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Paul Gray
Claremont Graduate University, paul.gray@cgu.edu

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PROJECT PROOF: ERP-ENABLED PROCESS REENGINEERING AT J.D. EDWARDS & COMPANY

Nikunj Dalal
Oklahoma State University
nik@okstate.edu

CASE STUDY

PROJECT PROOF: ERP-ENABLED PROCESS REENGINEERING AT J.D. EDWARDS & COMPANY

Nikunj Dalal
Oklahoma State University
nik@okstate.edu

ABSTRACT

J.D. Edwards is a provider of the new generation of ERP and collaborative commerce solutions. This case study describes the challenges faced internally by the company to upgrade to the latest enterprise software it would sell to the world. Dubbed Project PROOF, the project started in June 2001 and was completed in November 2002. The perspectives of the CIO, the program manager, and other key personnel are presented. The case study highlights the issues that arise in an enterprise software implementation project. In addition, the case touches upon issues of project management, process redesign, and marketing. The case study uses a multimedia format to add richness and detail. Although J.D. Edwards was acquired in 2003, the issues discussed are relevant to current business practices.

Keywords: ERP, enterprise software, process reengineering, enterprise integration, project management

I. INTRODUCTION

> *\Proof\, n. [OF. prove, proeve, F. preuve, fr. L. proba, fr. probare to prove.] Any effort, process, or operation designed to establish or discover a fact or truth; an act of testing; a test; a trial.* [Webster's Revised Unabridged Dictionary, 1998]

Mark Endry, senior vice president and chief information officer (CIO) of J.D. Edwards & Company, thought about the many challenges his company faced as it kicked off its multimillion-dollar initiative in June 2001. Dubbed Project PROOF, this effort by J.D. Edwards was planned to upgrade to the latest enterprise software it would sell to the world. As executive sponsor and chief cheerleader of the project, Endry wondered:

> *How can we keep our internal users and the technical staff focused on an 18-month project that revamps all of our business systems and processes while they try to guide the business through difficult economic times?*

Founded over 25 years ago, J.D. Edwards & Company (NASDAQ: JDEC) is a provider of the new-generation of collaborative commerce software solutions. Also called Enterprise Resource Planning (ERP) II[1] products, the company's offerings include comprehensive applications for ERP, supply chain management, knowledge management, customer relationship management (CRM), collaboration and integration, business intelligence, tools, and services.

Endry[2] joined J.D. Edwards in 1995 and became CIO in 1999 (view video). At the time he joined the company, J.D. Edwards was using its own AS/400-based

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[1] The Gartner Group defines Enterprise Resource Planning (ERP) II as “a business strategy and a set of collaborative operational and financial processes internally and beyond the enterprise.” While ERP began in the worlds of manufacturing and distribution, ERP II involves all business sectors. Moreover – and this is a key point in Gartner's analysis– "The web-centric, designed-to-integrate architectures of ERP II products are so different from ERP architectures as to eventually require a complete transformation."

[2] Mark Endry joined J.D. Edwards in 1995 as director of infrastructure services, where he transformed the information technology division into a customer-focused organization and implemented a world-class network. From 1979 to 1995 he held positions with Digital Equipment

enterprise solution called WorldSoftware™ as the foundation for the company's internal operations and processes. In the years since 1995, the company introduced three new solutions:

1. 1996 Client-server based OneWorld® enterprise solution.
2. 2000 OneWorld Xe, which was completely web-enabled, and
3. May 2002 A new solution family called J D Edwards 5[3]

Endry felt that a radical step within the company was necessary to achieve internal information integration and best business practices. The result was PROOF, or Process Reengineering to Optimize Operational Functionality, a term adopted after a company-wide naming contest. The goal of Project PROOF was to implement vanilla OneWorld Web worldwide for internal use by over five thousand employees of the company.

Endry initiated PROOF at a time when the company was going through global restructuring made necessary by declining revenues, increasing competition, and a turbulent economic environment. During company-wide restructuring in 2000, the top management of J.D. Edwards refocused its corporate vision to:

> *We deliver agile, collaborative solutions for the Internet economy*.

But the company first needed to make sure its own house was in order. Endry did not see the project as merely an internal ERP implementation.

> *OneWorld is a flexible, highly functional solution that's perfectly suited to the way we run our business. We want to realize the same benefits we preach to our prospects and help mature our Web*

Corporation in Columbus and Boston. Endry was named Colorado CIO of the Year, and ComputerWorld Premier 100 IT Leader.

[3] The company announced the first release of its enterprise software under this solution family called ERP 8.0.in early summer 2002.

product so it better meets their needs. This makes Project PROOF a high priority for the whole company.

In a similar vein, an internal management report envisioned the strategic benefits of PROOF:

> *We already have one of the largest Web implementations in the world; the next step is to make it one of the most effective Web implementations in the world. The OneWorld product provides everything required in a technical infrastructure to achieve this – and the necessary applications implementations and process changes are underway. Once all of the applications infrastructure is in place, in combination with the process flexibility the OneWorld Xe system affords, J.D. Edwards operations groups will be well-*positioned to provide the level of organizational agility, flexibility, *and responsiveness we need to continue to prosper in the new economy.*

How was project PROOF implemented? How did it help J.D. Edwards? What were the obstacles encountered by the company in its efforts to reengineer its processes?

II. HISTORY OF J.D. EDWARDS

Since its inception through 2001, J.D. Edwards (http://www. jdedwards.com) enjoyed compound annual revenue growth of about 43% and logged revenues of about $874 million for fiscal year 2001. In 2002, the company served more than 6,000 customers with sites in approximately 100 countries and over 5,000 employees worldwide. Of the more than 100 ERP providers worldwide, SAP-AG, Oracle, J.D. Edwards, PeopleSoft, and Baan — collectively called the “Big Five” of enterprise software — held roughly 70 percent of the ERP market share in 2000.

However, the beginnings of the company were modest. J.D. Edwards started in 1977 in Denver as a vendor of packaged financial software for several small- and medium-sized computers, eventually focusing on the IBM System/38 in the early 1980s. The company derives its name from the first names of each of its three founders — **J**ack Thompson, **D**an Gregory, and **E**d McVaney. Ed McVaney, who had been a partner with Alexander, Grant & Company, was J.D. Edwards' first president, a position he held until 1987, and which he resumed in later years.

McVaney and Thompson's design and implementation of WorldSoftware brought success to the company. By the mid-1980s, J.D. Edwards was being recognized as a leading supplier of applications software for the highly successful IBM AS/400 computer, a direct descendant of the System/38. In June 1996, the company introduced OneWorld, a GUI-based configurable enterprise solution. OneWorld combines a full range of platform-independent applications with an integrated toolset, which permits organizations to configure their systems and applications as their needs change. In addition, OneWorld integrates with WorldSoftware, allowing existing WorldSoftware customers to preserve their investment with an easy migration path to the advanced, open systems functionality of OneWorld. Table 1 summarizes the company's products.

Table 1. Products and Platforms

J.D. Edwards 5 is the umbrella name for all J.D. Edwards products. Its seven product lines are:
1. J.D. Edwards Supply Chain Management • J.D. Edwards Advanced Planning • J.D. Edwards Supply Chain Execution
2. J.D. Edwards Business Intelligence
3. J.D. Edwards Collaboration and Integration
4. J.D. Edwards Customer Relationship Management
5. J.D. Edwards Enterprise Resource Planning
6. J.D. Edwards Tools and Technology
7. J.D. Edwards Services • Consulting • Education • Global Support Services
Platforms: J.D. Edwards software works on a variety of computing environments, including Windows, NT, UNIX, IBM OS/400, and most recently, the Web, using Java and HTML. Databases supported include IBM's DB2/UDB for IBM eServer iSeries (previously known as the AS/400), DB2/UDB for UNIX, DB2/UDB for Windows, Microsoft's SQL Server and Oracle.

In the late 1990s, as users turned their attention to integrated front-to-back-office application suites, which are a key requirement of ERP II, McVaney foresaw the emerging trend In his words,

> *Collaborative commerce will be the next high-growth market for developers of business software. And three things have come together to catapult J.D. Edwards into a leadership position in this burgeoning market: an integrated supply chain planning and fulfillment engine, a fully Web-enabled version of our product OneWorld Xe, and technologies that break the bonds of traditional proprietary software and afford the freedom to choose what's best for business.*

Armed with these technologies, J.D. Edwards went from an ERP company to a provider of collaborative supply chain solutions in a short time. As part of its new strategy, in May 1999, J.D. Edwards acquired Numetrix, a provider of Internet supply chain solutions. In November 2001, the company acquired YOUcentric, Inc., a Charlotte, North Carolina-based, privately held provider of Java-based CRM software. The J.D. Edwards CRM offering combined the functionality of YOUcentric CRM with the look and feel of OneWorld. In acquiring YOUcentric, J.D. Edwards dissolved its earlier relationship with Siebel that enabled it to resell Siebel's CRM application suite.

J.D. Edwards distributes, implements, and supports its software worldwide through 55 offices in the U.S., Europe, Middle East, Asia, and Latin America and more than 350 third-party business partners. To help achieve maximum benefit from its software, the company provides implementation, education, and support services through its own direct services organization called Global Enterprise Solutions (GES) and business partners. Over the years, J.D. Edwards entered into strategic partnerships with consulting partners who provide consulting expertise in J.D. Edwards applications and technologies, product partners such as Ariba to extend and enhance enterprise solutions, and technology partners such as IBM who provide hardware and network solutions. In addition, J.D.

Edwards formed partnerships with applications service providers (ASPs) and hosting/outsourcing companies to offer their enterprise software in a third-party hosted environment.

III. PROJECT PROOF

ORIGIN

Project PROOF's roots are in the turbulent environment of the late 90s when the economy began hitting the whole information technology (IT) sector hard. Facing increasing competition from other enterprise software vendors and from supply chain management (SCM) and CRM vendors, the management of J. D. Edwards identified four focused strategies for the company during the global restructuring of the company in May 2000:

- **Operational Excellence**: Deliver high productivity and profitability by institutionalizing processes and tools, instilling discipline and accountability, and creating highly effective and efficient organizations.
- **Focused Revenue Growth**: Maximize revenue from such growth products as Advanced Planning Solutions (APS), Customer Relationship Management, the installed base, and Services. Increase revenue contribution from new products.
- **Knowledgeable and Committed Workforce**: Build a world-class leadership team. Implement employee rewards programs tied to performance and business objectives. Deploy a company-wide communications process. Redefine and enforce company culture.
- **World-Class Marketing**: Build a World Class marketing organization to drive the product/segment strategy. Develop visionary, leapfrog solutions. Institute leadership marketing — inside and outside the company.

Each of the strategies was spelled out in terms of key performance indicators, financial targets, and strategic imperatives with clearly defined responsibility centers and due dates for deliverables.

The top management, advised by Endry, recognized that supporting these strategies would require a new level of systems and organizational integration based on a new technological infrastructure. (View video of Endry's description of the motivation for PROOF.) Although J.D. Edwards always used its own ERP software to support back-office operations, implementation of various applications over the years had evolved into "silos" mirroring the growth of the organization itself.

The use of enterprise software does not *guarantee* integrated implementation. Some production systems were based on WorldSoftware and others were using OneWorld. Thanks to the coexistence capabilities of these products, it was possible for them to use a single integrated database. But the original implementations focused on the specific applications they were intended to serve and did not take advantage of the degree of integration afforded by OneWorld. Information fragmentation and duplication were pervasive. The use of third-party software was not uncommon. Project PROOF was specifically intended to address such issues of information integration and standardization of processes. There were also the obvious benefits of lowered software deployment and maintenance costs of a web-client rather than a fat-client environment[4] (view video comparing web-client and fat-client environments).

It was clear to Endry and his project management team that enterprise systems were not merely technologies, but had to be seen as holistic solutions. A company report on the project clarified this systems perspective:

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[4] Depending on the division of work between the server and the client in an enterprise system, a client may be termed a fat client or rich client if it does a large amount of processing. In contrast, a web client is a thin or lean client because it does not do much enterprise processing beyond displaying information.

> *The key word in 'showcasing solutions' is solutions — which means not only the OneWorld product itself, but also the people, processes, and procedures that collectively generate the business value enabled by an enterprise system. An integral component of this solution is the global implementation methodology and the solution kits that the company was advocating to its clients.*

This statement by Endry meant that the PROOF implementation process itself would serve as a reference to customers for the J.D. Edwards Implementation Methodology. Among other things, this philosophy implied that the company would treat this project as it would a customer's and involve its own field consulting organization and business partner consultants.

Inception

A high-powered cross-functional project steering committee from throughout Edwards was constituted to ensure that the project direction fully supported the corporate strategy. The PROOF steering committee was in charge of defining priorities, allocating resources, and approving policies and strategies. Mary Henneck[5] was appointed program manager to manage the implementation effort. Besides Endry and Henneck, the steering committee included senior executives responsible for each division impacted by PROOF: CFO, CIO, Executive VP of Sales and Services, CTO and Group VP of Development, VP of Human Resources, VP of Customer Advocacy, Director of International Operations, a field Consulting Services Manager, and a field Global Enterprise Manager. The committee met at least once a month.

On May 15th and 16th of 2001, Project Planning Meetings were conducted for planning and organizing the effort. Participants from key groups at J.D. Edwards

[5] Henneck joined J.D. Edwsards in 1997 as a consultant. Her experience included project management, client management, consulting, and managing OneWorld Implementations.

were present: Information Technology (IT), Global Enterprise Solutions (GES), Business Process Owners, and Development.

- The internal IT department would provide technical and application support for the deployed software.
- GES would play the consulting role.
- Business process owners were identified to lead the effort to change business processes.
- The internal development group would make sure the Web product worked as intended.

Representatives from all geographies in which J.D. Edwards operates were included on the PROOF project team.

OBJECTIVES

The objectives of Project PROOF were clearly developed in various meetings[6] as follows.

- Drive internal business processes toward best business practices already supported by vanilla OneWorld web product
- Build a reference site for showcasing OneWorld web and implementation methodology
- Facilitate maturing of the OneWorld web product
- Lay the foundation that enables the company to meet information system needs and take advantage of new OneWorld functionality in later releases of the software

[6] The last objective was later added to the plan.

The company's management felt that it was important that the objectives of Project PROOF should mesh with its strategic goals. In a memo to company employees, Mark Endry clearly spelled out the relationship between Project PROOF and the overall company strategies of focused revenue growth, operational excellence, a knowledgeable and committed workforce, and world-class marketing. the memo showed how PROOF contributes to all of them, but most significantly to the last three. (View video of Endry's description of the relationship between PROOF objectives and company strategies.)

A key focus of PROOF was on a "plain vanilla" implementation. Lloyd Mitchell[7], enterprise manager for the project, explained the thinking:

> *Permitting modifications to standard system code is the major contributor to prolonging outmoded processes and practices. In implementing an enterprise system, resistance to change is normal and it is usually easier to have a technical person write a modification to support an existing practice than to investigate, define a new process, and deal with the ripple effect. Unfortunately, this mode of action significantly dilutes the realized benefits of the new system and perpetuates the very inefficiencies the company was trying to eliminate. The only way to eliminate those inefficiencies is to adopt the mindset that anything less than best business practices is unacceptable.*

In trying to meet objectives, PROOF planning needed to accommodate three major considerations, Mitchell recalled:

> *First, several projects for various applications were already well underway — in fact a couple were close to go-live. Imposing delays*

[7] Lloyd Mitchell served as enterprise manager of the PROOF project. Mitchells experience included over 30 years in implementation projects in various capacities including project management, consulting management, and services executive positions in the Petroleum, Manufacturing, and Software Services industries.

on these projects simply because they were now included under the PROOF umbrella was not cost effective, which meant the "no modifications" directive was held in abeyance for a few specific implementations in 2001. Second, production systems were to be upgraded to release ERP 9.0 shortly after its release in late 2002. ERP 9.0 would not support coexistence around a single database, which meant that prior to deployment of ERP 9.0 internally, all World production systems had to be migrated to OneWorld. The impact here was that a large number of ancillary systems and special reports were discontinued, which imposed additional process change requirements on the PROOF project team). Third, user representatives on the PROOF team still had their regular jobs to do, which meant that deployments (and other activities requiring heavy user involvement) must be scheduled around end-of-quarter, year-end, and other times of heavy workloads.

In one sense, PROOF was not a single project but an umbrella of related projects tied to a common theme and objectives. The objectives were not easy to achieve. Implementing vanilla OneWorld web meant no customizing. But this principle assumed a perfect Web product, which was not available at the time. There were questions about product readiness. Maturing the OneWorld web product meant getting the inevitable bugs (or "software issues" as they were called in the company) out of the product. It also meant testing product reliability, performance, and usability in a production-like environment before it could be showcased. The issue of the extent to which the product captured "best business practices" was not cut and dry either. Mitchell explained:

The J.D. Edwards OneWorld product is based on well-defined best business practices. If a given production process in fact was not supported by OneWorld, it would either mean that the related business practice was not the best or that we had identified a best business practice that probably should be included in the product.

Both possibilities were real, as the implementation teams later discovered. However, the team felt that the former was much more likely than the latter, so they established change procedures that involved all major functional areas within the organization, including Development, to address scope change requests.

In their June, 2001 project plan, the project team identified a number of specific objectives, their projected benefits, and measurables to assess the benefits. Table 2 is a sample list.

Table 2. Sample Objectives, Benefits and Measurables

Objective	Benefit	Measurables
Use OneWorld Web	Serve as reference site	5,000 employees live on the web.
Standardize time entry collection	Improved accuracy, reduced Days Sales Outstanding (DSO)	All time entry input through the portal, globally, declining trend in DSO
Standardize time entry pay codes globally	Simplified procedures and improved accuracy of reports	Standardization procedures in place for pay code management and enforcement
Rollout OneWorld®Web HR system	Reduced cost of HR per employee	Fewer transaction errors; increased productivity and efficiency through improved system performance, usability, and self-service activities; improved data integrity; fewer employee calls to HR Service Center; increased understanding of, and retrievability of data
	Consistent use of information across the company	Consistent use of accounting terms, consistent use of accounts, integration of systems and departments
Global database	Single primary source of data	Secondary databases used for summary reporting always pull data from OneWorld® database, no tertiary databases
Serve as reference site for product and implementation methodology	Eliminate existing competitive disadvantage	Increased number of reference calls and visits
Provide facility to track services' project profitability	Increased project profitability,	Upward trend of % of on-time, on-budget implementations

Through all this, Henneck was clear about the goal.

> *At the end of the day, our aim is to implement OneWorld Web worldwide and if we get nothing more than that done, we are going to have made a lot of improvements in our processes… And we would have achieved a lot in terms of operational efficiencies, consolidating databases, getting rid of manual processes and third-party products, off-line Excel spreadsheets, and so on.*

PROJECT SCOPE

The scope of this project was to migrate all users and functionality from WorldSoftware to OneWorld web globally across the enterprise. In all, the project impacted five main groups of business processes:

1. Order to Cash: The processes included the deployment of Sales Order Processing, Maintenance Billing, Call Handling, and Pricing among others.
2. Services: Employee Self Service Time Entry, Contract Service Billing, and Job Cost
3. Procure to Pay/Asset Mgmt: Procurement, Accounts Payable, Fixed Assets, and Property Management
4. Manage the Business: GeneralLedger, Accounts Receivables, and Financial & Operational reporting
5. Workforce Management: Payroll and Human Resources (HR).

PROJECT TIMELINE

Detailed schedules and project plans were created for each phase of the rollout. The overall timeline of the project is shown in Table 3.

Table 3. Project Timeline

Activity	Timeframe
Apply and Test OW Xe Update 2	By June 2001
Project plan approved: Scope/timeline fixed and project staffed	July 2001
Definition of Model Company North America deployment	August 2001 – November 2001
Europe, Middle East and Africa (EMEA) Rollout	April 2002 – May 2002
Asia Pacific Rollout	July 2002 – August 2002
Latin America Rollout	September 2002 – October 2002

PROJECT TEAM

About 200 employees were assigned to Project PROOF, some full time and others part time. full-time equivalent (FTE) was about 125. Considering the key objective of driving internal processes towards best business practices, it was deemed critical to identify senior managers in user departments to serve as process owners for the major process areas. Process owners had major responsibility for leading the effort to change business processes and for process integration across functional boundaries. Process owners, in turn, identified the people within their own organization who would participate.

As the project organization shows(Figure 1), both a Process Owner (representing the user organization) and a Process Team Lead (from IT) was assigned to every process area. . IT people and consultants responsible for the software configuration and implementation reported to the team leads as did Subject Matter Experts (SMEs) responsible for process validation and testing. Collectively, all Process Owners and Team Leads worked to ensure that the final product supports the targeted levels of integration across functions, geographies, languages, and cultures.

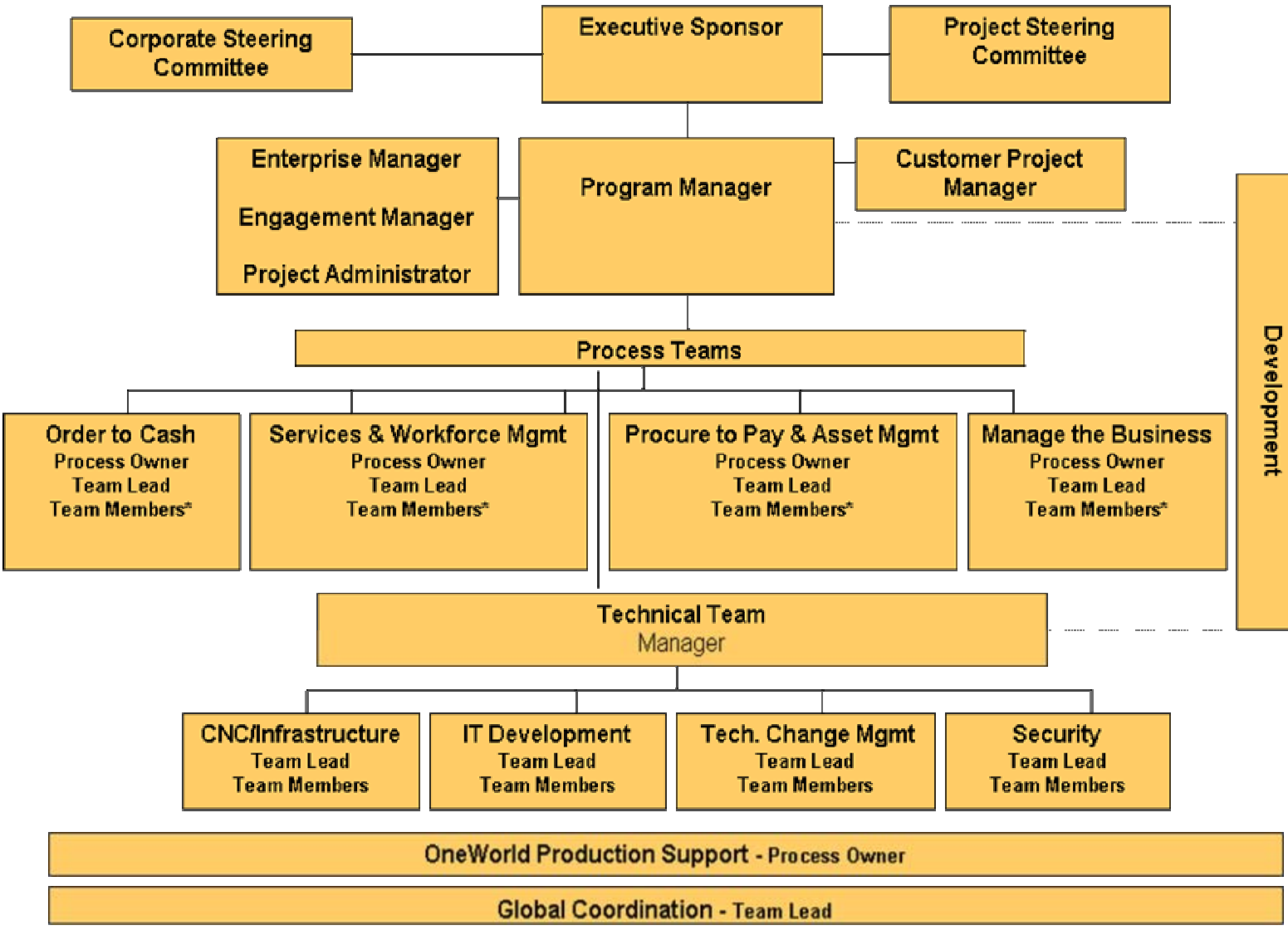


Figure 1. PROOF Organization Chart

Mitchell outlined criteria for creating the teams:

> *Determining team makeup presented interesting challenges. The project is based in Denver. Most of the Application Services organization was already involved in various aspects of implementation and/or support of existing production systems, so it was a natural choice to include most of these individuals on the PROOF Team. Thanks to experience with our own and numerous other customer global implementations, we are acutely aware of the*

importance of involving representatives from all potential user groups in all phases of implementation. The entire team structure was defined to facilitate and stimulate communication. Opportunities for integration frequently come from unexpected sources; barriers to integration are guaranteed if plans and ideas are not communicated freely and often. Frequent (weekly and biweekly) meetings were held with various segments of the PROOF team to ensure that all interested parties are apprised of the latest thinking and plans.

IV. IMPLEMENTATION PROCESS

METHODOLOGY

PROOF was based on a methodology recommended by the company to its customers: J.D. Edwards Implementation Approach. The methodology specifically included a key aspect for integrated multinational implementations called the model company approach (Figure 2).

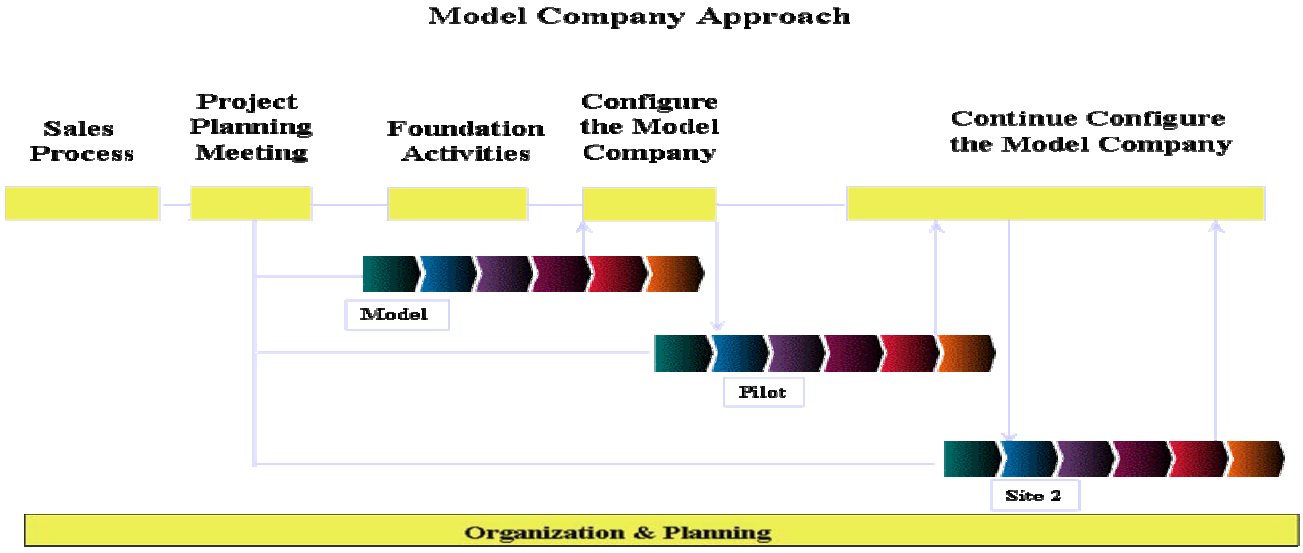


Figure 2. Implementation Methodology

The premise behind the model company approach is to define worldwide processes, procedures, practices, and requirements up front, roll the system out to a pilot site, learn from the experience, and eventually roll the system out in a phased manner to the remaining sites. Mitchell focused on the user participation aspect of this approach:

> *In a nutshell, the model company approach means that all eventual users are involved in defining as many requirements as possible in the early stages of design. The initial "model company," in this case for US and Canada, is defined primarily focusing on the needs of those countries but taking into consideration all requirements so far identified. With this approach, the initial model company was expanded to accommodate EMEA, and then further expanded to accommodate Asia Pacific and Latin America — and in each case the job is simplified thanks to early consideration of global localization and integration issues.*

Although the overall implementation strategy was phased, some aspects of the implementation were 'big bang'. For example, because Accounts Receivables was a "non-coexistent application" in that it could not be used with WorldSoftware, it had to be rewritten for OneWorld. Jobcosting was another application that needed to go big bang because it required a change in the Chart of Accounts (COA) — it would be inconsistent to change the COA in one part of the world and not in others.

Implementing a model company approach was not as simple as it seemed at first. According to Henneck "We struggled a little bit with having a clean model company defined because we had many projects in process when we put Project PROOF together." Some projects already implemented global requirements in their approach, but others just looked at the U.S. and Canada to build their solution. Therefore, in some regards, the model company had to be "patched"up" after bringing all the projects to the same level. Furthermore, the model company covers only the processes that can be standardized globally. However, local

statutory reporting requirements and exception situations differ among countries . These differences were not captured within the model company approach, though the PROOF team members tried to be sensitive to data integration or process integration requirements that might be impacted by local requirements. Moreover, the PROOF team felt that OneWorld functionality could support local requirements where necessary.

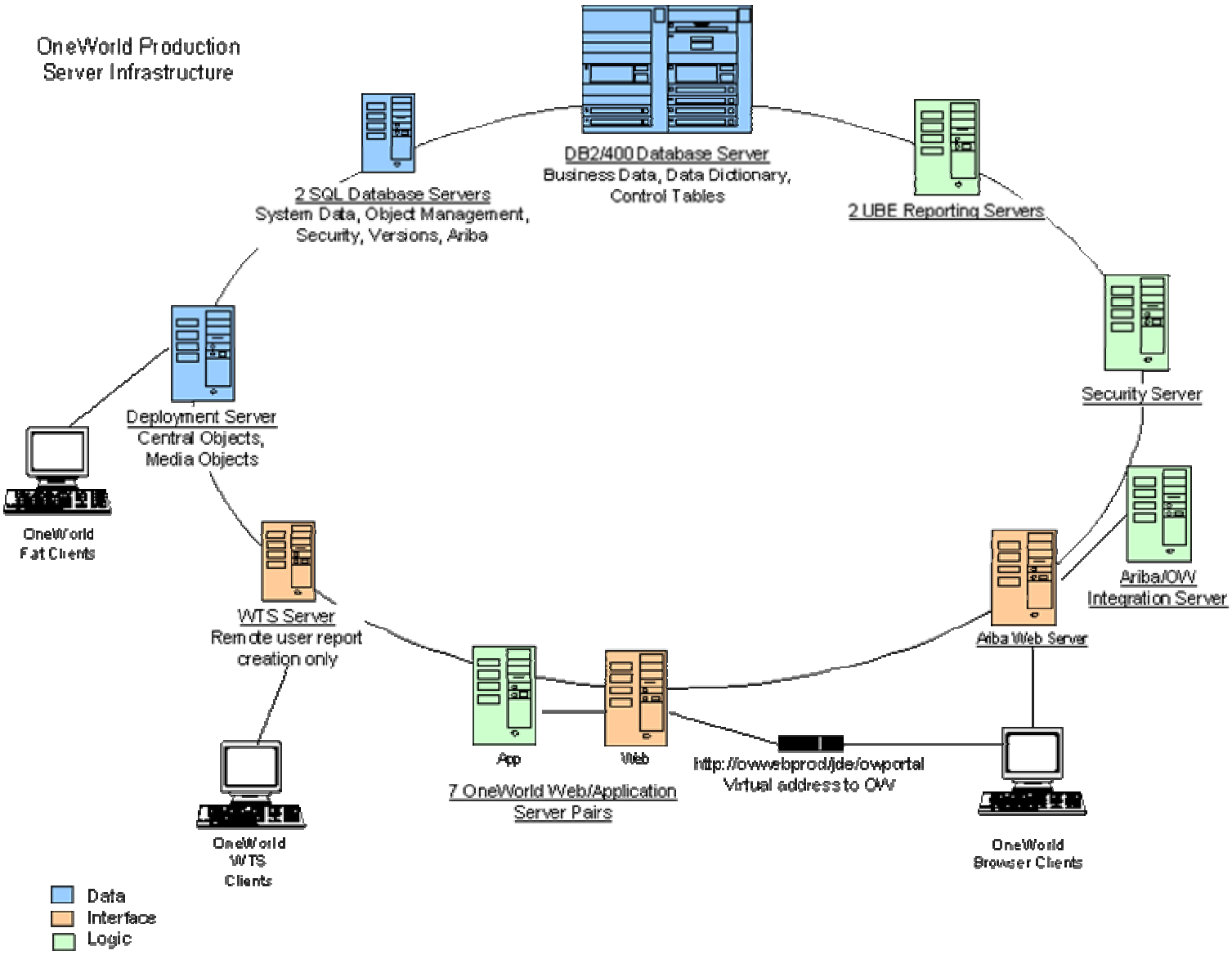
The PROOF teams were initially faced with the choice of using either the standard J.D. Edwards' Implementation Approach Methodology (IA) based upon six major stages: Define, Train, Configure, Model, Go-Live, and Refine, or a more recently developed Solution Kits Methodology (SKM). (Learn more about IA and SKM from presentations by consultants.) In the end, they chose a combination of both — using the familiar IA more heavily and drawing upon SKM for its strengths as needed[8]. The PROOF team decided to use OneWorld Solution Modeler, the process-modeling tool of SKM, to determine the processes to change, to define new processes, and to communicate the overall process flow for review or approval. (View video demonstrating Solution Modeler.)

J.D. Edwards' worldwide production database is on an AS/400 located in Denver. All enterprise servers were tied together in a single OneWorld Xe environment. Figure 3 shows the production architecture. (View video describing technical and design considerations of the project.)

The PROOF team decided that access to World should be cut off after go-live on OneWorld. Mitchell recounted the rationale for this decision:

> *Otherwise, users will consistently revert back to the environment with which they were more comfortable. Part of the price of standardizing on OneWorld (or any significantly different environment for that matter), is having to accept temporary reductions in system, user, and process efficiency — and having to*

[8] The two methodologies were unified in**2000** into a single approach called OneMethodology.



- All production business data is on the AS/400® also running World coexistent.
- OneWorld® web production consists of 7 pairs of windows 2000 web/application servers.
- Each pair consists of a web server and an application server.
- Each web server is running WebSphere, IIS and the OneWorld® Jave Application Server (JAS) server.
- Each application server is running OneWorld®.
- WebSphere is configured for 5 ports (80 – 84).
- 2 Universal Batch Engine (UBE) reporting servers handle report creation.
- Port 80 is only a “redirector” port to spread users across ports.
- Ports 81 – 84 are each configured with 768 Meg of memory and their own JVM.
- All 7 web servers are used via a single virtual address referenced through a Cisco Local Director going to port 80 of each machine.

Figure 3. Technical Architecture

expend additional effort to ensure that the duration of such reductions is minimal.

IMPLEMENTATION

As the implementation of Project PROOF started, Endry added to his foundational roles of sponsor and cheerleader by guiding and coaching the project management staff (and cooking hamburgers when the project celebrated a milestone). (View video of Endry's roles in the project.) He recalled some of the challenges at the beginning of the project:

> *Several departments were concerned about "what was in it for them", resisting attempts to move through the early stages of the project while that was being defined. Once we got to the point where that was defined, some departments were concerned about their items having a lower priority. Focusing people on cross department processes helped them see the larger picture.*

Project Communications

Clear communication was a high priority. An integrated communication plan was drawn out to complement the PROOF project and education/training plans. Communication was achieved with the use of the company intranet (called Knowledge Garden®), executive webcasts, internal company publications, and meetings. Internal communication among PROOF team members was facilitated by frequent meetings of various groups, presentations by coordinators at cross-functional meetings, and postings of status reports and other documents in a single PROOF folder located on a company server.

Modeling Processes

Modeling processes was integral to process reengineering and streamlining. Most groups modeled as-is and to-be processes[9]. Using software called Solution Modeler for creating graphical models, the team translated the best business practices supported by OneWorld into graphical process models required for these applications. Viewing as-is process models enabled users to examine flaws in existing processes and to develop better to-be models. A company document notes one such instance:

> *The Financial organization spends significant effort wrestling with service billing. This includes, with help from the Engagement Managers, reviewing financials, determining accuracy, checking invoices, verifying invoices, and sending confirmations. The Solution Modeler approach revealed this process left standardization incomplete, inconsistent procedures across geographic regions, and flaws in checks and balances. In the worst cases, it was concluded that audit rules were violated when the same person could potentially make time adjustments, send invoices, and manage received payments.*

Some process teams observed first-hand the effect of communicating with user representatives using well-designed graphic process models.

> *Where employees once thought, "How can I get a quick-fix for this problem?" They soon approached the project thinking, "What process flows would provide an efficient overall solution?" …The opinions and knowledge of representatives from Europe, Middle East and Africa , Asia Pacific and the U.S. were easily reviewed and inserted to the new process flows for time entry and services billing. This example of focused accomplishment is exactly the kind*

[9] A few groups did not see the need to model as-is processes due to the time crunch and the significant reengineering occurring in their areas.

of motivation we want to provide customers with needs similar to J.D. Edwards.

One World Web Performance

Many challenges were faced during the implementation. (View video describing some challenges.) A major overall problem faced during the implementation had to do with the performance of OneWorld Web. It was too slow in many applications, some as critical as Sales Order Processing. The process team requested additional development resources to speed up the applications. Harry Debes, Senior V.P., supported the performance improvement efforts in a PROOF steering committee meeting. He emphasized the need for high product quality, stating, *"… at the end of the day, it is our reputation that is very important. If you give customers an excuse to leave, they will leave*." The HTML client was rewritten to speed up response — a major job.

Bugs

Besides performance considerations, the inevitable bugs crept into software. Detecting and fixing bugs was effort well spent, according to Mitchell.

> *To quote Harry Debes:, "If we spend a dollar catching a bug here, we basically have saved 600 dollars that we'd have to spend later with dozens of customers facing the bug…" The better the job you've done up front, the less pain it is down the road. In terms of maturing the product, frankly, the savings to the company from that aspect alone more than justifies the cost of the project.*

Fixing bugs, though important, was not the most worrisome issue for Henneck.

> *In my mind, the easy issues are software issues...the bugs. They are black and white. There's a clear problem that can be fixed and we've got an excellent response from Development on that...Our steering committee is also very open to any delays in timelines due*

to software issues… It is scope changes and modifications to software that we have to be concerned about.

Scope Changes

Any action for any reason that required modifying standard software and moving away from the "plain vanilla" model, developing ancillary programs not identified and budgeted in the original project plan, acquiring third-party software to supplement OneWorld functionality, and implementing additional applications, required approval from the Steering Committee. (View video describing departures from the vanilla model.) The Steering Committee members would review all scope change requests. Figure 4 shows a scope change request form.,

This form is to be used during the internal OneWorld® deployment. Its purpose is for requesting work that is out of scope from the Integrated Project Plan. Only once the work request has been reviewed and approved by the Sr. VP in the affected process area should this request be forwarded to the Program Manager.

Short Description:
Briefly describe the request for work, including what module of OneWorld® the request is related to.

Justification:	**Process Owner:**
Indicate the importance of the request. Include any alternatives and the pro's and con's for each. Of the alternatives, indicate your recommendation. Be sure to explain the effect of not doing what is being proposed.	Name of Process Owner here

Approved by Sr. VP:	on

Impact to Scope, Budget or Timeline:	**Program Manager:**
Scope Impact: Budget Impact: Timeline Impact:	

Figure 4. Scope Change Request Form

However, only those costing more than $10,000 or those specifically targeted by a Steering Committee member were brought before the full committee for formal discussion and vote.

End User Training

The end-user training strategy depended on the applications being deployed. Some applications such as Accounts Payable were specific to very few users. Such users were sent to classroom training. Other applications, such as Time Entry, which every employee needed to use, required a different training approach. Web-based Training (WBT) courses were developed using the native J.D. Edwards WBT authoring tool. (See a sample-training announcement.) This tool was versatile: it enabled course developers to create new interactive exercises involving software, to create review questions for trainees, and to integrate existing content easily into a Web-based course. In some cases, existing WBT courses were modified. For example, a WBT course on OneWorld Foundations already existed, but this course assumed a fat client. It was necessary to develop a similar course for a Web client. Web-based training enabled the company to train large groups of employees quickly and effectively. George Bradley, Director of Education Services, described training during the PROOF implementation:

> *Training is critical to the success of every ERP implementation, including Project PROOF. Because each implementation has unique training requirements, we typically offer a range of training solutions to meet individual customer needs, including instructor-led training for the project team, web based training for end users, web seminars, and customized on-site training. Education Services supported Project PROOF by offering a combination of these approaches, in addition to complete and updated documentation for all products in time for each product rollout. Our organization plays a key role in meeting the company strategy of developing a knowledgeable and committed workforce.*

Operating System Change

The project encountered its share of unexpected issues to cope with. The events of September 11, 2001 affected the country and the world giving people pause to reconsider their priorities. During this time period, another major issue sprung up from a separate but related project within J.D. Edwards. With the acquisition of YOUCentric in late 2001, J.D. Edwards' executives quickly approved an internal CRM project to tie the YOUcentric modules of sales force automation, marketing need tracking, and call center functionality into OneWorld back-office and to create a fully functioning product rebranded to give it a J.D. Edwards look and feel. This integration with OneWorld was a move that directly impacted PROOF. YOUcentric integration was being coded by the Development group against the latest OneWorld Xe *Update 4,* whereas Project PROOF was being implemented using OneWorld Xe *Update 2* due to historical reasons. The need to obtain release level compatibility between the two projects meant that Project PROOF had to upgrade to OneWorld Xe *Update 4.* Mitchell elaborated on the issues that came up during that time:

> *The initial rounds of analysis quickly revealed that a much higher degree of integration with PROOF was going to be required than was anticipated initially, which meant that both projects had to be on the same technological platform. In order to provide the technology foundation required for the CRM project, PROOF would have to upgrade to new systems software that included an unusually high number of enhancements. Undertaking such an upgrade in the middle of an implementation project is normally not recommended and is guaranteed to cause significant delays. Delay of the CRM project was not an option and showcasing our latest product and software environments was an executive objective, so there was really no choice but to expand PROOF's scope to include this additional work.*

This need pushed the schedule back and impacted the budget.

Pricing Strategy

Just when J.D. Edwards completed the new front-end and were ready to tie it to sales force automation, another challenge sprang up. In November 2001, the company approved a new pricing strategy (effective Feb 1, 2002), right in the middle of the planned upgrade. The new pricing impacted the way the company priced and bundled its offerings. This change resulted in the need to reconfigure the system to incorporate the new pricing structure. Furthermore, people involved in the pricing implementation had to be taken out of PROOF activities temporarily. This change turned out to be more complicated than originally thought, requiring more consultants.

Staffing Issues

Unlike non-technology companies attempting similar reengineering projects, J.D. Edwards employed many knowledgeable IT people and OneWorld consultants internally, according to Mary Henneck.

> *The J. D. Edwards client services organization is treating us like any other client. So they have an engagement manager who defines needs with us. And she looks for resources we cannot find. We are also able to bring in business partners as needed. Not all companies are likely to have such an experienced group of IT people.*

J.D. Edwards also faced unexpected staffing problems on the user side. User engagement was critical to the success of PROOF, but many of the very people necessary to maintain company profitability and growth in the short term were called from their jobs to help with PROOF. However, they could not completely give up their regular jobs. As Mitchell pointed out:

> *It is a real challenge in our case to schedule things with the user organizations because you lose them at the end of each month for about a week and a half as they get caught up in operational*

processing…at the end of the fiscal year, they are basically out-of-pocket for close to two months.

Even so, the PROOF management did not flinch. High-level managers were chosen to represent each of the major process areas. A number of top-flight field consultants were members of the PROOF team even though their absence from the field might impact mandated revenue targets. Users were actively engaged[10] and worked with IT implementation teams as integrated units. The project received a temporary setback when the program manager took personal leave in December, 2001. In the time it took to find a new person for the job[11], the program manager's work was redistributed among other employees.

V. RESULTS

The PROOF implementation was within budget but slightly behind schedule.[12] (View video of Endry's assessment of the results.) The project team saw a lot of good results. According to Henneck, 'We've broken some of the ground rules." Beyond meeting project objectives, Project Proof helped change company culture. As Henneck observed:

It is definitely a change in the way we are doing business. PROOF has driven a lot of discipline into decision making... It is starting to change the way we make decisions and how we think about the interdependencies of those decisions. That is a good thing.

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[10] Due to budgetary considerations and the fact that almost all of the initial go-lives were US and Canada based, users from other world regions were not as fully engaged as were North American users, though they were apprised and involved by means of teleconferences and correspondence.

[11] The new project manager has extensive international background to deal with the remaining deployments, which are largely outside North America.

[12] In early May 2002, the PROOF team had implemented about 16 modules in North America, some of them company wide.

BENEFITS

Endry categorized the project as “highly successful”:

> *We have identified numerous product improvements that Development was able to incorporate prior to use of the product by our customers. We have proven that the implementation methodology our consulting force deploys works and should be followed. We have improved the understanding of business processes across the company. This is contributing to the objective to become more of a process driven company. We have experienced what our customers experience and as a result have improved many of our processes. We have been able to stick to a very vanilla implementation. This significantly speeds up the implementation of new releases and reduces the level and cost of ongoing maintenance support. Also, it has helped us focus on process improvements instead of customizing to automate broken processes.*

Product Improvement

PROOF was a great learning experience for the company and led to improvements in the OneWorld Web product and implementation methodology. Mitchell’s perspective echoed the attitude of many involved in the PROOF project:

> *At the time PROOF commenced, the J.D. Edwards OneWorld Web product was still new and used in production in a rather limited way. The process of implementing OneWorld Web internally provided the Development organization with an opportunity to see and experience first-hand the operational and usability problems that the testers identified. We test real processes using real data emulating real events to a degree that is not practical within a software development environment. Thanks to close cooperation*

between the Development organization and the PROOF team, a degree of synergism has evolved with the net effect of improving the quality of OneWorld…

Marketing Benefits

Closely linked to the improvements in product and implementation methodology is the ability to showcase them to customers. Mitchell described the result of meeting this important marketing objective of the project:

PROOF's implementations provide the J.D. Edwards sales and marketing organization with a showcase of our latest software in a production environment. Furthermore, the number of web users is one of the highest of any systems implementation in the world, and the computer systems environment is one of the most sophisticated. This implementation effort also is a training ground and a showcase for our services organization. With the involvement of a GES Enterprise Manager, a field Engagement Manager, a variety of field consultants, and various business partner consultants, the organizational makeup of the PROOF Team and the implementation methodology being utilized, the PROOF project perfectly reflects all aspects of the implementation advice we give to our customers.

Process improvements

J.D. Edwards saw many benefits due to reengineered, improved, and streamlined business processes. Within the Order to Cash process, the PROOF implementation provides a degree of integration that did not exist before, which translates to significant reduction in redundant actions and an increase in speed of handling cross-functional transactions. Moreover, the new system provides much better information regarding revenue by product and profitability by product — both of which would require additional overhead to produce under the old system. A few processes saw more radical changes. For example, in services,

the new redefined processes altered how profitability is measured on the job, how contracts on the services are obtained, and how invoices are reviewed. While defining to-be processes, the financials team recognized the full repercussions of customers receiving bad invoices. The impact of invoice mistakes was felt downstream where the company could not collect on receivables as quickly due to disagreements and verification delays. After redefining the processes, the cleanup of invoices was moved to the front-end and the accountability for this task was assigned to the engagement manager who deals with customers. A company document described the process change:

> *After the planning and refining was done, the PROOF team proposed a redefinition of the engagement manager role. The PROOF team used Solution Modeler to cancel out any preconceptions of how the job was done before, and redefined the entire process and job-related responsibilities. Now it's possible for engagement managers to have full visibility of, and responsibility for, all aspects of managing a project from conception through completion. The role shifts from accounts management to project management. This frees up time of corporate staff, permitting twice-monthly invoicing. Increasing invoicing frequency increases cash flow.*

PROOF revalidated the importance of process modeling. The PROOF team started with default models and modified them to fit J.D. Edwards' process flow requirements. Figure 5 shows a sample Solution Modeler screen. For new elements, the PROOF teams defined the link between the model and OneWorld. Eventually, OneWorld reports will be printed directly from any proposed model.

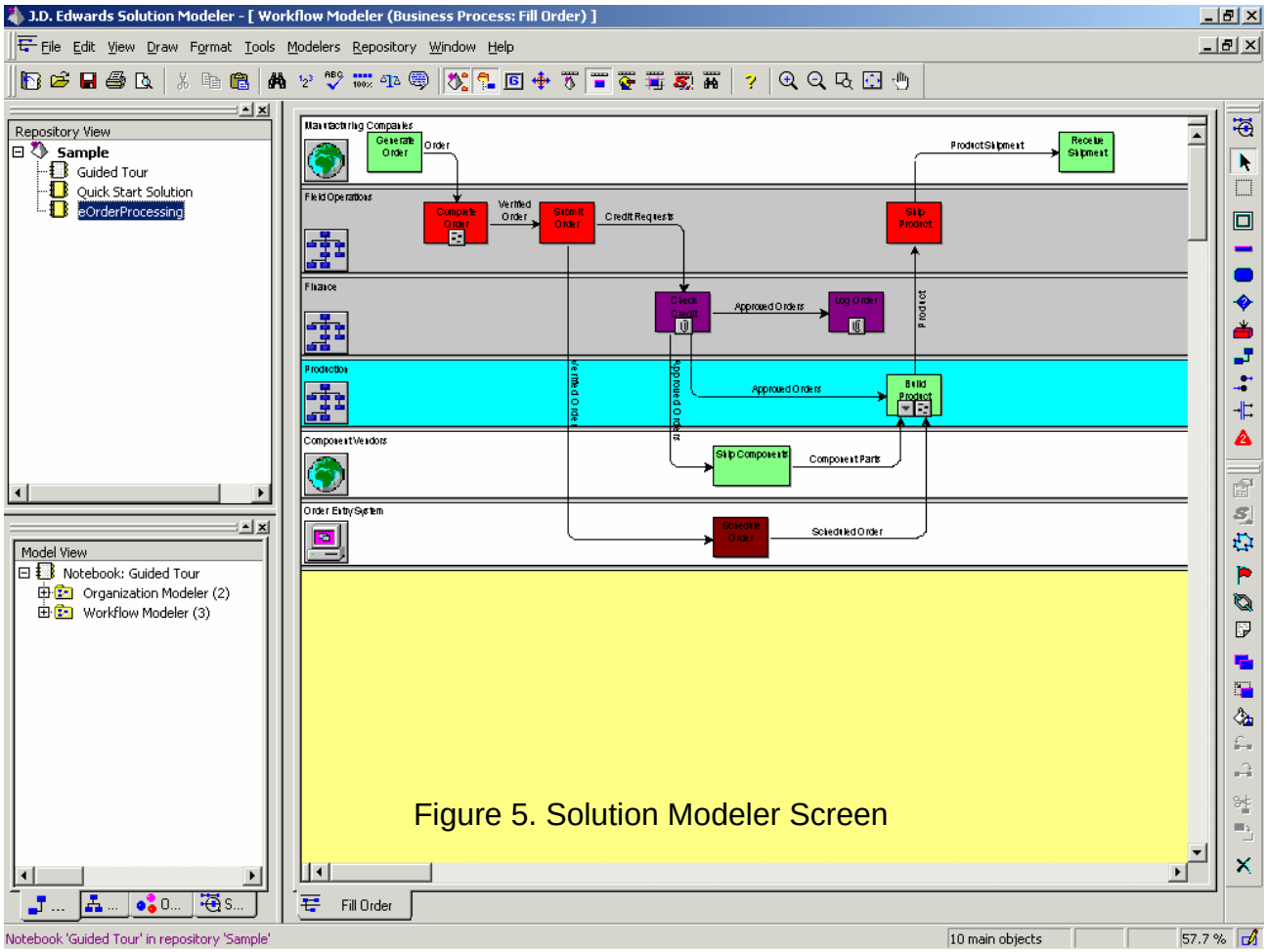

Figure 5. Solution Modeler Screen

Cost reduction

PROOF was expected to result in a reduction of costs due to improved processes. For example, within HR, current annual operational costs for Hiring, Terminating (voluntary and involuntary), and Status Changes total almost $1.5 million. Project savings through implementation of various phases of PROOF were projected to range from 5% initially to over 20% once workflow (in combination with previous process improvements) was implemented. Similar cost reductions were expected for other processes.

In addition, PROOF led to a lowering of software maintenance costs. By definition, “Vanilla OneWorld” means no software modifications, which implies

minimum maintenance costs. While some exceptions to the vanilla OneWorld rule[13] occurred, the overall number of modifications was reduced significantly with a corresponding reduction in maintenance expense. Other benefits of using web clients were obtained. Endry describes one such instance:

> *By virtue of accessing customer support applications via web instead of via a fat client, approximately 350 Denver-based Global Support Services employees no longer have need for the second PC they were using up to this point. By redeploying 330 of those PCs, all of which still have reasonable life left on their leases, to replace other PCs coming off of their respective leases, GSS was able to reduce their* monthly *PC budget by $75,000. Also, a cost avoidance savings of $1500 per PC was reflected in the 2002 IT budget as a result of deploying those 330 PCs to employees that otherwise would have required newly leased PCs.*

Information quality

A major benefit of PROOF was the improvement in information access and information quality for the employees. OneWorld Web, provides users with the flexibility to access and retrieve information regardless of where they are physically located. Because the collection of disparate, loosely interfaced systems of the past was replaced by a single integrated enterprise system, users can work with confidence that the data they are using is the most current, accurate, and consistent available.

LESSONS LEARNED

While J.D. Edwards could draw on the experiences of its own consultants and in-house technical support on project PROOF (a unique advantage), many lessons

[13] In a few cases, customizing was inevitable for the sake of operational efficiencies of unique processes.

were learned that apply to other companies planning similar initiatives. (View video of lessons learned.)

Top management support was absolutely vital to the success of this project. The project's executive sponsor, the CIO, had a clear plan and vision. A cross-functional project steering committee was put together to make sure the project fully supported all the different areas in the company. The committee was responsible for defining priorities, allocating resources, and approving policies and strategies. The team clearly spelled out project objectives in alignment with the strategic corporate goals. The company instituted a change management culture, which among other things included effective communication with employees, the involvement of users during the analysis and implementation of the system, an emphasis on training, and continuous monitoring of performance with the help of milestones and metrics.

Business process modeling and reengineering efforts uncovered inefficient business practices. Minimizing customization (keeping the implementation as "vanilla" as possible) was crucial to the success of this project. Going in, the company worked with a clear implementation methodology, although later they combined it with a newer methodology, utilizing whichever methodology had the most strength for a given problem. Although the user buy-in waned a little because of the length of the project, intermittent delays, and staffing and other implementation issues, a phased approach helped make the implementation less disruptive to the enterprise overall and easier to manage.

Endry summarized the impact of project PROOF for J.D. Edwards.

> *We have learned a lot by walking in our customer's shoes. PROOF provides us with the foundation we need to leverage the business system, information, and analysis capabilities for success in the future.*

WHAT'S NEXT?

An important goal of PROOF for J.D. Edwards was to get all of its employees using OneWorld Web. This goal was achieved. Until overtaken by events, the firm set the following goals:

1. The next phase would focus on additional process improvements, and process integration .

2. New opportunities identified during PROOF (e.g., expanding the Order-to-Cash process by including leads and proposals to a new Lead-to-Cash process that ties the Front-Office with the Back-Office) would be tapped in the next phase. (View video of long-term implications from PROOF.)

As Henneck pointed out: "*Clean up your house before you have guests*." With its house cleaned up, J.D. Edwards — provider and user of collaborative solutions — was poised to reap the benefits of collaborative commerce, customer self-service, supplier self-service, and extended process integration. (View entire video of the interview with Mark Endry.)

V. EPILOGUE

On July 18, 2003, J.D. Edwards was acquired by PeopleSoft, Inc. making PeopleSoft, the world's second largest provider of enterprise application software with approximately $2.8 billion in annual revenues and 11,900 customers in more than 25 industries and 150 countries. PeopleSoft's President and CEO Craig Conway, claimed that with this acquisition, PeopleSoft would expanded its presence in more than 20 industries including a broad range of services, manufacturing, distribution and asset- intensive industries.

> *"Additionally with PeopleSoft's strength in the large enterprise space and services industries, combined with J.D. Edwards' position as an acknowledged leader in the mid-market and manufacturing, we will be able to serve the entire enterprise software market in a way that no other vendor can. The integration*

> *of the two companies is a giant leap forward in fulfilling J.D. Edwards' goal to Make Customers Stronger."* J.D. Edwards Chairman, President and CEO Bob Dutkowsky ,

As of April 15, 2004, PeopleSoft is facing a hostile takeover bid from Oracle, even as federal regulators seek to block it.

J.D. Edwards OneWorld, which had been renamed J.D. Edwards 5, acquired yet another name with the company's acquisition by PeopleSoft: PeopleSoft Enterprise One.

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ABBREVIATIONS

APS: Advanced Planning Solutions

ERP: Enterprise Resource Planning

ERP II: Next generation Enterprise Resource Planning

COA: Chart of Accounts

CRM: Customer Relationship Management

IA: Implementation Approach

OneWorld Xe: OneWorld Extended Enterprise

PROOF: Process Reengineering to Optimize Operational Functionality

SCM: Supply Chain Management

SKM: Solution Kits Methodology

WBT: Web-Based Training

ABOUT THE AUTHOR

Nik Dalal is associate professor of Information Systems in the College of Business at Oklahoma State University. He worked at J.D. Edwards & Company in 2001-2002 on sabbatical from Oklahoma State University. He previously worked as a consultant for a computer consultancy. He received PhD and MS in MIS degrees from Texas Tech University. His research interests include enterprise systems, enterprise modeling, information systems philosophy, and Web perception. His research is published in *The Communications of the ACM*, *Decision Sciences*, *International Journal of Human-Computer Studies* and other academic journals.

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