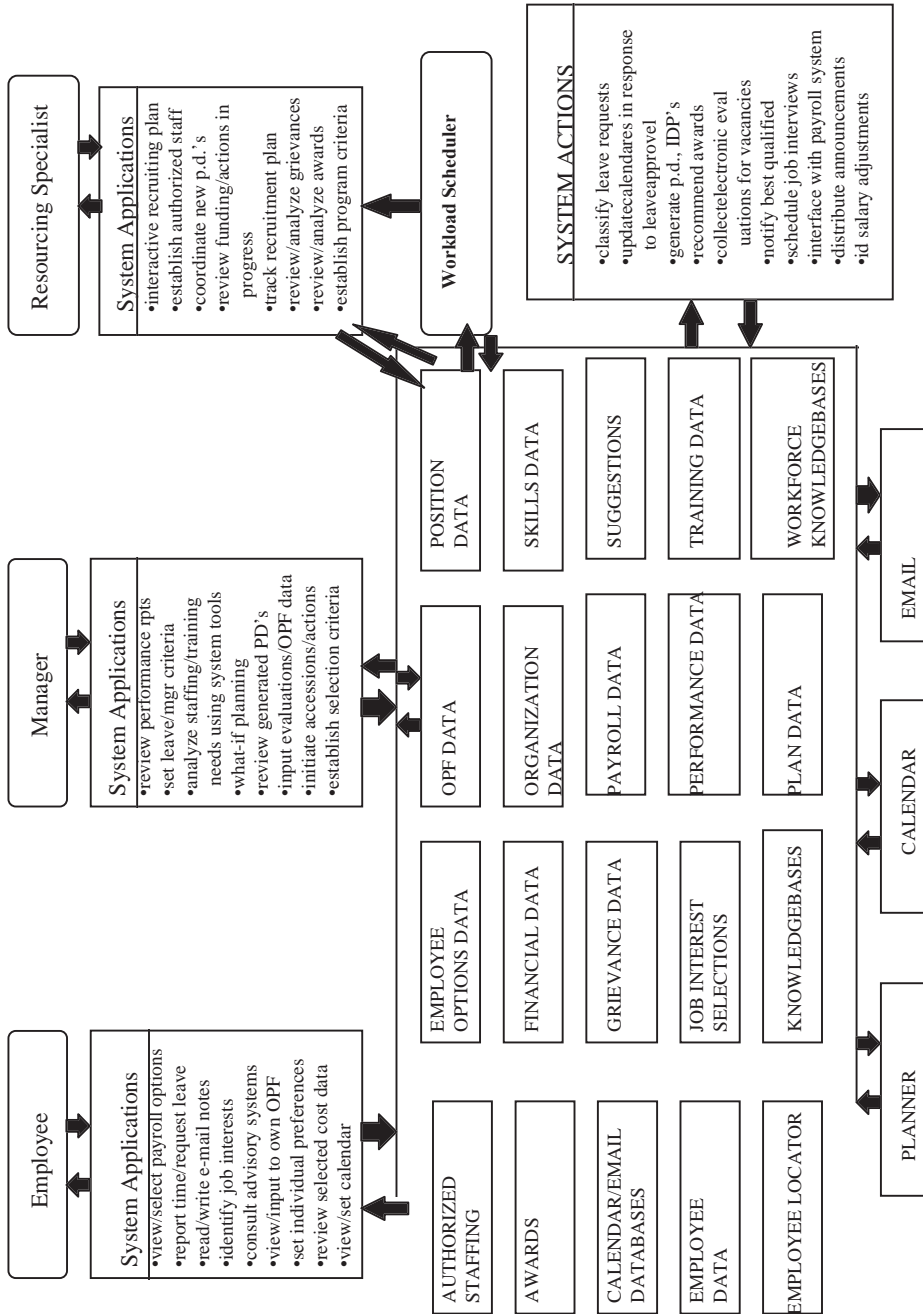
Figure 4.

Resourcing Specialist

System Applications
•interactive recruiting plan
•establish authorized staff
•coordinate new p.d.'s
•review funding/actions in progress
•track recruitment plan
•review/analyze grievances
•review/analyze awards
•establish program criteria

Workload Scheduler

SYSTEM ACTIONS
•classify leave requests
•updatecalendares in response to leaveapprovel
•generate p.d., IDP's
•recommend awards
•collectelectronic evaluations for vacancies
•notify best qualified
•schedule job interviews
•interface with payroll system
•distribute announcements
•id salary adjustments

Manager

System Applications
•review performance rpts
•set leave/mgr criteria
•analyze staffing/training needs using system tools
•what-if planning
•review generated PD's
•input evaluations/OPF data
•initiate accessions/actions
•establish selection criteria

Employee

System Applications
•view/select payroll options
•report time/request leave
•read/write e-mail notes
•identify job interests
•consult advisory systems
•view/input to own OPF
•set individual preferences
•review selected cost data
•view/set calendar

POSITION DATA

SKILLS DATA

SUGGESTIONS

TRAINING DATA

WORKFORCE KNOWLEDGEBASES

OPF DATA

ORGANIZATION DATA

PAYROLL DATA

PERFORMANCE DATA

PLAN DATA

EMPLOYEE OPTIONS DATA

FINANCIAL DATA

GRIEVANCE DATA

JOB INTEREST SELECTIONS

KNOWLEDGEBASES

AUTHORIZED STAFFING

AWARDS

CALENDAR/EMAIL DATABASES

EMPLOYEE DATA

EMPLOYEE LOCATOR

EMAIL

CALENDAR

PLANNER

Figure 5.

Workforce Management Major Tasks	
Major Task	**Support System**
Requirements Planning Established authorized staffing Prepare recruiting plan Overall planning for IRS	Requirements Planning System Recruitment Plan System Requirements Planning System
Staffing Process personnel actions Identify applicant sources Verify staffing authority and funding	Personnel Action Processing System Staffing System Organizational System
Performance Maintain EPF and OPF Process awards and suggestions Advise on appraisals Career counselling	Personnel Action Processing System Performance System Performance Analyzer & Awards Processor Retirement Planner
Labor and Employee Relations Manage grievances Advice on adverse actions Track negotiations	Grievance Tracking LMR Advisor LMR Hypertext System
Employee Benefits Advise on benefit Inform about benefits	Employee Benefits Advisor Personnel Action Processing System
Position Manager Adjust organization structures Conduct desk audits Develop position descriptions Position Classifier	Organizational System Position Management System

position. Enables employees to identify a variety of preferences including specific positions, general types of positions, geographical constraints, time constraints, grade level of interest, etc.

Knowledge Bases. Knowledge bases used by the various expert system programs. Organization Data. Fully describes each organizational component.

OPF. The official personnel file of data. Contains a record of all the administrative actions pertaining to each employee.

Payroll Data. A local copy of data available in the payroll system. Includes time reported, leave requested and taken, work schedule, etc.

Performance Data. Volumes and times by program, rates, errors, imported from the tax processing system. Some local data may be accessed by the employee.

Plan Data. Local planning information. Contains all information needed for local workforce planning and includes training, logistics, and acquisition data.

Position Data. Describes the major tasks associated with each position. Describes the skills requires to perform each task. Describes the training required to achieve each skill or task.

Skills Data. Data base of organizational skills. Relates skills to programs, tasks, training, and positions.

Suggestions. A data base of suggestions in progress. Includes historical suggestions that can be reviewed by an employee making a suggestion.

Training Data. Data identifying the training received by all employees. May also separately identify scheduled training, needed training, and forecasted training.

Workforce Knowledge Bases. These knowledge bases include both parameters and rules input by Resourcing Specialists. The data represents the specific policies and regulations which the workforce management process are subject to. Data in the knowledge bases is compiled into or used by other programs and expert systems accomplishing workforce management functions. Access to these knowledge bases is restricted and a completed audit trail of transactions is maintained.

WORKFORCE MANAGEMENT

AI Systems

Employee Benefits Analyzer. Given data about benefit plans, prepares a graphic comparison. Reaches no conclusions, but presents a feature check list. Might require providers to submit electronic data corresponding to a number of attributes.

Employee Benefits Advisor. Presents the data analyzed by the Employee Benefits Analyzer. Responds to what-if inquiries by employees.

Employee Benefits Hypertext. A hypertext component of the Employee Benefits Advisor. In response to keywords, retrieves plan sections of selected plans.

Grievance Classifier. A case-based reasoning application. Given a series of attributes the system retrieves the past grievances that most closely resemble the described case. Can be used to play what if by assuming certain findings of facts.

Retirement Planner. Provides advise to employees on retirement questions. Uses data from the employees personnel file and from payroll as a basis for computation. Also presents a spread sheet of information to enable the employee to ask what-it questions.

Position Classifier. A mature version of the prototype in joint development by IRS and OPM. Enables a manager to classify a position. Prepares the position description and the justification.

LMR advisor. Provides a manager with advise about Labor/Management Relations (LMR) questions, for example adverse actions. Also connected to a case based reasoner which allows a manager to retrieve sanitized cases when compared to a set of described

attributes. Is also connected to a hypertext scanner that returns manual sections in response to keyword selections.

Organization Advisor. Analyzes the organization structure of a selected organization in accordance with established rules of thumb. Suggests organizational changes.

Performance Analyzer and Awards Proposer. Analyzes individual performance data and compares it to peer performance using criteria defined by the manager. Suggests awards or adverse action as appropriate.

Performance Management Advisor. Used to analyze group performance. Analyzes group performance in terms of tasks performed, skills required, training received, and performance achieved. Suggests problem areas, training needs, etc.

LMR Hypertext System. Delivers text retrieval capabilities of drafts of documents currently being negotiated.

WORKFORCE MANAGEMENT

Automated Information Systems

Employee Locator System. A tool used to locate employees. Using name, organization, or title, enables a user to identify an employee, determine the employee's telephone number, electronic mail address, organization, office location, etc. Can be updated by the system or by the employee. Also permits an employee to give temporary location such as on leave, in travel status, on detail, etc. information of this type should be optional.

Grievance Tracking. System to input and track open grievances. Open and historical grievances should be available for analysis by managers and resourcing specialists.

Organization System. Displays selected information about an organization. Represents the staffing and structure of each organizational component.

Personnel Action Processing System. Processes all personnel actions. Provides an interface to the Payroll and Time tracking systems. Any actions sent to the Payroll System should also be posted to the local payroll data base.

Position Management System. Supports the Position Classification System described above. Provides retrieval of position description components.

Performance System. Adds or updates information on the employee master file. Includes a set of tools for the manager including an electronic drop file. Includes a set of tools for the employee, so that the employee may see the activities for which he has been credited and allow the employee to note activities for which he should be credited. Includes the automatic transfer in of performance data, training data, details, letters of appreciation, awards, etc.

Recruitment Plan System. A system for handling block recruitments. Provides convenient facilities for a manager to initiate and track the recruitment of blocks of employees.

Staffing System. Process personnel actions. Causes new records or updated records to post to the payroll personnel system. Also provides for the tracking of actions in process. Any actions sent to the Payroll System should also be posted to the local payroll data base.

Workforce Requirements Planning System. The planning component needed for workforce management should be build on a more general planner as described below under Requirements

Planning Tools. Enables a manager to interactively develop a work plan by playing what-if. Once completed the planning system should be available to the manager for short-term replanning.

A Personnel Specialist Scenerio

Paul Schnell, a personnel specialist, signs on to his personal system the morning of January 15, 1998. His electronic mail filter identifies 2 messages with today's action date. One is a note from an automated Health Unit agent reminding him that he is scheduled for a physical examination the following day at 10:30 a.m. The other is a note from an automated evaluation-collection agent notifying him that one electronic evaluation was not received by the final action date for the Tax Market Segment Analyst vacancy announcement he is responsible for. Before taking action he checks his daily calendar and is reminded that he is scheduled at 1:30 p.m. to give a segment of a teleconference briefing/training session for a group of new compliance specialists who will be working off site. Next he checks his overnight phone log and finds that a new IRS university instructor has been unable to have his electronic deposit rerouted to a bank in the university area. Finally, he checks his work queue. He has received his periodic report on the status of hiring temporary personnel to work the image scanners. In addition there is a request from the chief of personnel asking him to analyze the problem of why the response to our temporary image scanner position is less robust that in the previous year. It looks like it will be a slow day.

Paul calls up the evaluation section of Lorraine Lento, the manager whose evaluation is late and finds this has happened on several occasions. The most recent problem was because Ms. Lento was on detail. Ms. Lento is not at her desk, but Paul leaves voice mail explaining the need for the evaluation. He wonders if this is an individual problem or a group problem? To find out he sends e-mail to a specialist who prepares SQL inquires and asks for a report on late evaluations. What is the average for the entire organization? for Ms. Lento's organization? He calls up the automated evaluation retriever agent's user rule base and enters a rule that says if Paul Schnell is the personnel specialist, and a manager has two or more late responses to a request for evaluation, and a first request for an evaluation has been sent, and a second request for an evaluation is being sent, then Paul Schnell should be notified.

Paul doesn't think the reduced number of applications indicates a problem. The increased use of co-op students and the use of 4-hour student shifts has enabled vacancy announcements to be more targeted. Hopeful, he sends another request for an SQL report to determine the average examination score of this years applicants. If he is right the score will be higher, indicating that even through the quantity of applicants is reduced, the quality of the applicants is, in fact, higher. Not to mention a reduced advertising budget. Come to think of it, it would be useful to have that score on the recruiting report. He checks the recruit file dictionary interface and finds that the data he needs is available, so he goes into the report interface and adds it to his copy of the report. Of course, he could have asked a report analyst the change the parameters, but this is an area he knows well, so

he made the change himself. The new field proves useful, he will send an e-mail to the specialists and managers who might be interested in this change.

P.S. Then on to problem solving that university instructor's situation...

QUESTIONS FOR DISCUSSION

1. How might reengineering and SDLC methodologies learn from each other? For example, might CMM key practices such as configuration management and requirements management be applicable to business systems? Could analysis and design of IS be improved by importing business best practices such as process design guidelines and the concept of Performance Support Systems?

2. What are the similarities and differences between reengineering and project management methodologies?

3. An ongoing problem for the IS organization is quickly getting correct and complete requirements from the users/clients. For large new systems, most clients do not know what they want until they see it. IS usually expected clients to hand over requirements without much interaction. Is this fair? Do you see how reengineering might improve requirements determination process?

4. Can IS development work be better performed in cross-functional teams? Is individual expertise and performance or collaboration the best way to go?

5. How far can a methodology be bent/modified before it "breaks"? Must a methodology be followed to the letter, or is it simply a set of guidelines and tools to be used at the whim of the developer? Should high-performing experts be forced to follow the same methodology as everyone else?

6. Do the lessons learned in this reengineering project about executive sponsorship, commitment, and involvement apply to IS projects as well? In what ways are they the same? Different?

7. How strong do you think the organizational culture is in shaping and limiting what is acceptable in terms of behaviors, values, beliefs, best practices, and innovative IT design?

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