

Mortgage Loan Origination Business Process Management Case Study

Using a BPM Suite and Document Management
System to enable business process improvement

Paperless Mortgage Loan Processing with Offshoring

Chet Amborn will present how a national wholesale mortgage lender selected a BPM suite and pilot tested their first business process using BPM and FileNET for paperless loan processing. This presentation will focus on how BEA's AquaLogic BPM was used to model, develop, and implement a business process for wholesale mortgage loan closing. A pilot test was conducted in eight branch offices in the U.S. and two offshore locations in India. Results of this pilot project provided insight into variations in the loan processing process between branches that enabled a second round of major process improvements the following year.

Chet Amborn was a Business Process Modeler at GreenPoint Mortgage. He was a member of the enterprise BPM team that provided process redesign and change management services across five lines of business. Chet provided expertise in process modeling and training on process ownership. He also facilitated collaboration between Operations and IT in adopting an Agile/Scrum methodology for implementing BPM applications. Chet is currently designing and implementing workflow process improvements for Portland Development Commission.

About The Mortgage Company

- ▶ 5th largest wholesale mortgage lender in U.S. in 2006
- ▶ \$36 billion in loan originations in 2006
- ▶ 2,500+ Employees
- ▶ 40+ branches, 1 loan servicing center, 2 offshore operations sites
- ▶ Specializing in no-documentation and "Alternative A" mortgage loans



The mortgage company competed against companies like Countrywide, IndyMac, Washington Mutual, Homecoming Financials, and Wells Fargo. The mortgage company did not do sub-prime lending. However, the collapse of the secondary market for mortgage-backed securities lead to a shutdown of the business in Fall 2007.

Strategic Context

Market Trends

- ▶ Loan originations declining
- ▶ More complex loan instruments
- ▶ Overcapacity and market consolidation
- ▶ When will the housing bubble burst?

Industry Dilemma

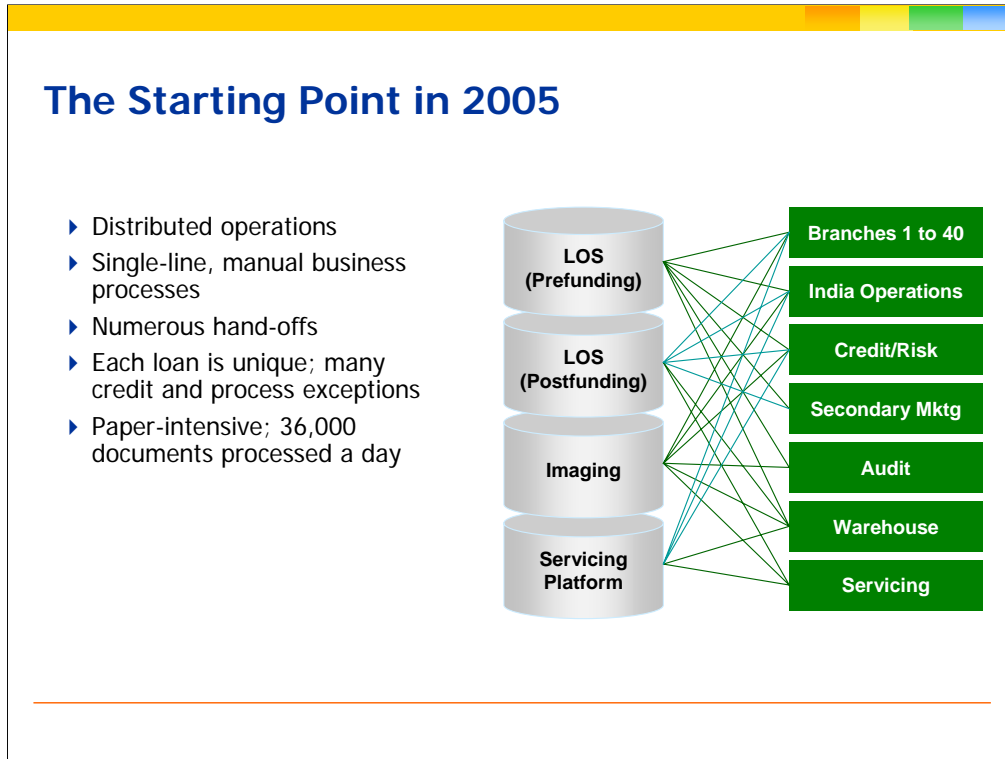
- ▶ How to reduce costs and provide higher levels of service?
- ▶ Paperless loan processing
- ▶ Offshore non-value added work

U.S. Mortgage Originations
\$ billions

Year	Originations (\$ billions)
2001	2.2
2002	2.9
2003	3.8
2004	2.8
2005	2.9
2006	2.4
2007	2.2

- 42%

The volume of loan origination peaked in 2003. In subsequent years companies have relied on increasingly complex types of lending to keep volumes from declining. Throughout the industry, mortgage lenders faced the problem of reducing costs while providing higher levels of service. Many companies sought to improve their loan origination business processes with an initiative based on paperless loan processing. This included using offshore resources to handle non-value added work like data entry and loan document preparation.



Here is the starting point for The Mortgage Company in 2005. There were four enterprise applications: Prefunding loan origination system (LOS), Postfunding LOS, document imaging, and loan servicing. The business process was highly paper intensive, with many hand-offs between roles. Work was typically done in a serial fashion, because work on a loan depended on having physical access to a loan documents folder.

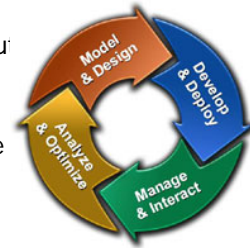
Selecting a BPM Suite

Vendor Selection Process

- RFI to 18 companies
- RFP to 6 companies
- Reference calls on 4 companies
- Proof-of-concept demos from 2 companies

Key Selection Criteria

- BPM Suite for the Lifecycle: Model, Develop, Execute, Monitor, and Optimize (MDEMO)
- Business Analysts model, Developers develop
- Technology: J2EE, SOA and Business Rules Engine
- Consulting Services from Vendor

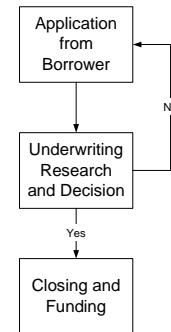


The process of selecting a BPM followed a typical pattern. A request for information was sent to 18 companies and this was narrowed down to 2 finalists for proof-of-concept demonstrations.

The Mortgage Company wanted a product that supported the full lifecycle of business improvement in a single suite. It was considered very important that business analysts and developers work from the same process model. And, the software had to provide consulting services to help with the design and development of the first BPM application.

First BPM Project Approach

- ▶ Core functionality– Not just exception processing
- ▶ Process reengineered for Loan Origination Closing
 - 9 Branch positions consolidated to 4
 - More tasks completed in parallel
 - Seamless 24 hour operation with U.S. and India operations
- ▶ Customized application with formal Pilot before roll out decision
- ▶ Iterative development process– New process for IT
- ▶ 6 months from requirements definition to deploy pilot



The first BPM project selected by the company involved one of the core processes in loan origination (Closing and Funding). Software vendors typically advise customers to start small, perhaps with a project involving exceptions which have to be processed manually. However, the company had already begun a process reengineering effort. In loan origination operations The first project needed to support that effort.

Project Roles

Roles assumed by Mortgage Company:

- Use Cases– Business Operations, Process Modeling– IT
- System Architecture, Design, Development, QA– IT
- Implementation, Production Support– IT
- IT Project Management

BPM Vendor Services:

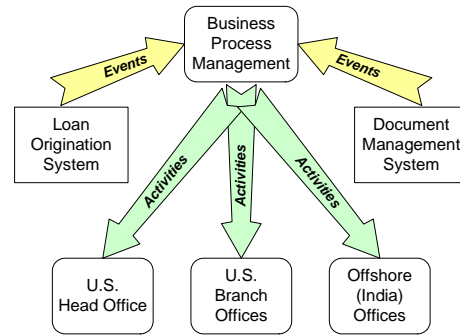
- Architecture and design consultation
- Customized design, development, Pilot support



The project was conceived as a collaboration between business operations, IT, and the software vendor.

Architecture

- ▶ Workflow Processes defined in BPM– Not in enterprise Loan Origination System or Document Management
- ▶ Events generated by LOS and Document Management flow to BPM
- ▶ BPM assigns activities to users based on roles and business rules



The company was already using enterprise applications for loan origination and document management. Both applications supported some form of workflow processing. However, this was not sufficient for implementing the redesigned business process.

The architecture was designed such that the BPM application received events from the loan origination and document management systems and then fed tasks to all users throughout the enterprise.

User Experience

Paperless Process: Inbox

The screenshot displays the 'FUEGO Work Portal' interface. At the top, it says 'Welcome, Laura Zuniga' and includes links for 'Search - Options - Help - Logout'. The main content area is titled 'Inbox' and shows a list of 10 tasks. Each task row includes a checkbox, a 'Rush' indicator (N or D), a 'Loan Number', a 'Primary Last Name', a 'Task' description, a 'Task Status', and a 'Task Priority'.

	Rush	Loan Number	Primary Last Name	Task	Task Status	Task Priority
<input type="checkbox"/>	N	0200556330	FFBorrower1056	Enter borrower AKAs	CREATED	20,060,826,100,638
<input type="checkbox"/>	N	0200556330	FFBorrower1056	Enter earthquake insurance information	CREATED	20,060,825,100,638
<input type="checkbox"/>	N	0200556330	FFBorrower1056	Enter hazard insurance information	CREATED	20,060,825,100,638
<input type="checkbox"/>	N	0200556330	FFBorrower1056	Enter windstorm insurance information	CREATED	20,060,825,100,638
<input type="checkbox"/>	N	0200556249	FFBorrower1051	Nonborrowers on title	CREATED	20,060,826,100,725
<input type="checkbox"/>	N	0200556298	FFBorrower1054	Nonborrowers on title	CREATED	20,060,826,100,730
<input type="checkbox"/>	N	0200556330	FFBorrower1056	Verify property & mailing addresses, borrower names	CREATED	20,060,826,100,730
<input type="checkbox"/>	N	0200556330	FFBorrower1056	Nonborrowers on title	CREATED	20,060,826,100,730
<input type="checkbox"/>	N	0200556470	FFBorrower1062	Nonborrowers on title	CREATED	20,060,826,100,736
<input type="checkbox"/>	N	0200556785	FFBorrower1076	Enter borrower AKAs	CREATED	20,060,826,100,822

Here is an example of the Inbox for a user. This is the list of activities a user is to perform. This is the standard, out-of-the-box portal for the BPM Suite.

User Experience

Loan Activity: Documents, Tasks, Notifications

LOAN
NOTES

Loan # 0200556298
Primary Last Name: FFBorrower1054
SSN: 123-45-1033
Lock Exp. Date: <HOLD>

Primary Borrower Full Name: FFBorrowerWS1053
FFBorrower1054
Vesting:

Nonborrowers on title

1. Enter **nonborrowers on title**
2. Review/update **vesting**

More Info

Add Note:

Docs
Tasks
Notify

Task	Status	Assigned
Perform verbal VOE	A	Jane Patrick
Enter lender's instructions		
Enter borrower AKAs	A	Laura Zuniga
Closing info, title company, settlement agent, wire instructions	A	Laura Zuniga
Product & pricing		
Verify property & mailing addresses, borrower names	A	Laura Zuniga
Settlement agent and wire instructions	✓	SYSTEM
Broker and GPM fees		
HELOC initial disbursement		
Nonborrowers on title	A	Laura Zuniga

Completed
Pend
Escalate
Cancel

The following screen displays when a user selects an activity to perform. This is a customized form developed by the mortgage company. The tabs on the right side provide access to a list of tasks, documents, and notifications for a loan.

Pilot Results from July 2006 – Mar 2007

8 Branches: 12,000 Loans and 200,000 BPM Tasks Completed

Objective	Results
Improve loan processing turn times	30% improvement in same day turnaround of closing documents
Improve service levels	1.7% relative improvement in "pull-through" (loan applications that are funded)
Visibility into the business process	Sales and operations staff have real-time info on the "who, what and when" of a loan application
Identify performance improvement opportunities	<ul style="list-style-type: none"> • Determine whether people, process or technology changes are needed • Measure the impact of process changes

A formal pilot test was run at 8 branches. The pilot was originally planned for 3 months, but was extended. The pilot test achieved the business results defined at the start of the project. However, the executive sponsor felt the application was not yet ready to be deployed to all branches.

Rollout Decision: No-Go!

- ▶ Lack of business agility
 - Business Rules coded everywhere
 - ▶ Lack of functionality
 - No Business Activity Monitoring
 - ▶ Lack of reliability
 - "Where is my document?"
 - ▶ Lack of usability
 - "What do I do next?"
 - ▶ Lack of scalability
 - Need to re-design BPM event handling facility
 - ▶ Lack of software development agility
 - Weak adoption of Agile methodology
 - ▶ Lack of workflow visibility
 - Leads to weak adoption by Operations Managers
 - ▶ Lack of alignment between strategy and tactics for business process
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What was lacking from the pilot application? There was numerous issues with functional and non-functional requirements being met poorly. However, the major concern of the executive sponsor was a sense that the architecture would not support the long-term strategic direction for business process redesign. Given a choice between re-architecting now vs. later, the decision was made to do it now.

IT vs. Business Architecture

▶ IT Perspective of Architecture

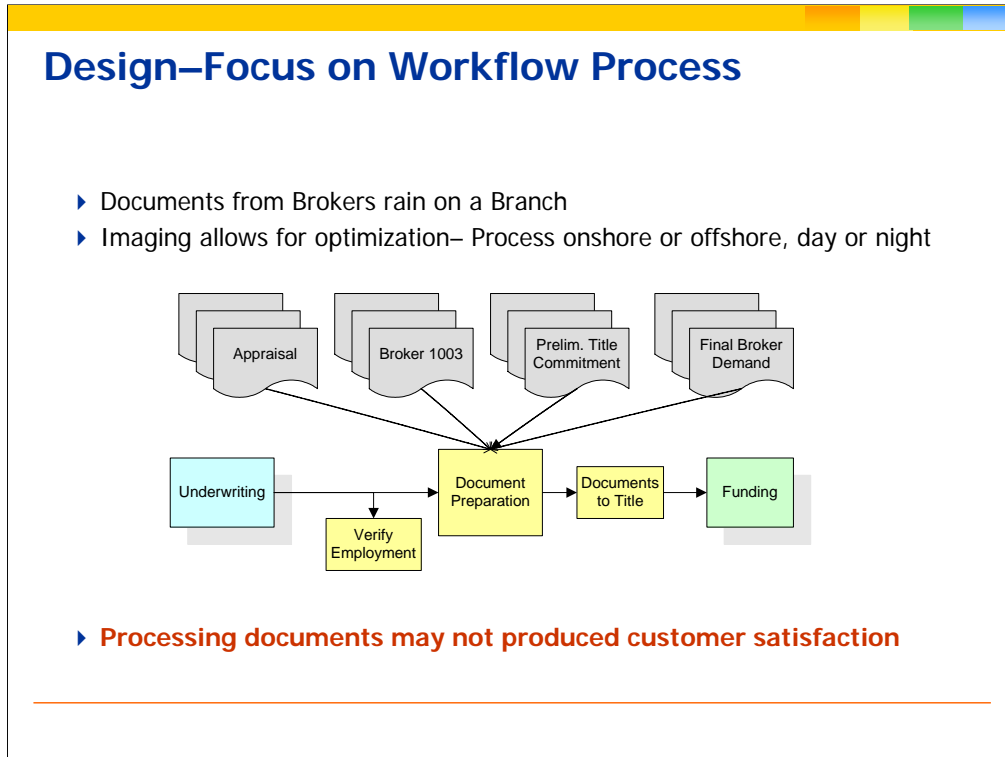
- Document is a transaction to process
- Process Visibility– Historical trend analysis to predict the future
 - Business analysis– Rooting for truffles in the data warehouse
- Technology foundation enables software applications
 - J2EE, ESB, SOA, BRE, BPMN, BLAH, BLAH, BLAH

▶ Business Perspective of Architecture

- Document is a request to satisfy a customer
- Process Visibility in three time frames– Historical, Now, Future
 - Decisions being made during a day impact customer relationships
- Metrics for the business process align operations with strategic goals
 - Value added work onshore, non-value added offshore

▶ **Where is the alignment of business strategy and tactics?**

What was the fundamental problem with the architecture? IT and business operations had very different definitions of what architecture meant. While IT took a tactical view, business operations took a strategic view. The result was a pilot application that met the immediate business objectives of the project but did not appear to support the long-term strategy for business process improvement across the enterprise.



The design of the pilot project focused on workflow and processing documents. The problem was conceived as an issue with processing documents. The solution was to design a more efficient document-centric process. However, meeting the requirements for processing documents does not guarantee customer satisfaction with the outcome of the process.

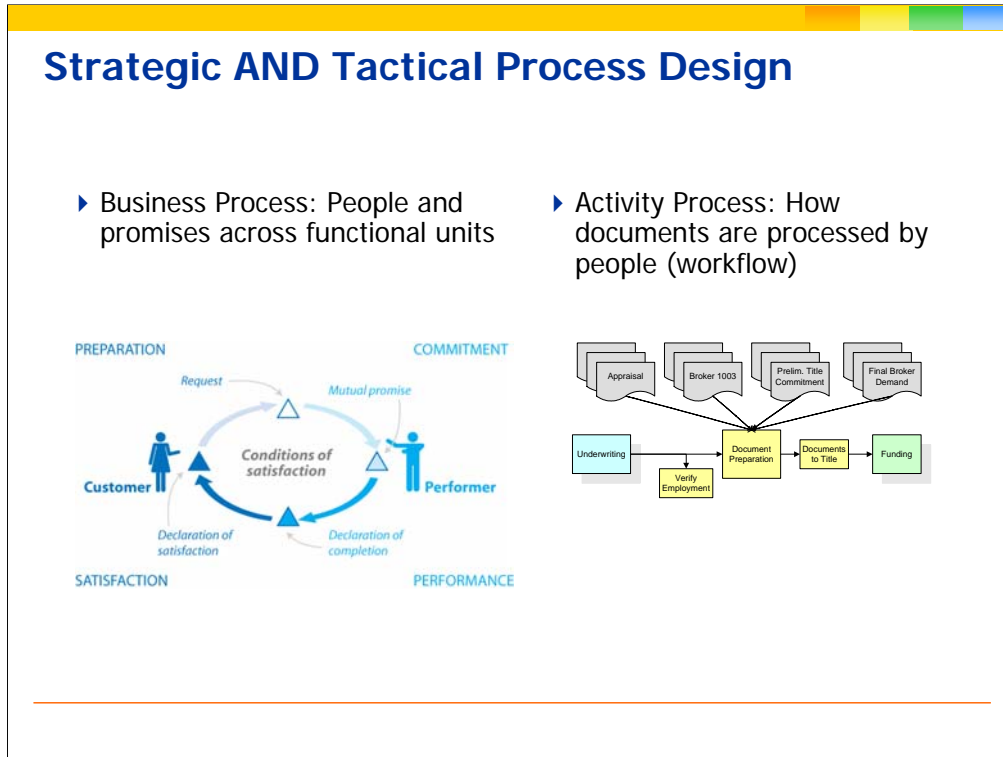


With the help of a third-party consulting firm, the mortgage company took a fresh look at the business process. The Action Workflow model was used to view the process into terms of customer satisfaction as the desired outcome.

Design– Focus on Business Process Example

- ▶ **Preparation**
 - Loan application document is a Request from the Customer
- ▶ **Commitment**
 - Sales makes a mutual promise with Customer, but Operations performs most of the work
- ▶ **Performance**
 - Completion is when a loan is funded and the customer is paid
- ▶ **Satisfaction**
 - Conditions of Satisfaction are mostly implicit (based on policy) and metrics are incomplete

A focus on processing documents is a workflow issue. The business process is about how customers and performers coordinate action to produce customer satisfaction. The Action Workflow model organizes action into four phases of activity.



The company realized that two types of process design were needed– Business process and workflow process. The key is to design document processing within the context of producing customer satisfaction. This produces alignment between the tactical workflow process and the strategic business process.

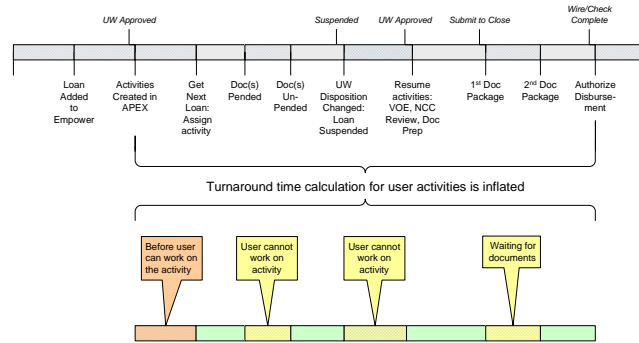
Changes for Round #2

- ▶ Business Process Metrics are IT's target
 - ▶ Process Owner training and coaching
 - ▶ Process modeling practice includes metrics plans
 - ▶ Business Operations does process modeling, IT develops
 - ▶ Consulting services from a 3rd Party– How to do BPM
 - ▶ Key Performers for BPM Development
 - Process Owner in Business Operations
 - BPM Center of Expertise Leader (in Operations)
 - IT Development Manager
 - IT Project Manager
 - ▶ Agile methodology adoption– No hybrid
 - ▶ Architecture and application development as parallel projects
 - ▶ Business Rules Engine technology
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A new project was initiated to re-architect the pilot based on this new perspective of workflow vs. business process. There were several important changes made for this second round of design and development.

Process Visibility Improvements

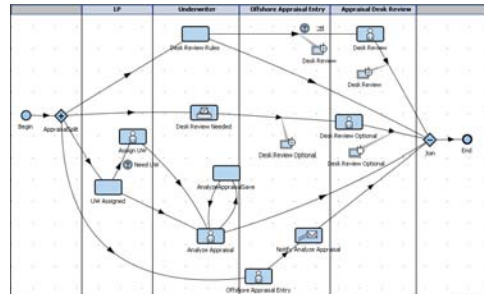
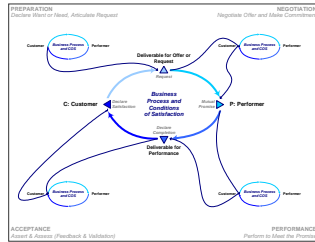
- ▶ Identifying variations in the process leads to answers about “Why?”
- ▶ Operations Managers do not need so many notifications and approvals
- ▶ Operations Managers not used to KPIs and a process view of work
- ▶ Measuring Turnaround Time is very complex– Lots of gaps



A focus of the redesign effort concerned better adoption of the BPM application by operations managers. Managers were used to managing their pipeline– How many loans are in application status vs. underwriting or closing? However, managers needed training and better tools in order to manage across these three traditional departments.

Lessons Learned– Process Modeling Practice

- ▶ Human-centric process requires Process AND Activity Level modeling
- ▶ Process modeling and metrics plans must be in sync
- ▶ Model the process before trying to define requirements



There were four major lessons learned from the re-architecture of the first BPM application.

First, there is a need for a formal process modeling practice. IT organizations typically have a business analysis practice for defining requirements. A similar practice is needed in business operations for process modeling.

Lessons Learned– Process Ownership

- ▶ Process Owners need training in order to contribute effectively
- ▶ Process Owners <> Subject Matter Experts
- ▶ Process Owners love Agile/Scrum and working directly with developers



Second, there is a need for a program of process ownership to support the work of process owners.

Lessons Learned– Agile Methodology

- ▶ Agile training and coaching required for proper adoption
- ▶ Co-location of Business, PM, QA, and Developers changes the culture
- ▶ Agile as software process redesign



Third, it must be recognized that the move from Waterfall to Agile development represents a business process redesign effort. Adoption of the new process will not happen without training, coaching, and executive sponsorship.

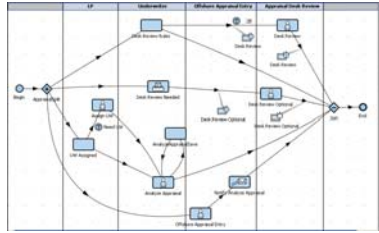
Lessons Learned– People and Roles

- ▶ Role changes
 - Winners: Business Analysts adapt and prosper
 - Unhappy Campers: IT Development Managers
 - Losers: Project Managers and Enterprise Architects struggled
- ▶ Project Management is the weak link



Finally, there are winners and losers in this new world of delivering BPM applications. Those who adapt will prosper and those who cling to the old ways of doing business will suffer. In particular, project managers with a strong background in waterfall development of traditional business applications may struggle with BPM applications developed under and Agile methodology.

Lessons Learned– People, Process, Technology



These lessons learned come back to the basic issues in business process transformation– People, process, and technology. The BPM Suite software– the technology– may be most unfamiliar. Yet, adapting to this change may be the easiest. The hardest part is how change affects people in both operations and IT.