

Pacific Rim Excellence Award: Workflow

**Korea First Bank
Seoul, Korea
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Summary

Rapid Deployment of a Productive, Forward-looking Loan Processing Solution

With the introduction of a workflow system, the Korea First Bank has succeeded in the swift centralization of scattered loan processing systems and the integration of various legacy systems in the organization. We are also confident that we have built a flexible, future-oriented system that can quickly adapt to and handle changes and expansion of our business in the future. This success in improving our loan-processing procedures has resulted internally in maximizing business competitiveness by enabling the sales force to focus on their primary duties rather than on the technical and administrative problems of loan processing, and externally in maximizing customer satisfaction by considerably improving process cycle time.

Overview

The Korea First Bank was established as the "Chosun Saving Bank" on July 1, 1929. The bank has grown to be one of the leading banks in Korea, with 390 branch offices nationwide, two overseas local corporations (Hong Kong and Qingdao), and two overseas branches (Tokyo and London). As of September 2002, the bank has achieved net income of 90 billion won (\$80.8 million) with assets of 33.6 trillion won (\$30.2 billion). Moody's rating is Baa3 for long-term credit and P-3 for short-term credit, while the S&P rating is BBB- and A3, respectively. The bank is positioned to be a world-class financial institution.

From November 2001 to March 2002, we deployed the workflow system to personal loans (house mortgage loans, automobile loans, and credit lines). Using the workflow system, the Korea First Bank's loan processing center system sends loan applications, received as a result of meetings with customers, to the central loan processing center so that specialists in the center can handle standardized processes such as underwriting and loan execution quickly.

The previous loan processing system carried out at individual branches had the following problems:

1. Inefficiency of sending the bundle of documents required for underwriting
2. Distribution of documents received by the loan processing center
3. Low productivity from individual approaches to several systems

The introduction of the workflow system has brought efficiency and process innovation as follows:

1. Scanning and sending of documents to the loan processing center through the network
2. Workload balancing by workload
3. Automatic work distribution in accordance with pre-defined business rules
4. Automatic submission to decision-makers along the line for approval
5. Automatic forwarding to the persons in charge of handling

Also, users are provided with an integrated view of all the data required for the job for each work item through the WorkItem handler:

- Electronic image of all documents and loan application data
- Internal and/or external data, scoring and assessment registration for evaluating the credit status of the loan applicants
- Registration of mortgage and insurance
- Actual registration of loan execution
- Application related to follow-up processing of loan contract

This means that we no longer have to waste time and effort collecting the data scattered in various systems.

1. The key motivations behind installing this workflow system

With the vision of establishing a world-class loan processing solution, the Korea First Bank has set out the following business goals:

1. Enhancement of productivity at branch offices
2. More consistent service to customers
3. Improvement of personal/small business loan processing productivity through centralization, standardization, simplification and automation

The current IT tasks in relation to the above may be summarized as follows:

1. Centralization for improving efficiency
2. Reduction of cycle time for securing good customer service
3. Standardization for simplifying processes
4. Improved decision-making in risk management

Additional motivators from business and technical perspectives are as follows:

- Business Aspect
 1. Reduced loan processing time
 2. Unified channel for filing various documents
 3. Prompt routing based on business rules
 4. Elimination of complex work environment
- Technical Aspect
 1. One-stop access to data stored in various systems
 2. Interoperability among various existing systems including OLTP, MIS, external systems
 3. Enhancement of development productivity
 4. A flexible system that can accommodate continued development of loan programs

The workflow system fully met the above requirements. Furthermore, from the holistic point of view, the system:

Firstly, maximizes the efficiency and productivity of the overall processes by facilitating communication with automated work/data flow and enabling the processes to be handled in time.

Secondly, allows flexible adaptation to changes in the workflow or other various elements by separately constructing the process definitions for controlling the workflow and the application necessary for execution of the relevant work, and by implementing the interface between them by defining it in the workflow.

Thirdly, enables continued improvement of processes through monitoring work processes and providing a variety of reports.

2. The overall *business* innovation, showing impact to management resulting from the new system

The followings are the innovations of each business area in the central loan center and branch offices.

Loan Application at the branch offices

- Reduce the cycle time required for determining customer qualification and improve branch office productivity through:
 - Online documentation
 - Qualification checklist
 - Provision of online information for all products
 - Simplified application process and reduced loan application processing time
 - Elimination of internal documents on customer qualification
 - Reduced document transmission through scanned loan applications

Loan Approval at the Loan Center

- Reduce the cycle time required for receiving loan applications and improve productivity through:
 - Automatic routing through workflow
 - Reduced cycle time required for receiving applications and approving loans through image scanning
 - Online loan application and customer support in one screen
 - Automated decision-making process
- Enhance loan processing productivity through centralization, standardization, simplification and automation through:
 - Automated back-office process
 - Reduced paperwork and manual processing
 - Automated account recording
 - Improved business processes
 - Centralized Loan Center
- Rectify problems through real-time monitoring and progress-tracking through:
 - Real-time monitoring system
 - Event tracking and reporting by steps
 - Online monitoring system through automated application and evaluation with scanned image
- Reinforce efficiency and flexibility of the organization through:
 - Measurement of organizational efficiency and problem-finding through real-time reporting based on job authority
 - Flexible job redistribution for the changes in processes and organization

Innovations in each area with the introduction of workflow can be summarized as follows:

- Reduction of processing time
 - Reduction of document delivery time: 1~2 days → 0.5 hours
 - Reduction of process distribution time for assessment and execution: 2 hours → 0.1 hours
 - Reduction of processing time through elimination of manual paperwork and automated processing among departments
 - Enhanced processing ability and reduction of processing time through integrated data supply for assessment and execution of loans
 - Elimination of job sorting and waiting time through automated routing based on job authorities
- Reduction of data delivery cost
 - Reduction of labor cost required for delivery of paper documents
 - Reduction of paper cost through image scanning (savings of 30%)
 - Saving of labor cost of reworking due to document loss or error (labor cost-saving effect is detailed in section 9)
- Job standardization
 - Standardization of work processing, document forms and workflow
 - Pre-defined roles, authority and security rules
- Enhanced audit trail for finding and correcting problems in processes
 - Easy process modification allowing positive adjustment to changes in the environment
 - Separation of process from application for flexible adaptation to the changes in underlying IT systems
- Basis for future system expansion
 - Enhanced expansion of interoperability through SOAP
 - Standardization of integration with the existing mainframe system (such as OLTP, MIS) through EAI

3. The overall *technological* innovation, showing process and workflow changes/improvements

Using Handysoft's BizFlow, we are able to achieve remarkable technology innovations in the following four areas.

Firstly, we personalized our own work environment using customizable user interfaces. We can open multiple applications (up to 15 windows to handle one work item) required for the job and build a work environment that enables file attachment and opinion exchanges, allowing us a flexible process portal.

Secondly, we improved development productivity and made maintenance easier by simplifying the application development process through the separation of business process from application logic. Also, application logic can be simplified into components.

Thirdly, we seamlessly integrated our powerful EDMS with the legacy system and the database. We can easily program in the database using VB script embedded in electronic documents. The data integration between EAI and the legacy system allows various technical innovations through XML.

Fourthly, we also integrated BizFlow with e*gate Integrator, the existing EAI solution provided by SeeBeyond, to transmit loan application data from branch offices to the centralized loan center and to exchange data with the legacy system for the assessment and execution of loans. All integrated data are based on XML, and the information required at each loan processing stage is provided through the integration of BizFlow and e*gate Integrator. With such integration, we are able to go beyond the simple data integration of the past and proceed to manage process-centric data flow, and provided the foundation for the future expansion using standard integration methods such as XML and SOAP.

Additional technical achievements may be summarized as follows:

- Various process tracking and history management through process manager and UI manager
- Flexible modification of process data with auditing finished data at each node
- Detailed monitoring of each process in graphical or statistical displays through the process map
- Powerful online monitoring of running processes and completed processes with online keyword search in process manager
- Dynamic process modification — even while the process is in progress —through the “modification” feature
- Paperless processing by converting legacy system data into BizFlow e-forms
- Automated document exchange through BizFlow's routing feature

4. The system users and what their jobs now entail compared to pre-installation

Workflow system in the Korea First Bank is summarized in the table below.

Item	Details	Remarks
Total Users	200	
Simultaneous Users	80 (Average), 100 (Peak Time)	
Installation Location	- Customer Center in the bank	
Personal Loans (House, Automobile, Credit Line)	- Process handling per day: 300	- Users: 150 - Templates: 3 - Nodes per Template: 30

Processing of personal loans starts when a loan application (house mortgage, automobile, credit line) has been received at the nationwide branch offices and basic customer information is verified. Then, this information is sent to the centralized loan center, which approves and executes the loan after credit evaluation, mortgage assessment, and determination of loan amount and interest rate. Once the application is approved, mortgage registration, priority loans, and relevant documentations are verified to execute the loan. Previous and current loan processing systems are as follows.

Previous System

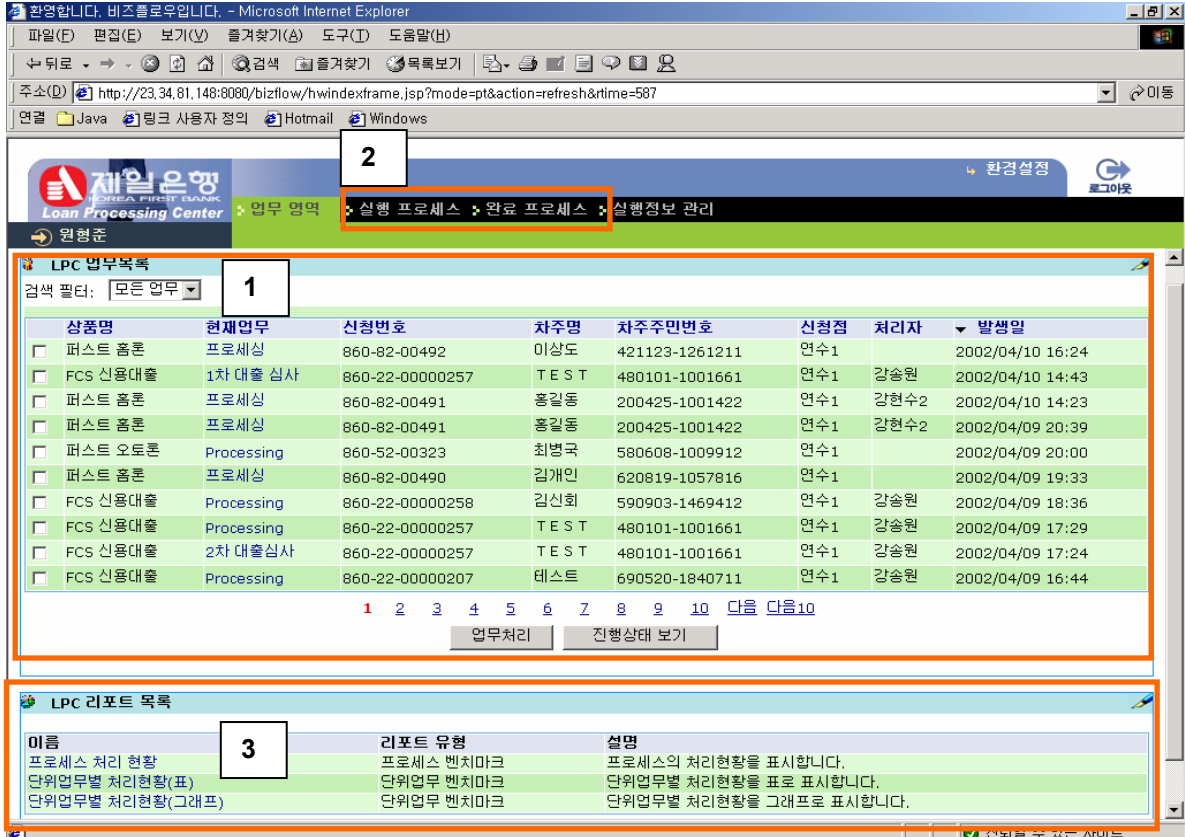
- The branch office receives a loan application from the customer, creates a file, and sends it to the centralized loan center.
- The loan center sorts out the loan files and distributes them to underwriters.
- The underwriter refers to more than 10 software applications from the several systems to verify information on the loan.
- After the application is reviewed, the file is redistributed to loan execution personnel who manually register mortgage, calculate various costs, and handle priority loans.

Improved System

- The branch office pre-qualifies their customers based on credit history, recommends loan conditions, receives loan documents, scans necessary documents for approval, and sends them to the loan center.
- BizFlow automatically distributes loan applications from the loan center to underwriters on the basis of predefined rules.
- The underwriter receives and reviews all data required for loan approval through the integrated user interface in one display on the basis of scanned documents and application data.
- After the review, the case is redistributed to loan execution personnel automatically, who registers mortgage, calculates various costs, and handles priority loans depending on loan.

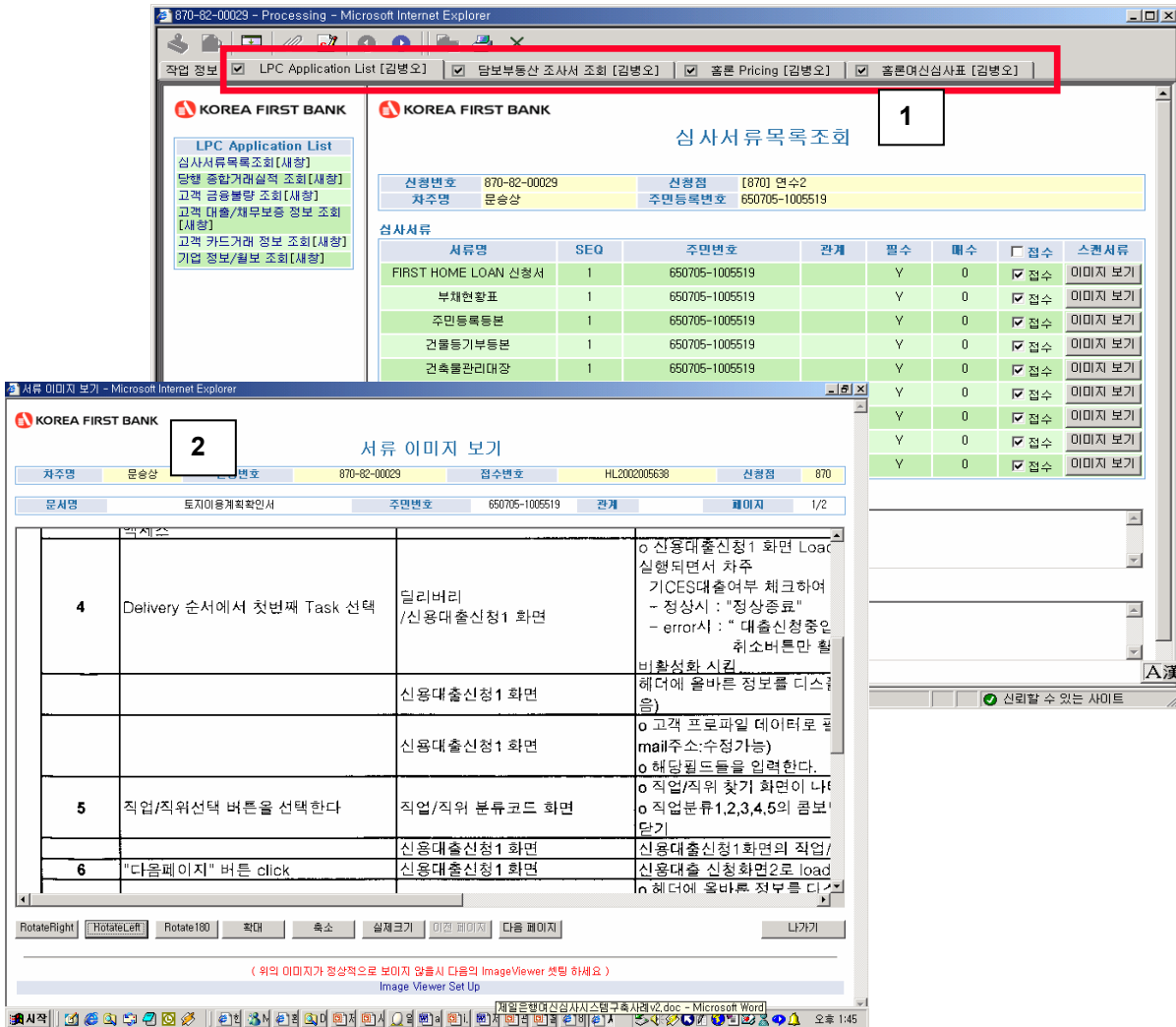
Additionally, for better understanding of our workflow system, we have included the following screen shots.

● **Work List**



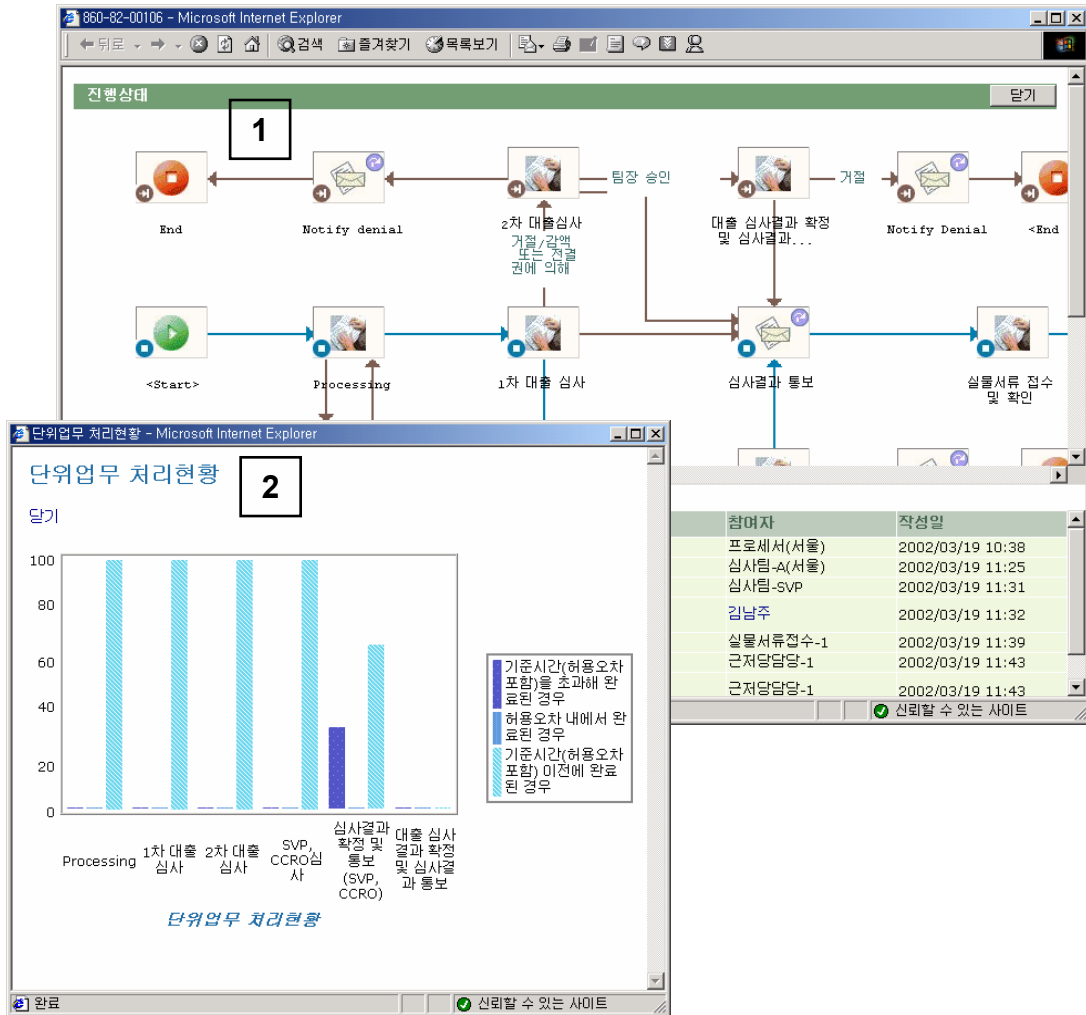
1. Worklist: After login, the user is automatically given a work item in accordance with the assigned role.
2. Process Instance / Archive: Depending on the management authority, the user may check and/or monitor the progress of loan applications that are either being processed or have been finalized.
3. Report: Depending on the given authority, the user may have access to real-time reports with regard to personal and departmental processing status.

● Work Item Handling



1. Workitem Handler: Selecting the work item to handle will provide all software applications necessary for processing the work item.
2. Image Scan: offers real-time access to the supporting documents of loan application.

- **Monitoring and Reports**



1. Process Monitor / Audit Trail: offers real-time access to progress status and processing history for applications that are being processed or have been finalized.
2. Real-time Reports: offers real-time reports on the processing status by activities or by departments.

5. The biggest hurdles overcome in management, business and technology

Following is a summary of the difficulties and their solutions in applying the workflow system:

First, from the management point of view:

<u>Hurdles</u>	<u>How to Overcome</u>
Vague fear of using new technology -----	Continuous socialization and education for new system -----
Resistance over job insecurity due to BPR -----	Strong determination from top management and company-wide campaign on process improvement -----
Difficulty of reaching consensus among users/teams -----	Coordination & unified communication channel through team representatives and key personnel -----
Inefficient process template due to “unbaked” process review and change request -----	Asking departmental consensus before process change request and automating change request process with BizFlow -----

From the technical aspect:

<u>Hurdles</u>	<u>How to Overcome</u>
Need for frequent interaction among systems -----	Standardization through EAI & standard integration technology -----
Heavy development cost of different processes and processing logics per loan product -----	Saving development cost by using standard loan processing template -----

The followings are the considerations and tasks for management with regard to various hurdles.

Firstly, our goals for this system are:

- Process management with easy user interface
- Graphical presentation of statistics data on process histories
- Flexible process changes for the on-going processes
- Convenient system with less manual operation through integration with legacy systems.

Next, the challenges that we have met by implementing this system are:

- Providing efficient processes through rigorous and comprehensive work analysis
- Interface with the legacy system through EAI
- Improve user acceptance through user-friendly interfaces

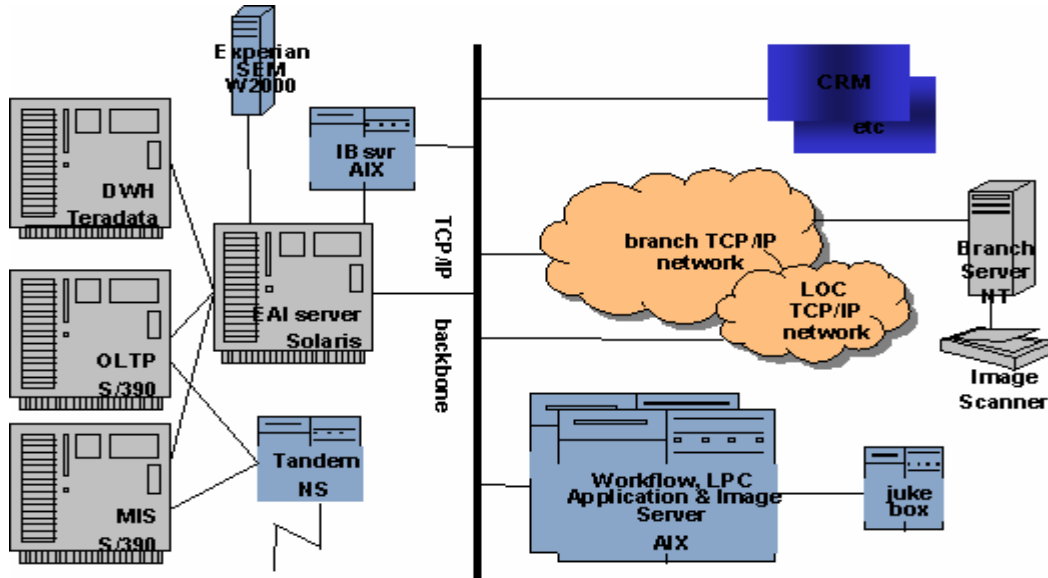
Lastly, the issues to be managed continuously in the future are:

- Continued process improvement through monitoring processes
- Enhanced process management capability by end users
- Automation of entire processes through integrating branch operations with the processes at the loan center
- Expanding process automation using workflow to new financial product development

6. The new system configuration (number and type of software, servers, scanners, printers, storage devices, etc.)

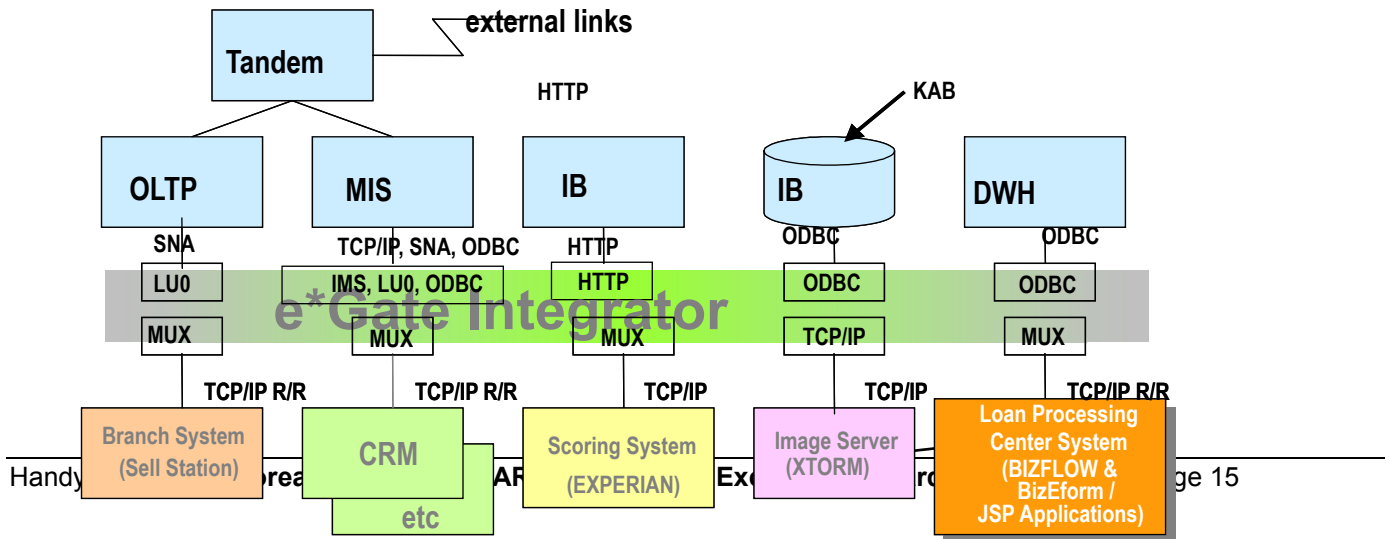
The entire network and hardware configuration in relation to the workflow system are as follows:

The BizFlow specifications are as shown in the table below.

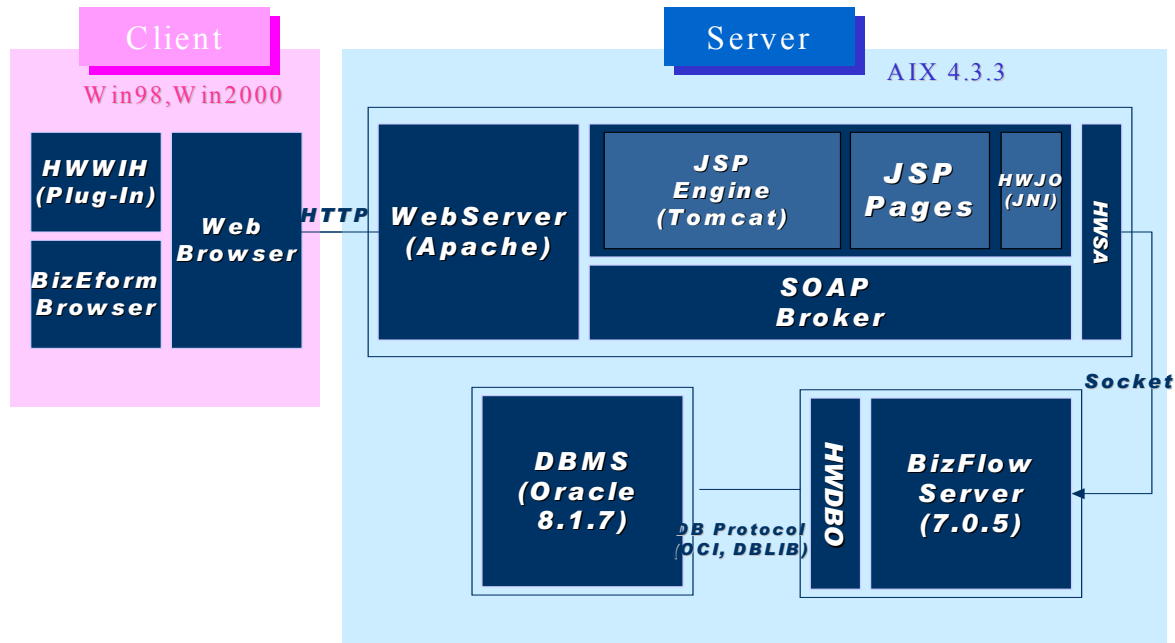


Category	System configuration
Workflow Server	<ul style="list-style-type: none"> ● AIX <ul style="list-style-type: none"> - AIX 4.3.3 - 2 CPU - 2 GB Main Memory - 36 GB internal HDD - 1.4 TB External Disk Array HDD

The diagram below shows the connectivity structure among solutions at the loan centralization center.



The figure below is a diagram showing the configuration of the BizFlow and the application interface.



Category	Model	Version	Usage
OS	AIX-Unix	4.3.3	System operation
Database	Oracle	8.1.7	Workflow & Application data repository
Workflow System	Handysoft's BizFlow	7.0.5	200 user license
Application Development	JSP BizFlow Forms		Application Programming

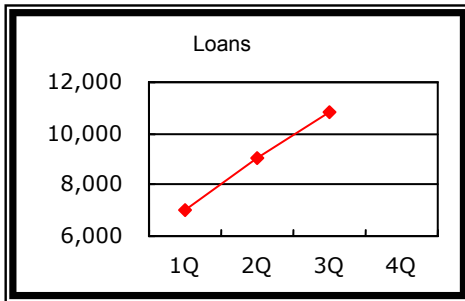
7. Cost savings, increased revenues, and productivity improvements

As described in the Overview, this project was completed in March 2002; you will be able to see its effect from the second quarter of that year. The ROI has been evaluated from five aspects (monthly operation count / change in number of persons / monthly loan processing count / unit cost (Won) / turnaround time), and the Value on Investment (VOI) has been evaluated by surveying the participants of the workflow system.

● ROI Aspects (Enhancement in Cost, Revenues and Productivity)

Item	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	Remarks
Operations/Month	6,978	9,067	10,794	NA	Mortgage, Card loan, *GSL, Renewal/extension, Workout loan
No. Of Persons	121	102	102	NA	

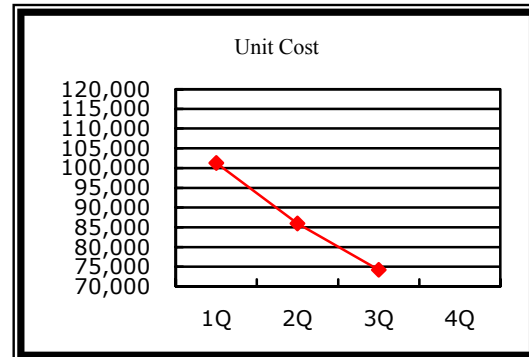
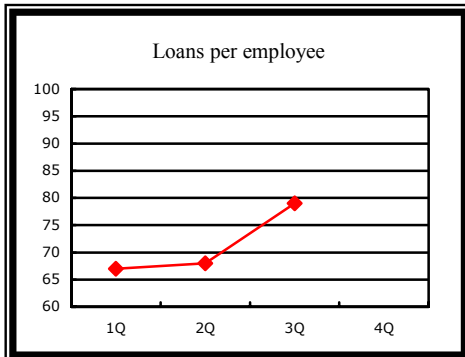
*GSL: General Secured Loan

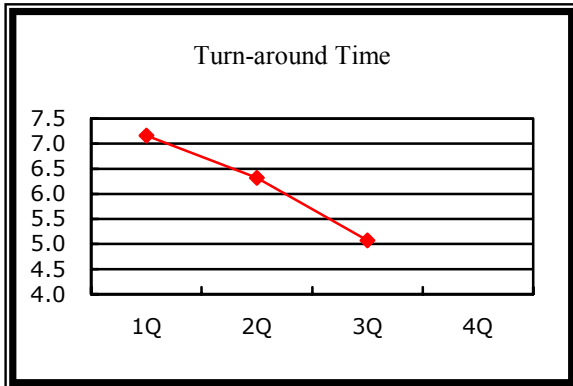


The number of loans increased by 30% in 2Q when the project was completed and by 19% in 3Q. There was an overall increase of 55% after the project was implemented.

The number of employees decreased by 16%.

Item	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	Remarks
Loans per person/month	67	68	79	NA	
Unit cost per loan processed (Won)	101,256	85,964	74,177	NA	
Turnaround Time (Days)	7.16	4.76	4.25	NA	FHL (First Home Loan)





The number of loans processed per person has increased by 18 percent in comparison with the record before introducing the new system, and the unit cost and the turnaround time have been decreased remarkably by 28 percent and 41 percent, respectively.

***VOI (Value on Investment)**

Total Surveys: 44 people

Item	User Satisfaction		
	Good	Fair	Poor
Turnaround time	28	14	2
Work convenience	26	10	1
Standardization	23	14	2
Document delivery time	21	10	0
Load balancing	20	10	2
Statistics data	15	9	4
Manual work replacement	15	16	5
Paperwork efficiency	15	14	1

Total responses are 277, with 163 responses rated as “Good” and 97 as “Fair.” Therefore, 260 (163+97) out of 277 responses are positive. Even though the total number of employees in the department is 102, only 44 responded to the VOI survey since the questions are not relevant to some employees.

In addition to the above, many users responded that clear departmental responsibility between teams, standardized loan service, and work efficiency are additional benefits of introducing the workflow system.

8. Competitive advantages gained and how we moved the competitive goal posts for our industry

The competitive advantages that we gained from this system include a remarkable improvement in cost savings, cycle time and error ratio through integrating with the legacy system. Our introduction of web-based workflow technology into the loan processing system is the first in Korea and it enables us to provide excellent service to our customers.

The competitive advantages gained from seamless integration between the web-based workflow and legacy system may be summarized as follows:

- Enhanced corporate competitiveness
- Improved company image in public relations (industry-leading IT system in banking)
- Leading edge over competitors in loan processing time
- Reinforced business capability and improved customer loyalty through effective work distribution in branch offices and loan centers
- Enhanced customer satisfaction and company reputation resulting from reduced work errors through automated work processing

9. Immediate and long-term plans to sustain competitive advantage

With continued expansion of the workflow system, we will further strengthen our superior position over competitors and enhance corporate competitiveness.

Our short-term expansion plans include:

Additional application of the workflow system to multiple personal loan programs and new programs

Application of the workflow system to the automation of large/medium/small business loans

Our long-term expansion plans include:

Expansion of the application to other areas such as credit cards and foreign currency exchange service through work automation

Tight integration between system development projects and existing systems such as DW, CRM and product development to improve productivity

As part of the system infrastructure, together with the EAI, the workflow system will be expanded to various work processes in the Korea First Bank to strengthen B2C, B2B, and internal processing capability. This system will become the infrastructure for future IT development.