

Sonae Distribuição Brasil

Gold Award, Latin America

EXECUTIVE SUMMARY

This paper describes the experience of the implementation of the workflow technology in Sonae Distribuição Brasil (SDB), the third biggest retail group of Brazil. Its primary focus was based on cost control but later workflow technology expanded to the point of establishing a new management corporation paradigm. Thus, not only one workflow system was developed, but a set of them (10 systems in production on January 31, 2003). The achieved outcome was way beyond the expected, resulting in significant savings for the company. This, added to the enthusiastic acceptance of the technology by the users, placed the workflow technology as an essential tool for the company management.

OVERVIEW

SDB is a big and complex company that makes a great amount of business processes, a lot of which are specific in the retail area. Due to the different factors mentioned in the next section, there is a huge need to make them more efficient, faster and under control.

The first workflow system started to be developed in January 2002, and was put into production by next April. The expressive results achieved stimulated the development of new systems, reaching the mark of 10 systems in production on January 31, 2003 (7 in July 31, 2002), while two other are presently being developed. These systems had been used to automate processes so distinct as expense request, payment request, customer support and goods price change. There is a total of 15 business processes, formed by 104 interactive activities and 114 automated activities. These automated activities range from simple relational database queries with routing purposes to complex integrations with legacy systems, as SAP R/3.

The existing workflow systems in SDB are listed below, with its respective production date, number of users and volume of instances generated up to January 31, 2003:

- Travel Workflow (April/2002; 1,245; 8,486)
- On Credit Expenses Workflow (May/2002; 931; 72,231)
- Reimbursement Workflow (May/2002; 1,511; 21,897)
- Cash Expenses Workflow—Headquarters (June/2002; 730; 5,890)
- Cash Expenses Workflow—Stores (July/2002; 903; 7,101)
- Cash Expenses Workflow - Non-commercial units (July/2002; 257; 1,502)

- Price Change Workflow (July/2002; 106; 35,150)
- Payment Requirement Workflow (November/2002; 90; 542)
- Client Claim Workflow (December/2002; 85; 268)
- IT Project Control Workflow (December/2002; 25; 11)
- Sales Campaign Workflow (under development)
- Acquisition Workflow (under development)

In this paper we will focus on the systems put into production until July 2002. The reasons are both the awards rules and because the more recent systems do not have very expressive benefits yet, although there is a great excitement about the Client Claim Workflow (the first client-driven system).

Despite the variety of developed systems, it is easy to find common benefits to all of them. In general, SDB had great difficulties in managing the processes that were initiated in its stores. In a scattered and geographically dispersed organization as SDB, the flow of processes in paper represented a terrible obstacle to productivity, efficiency and control. A process could take days, or even weeks, moving from store to store, and the corporate headquarters wouldn't even know about its existence. Many times the headquarters had no knowledge about what was really happening in the stores. This resulted in a collective sensation of lack of control, many times nearing chaos.

Through the workflow systems, it was possible to eliminate the abysses existing between the operation of the stores and the headquarters supervision. Consequently, it became possible to conciliate the operational autonomy needed by the stores with the maintenance of the headquarters global control. This new scenario translated itself in several tangible effects, such as control of the costs, agility (many processes were reduced by 50 percent or more of its total processing time), security in decision making, elimination of frauds and better customer support.

In this process of massive adhesion to workflow technology, a basic element was user involvement. In all the stages of the development, the final users were present and made decisions about all the aspects of each system. It is important to stress that since the very beginning, users behaved as leaders of technological innovation, and they never had to "accept" it as something finished. In many occasions it generated a curious situation: the IT department, instead of worrying about selling the system to the users, needed to worry about how to handle such a big number of demands.

Another consequence was the attention given to user interface design. All the developed systems are based on the Web platform, and the fact that, before the introduction of workflow technology, SDB didn't have any system of this kind generated a positive impact among users. The easiness and interactivity of the Web environment sharply contrasted with the existing systems, and it attracted the users. But what conquered them was the simplicity and productivity of the screens designed. For example, many approval notifications show the user, in the same screen, data from different

legacy systems (so they do not need to be accessed by the users), making the decision making process much easier.

Thus, the current experience of SDB portrays much more than only the technical and economic viability of the use of workflow technology in wide scale. It portrays the creation of a new and powerful philosophy of work in the corporation. This powerful philosophy, stimulated by strong user participation, places SDB in the front line, becoming more efficient and competitive every day.

THE KEY MOTIVATIONS BEHIND INSTALLING THIS WORKFLOW SYSTEM

SDB is the third biggest retail group of Brazil. Currently it has 166 stores distributed in 62 cities in 4 southern states of the country, with its headquarters in Porto Alegre. In 2002, its sales reached R\$ 3.4 billion (US\$ 1.1 billion). It is also the tenth biggest employer in Brazil, hiring more than 21,000 people. SDB belongs to the Grupo Sonae (Sonae Group), the biggest non-financial private group of Portugal. The Grupo Sonae operates in many areas, such as retail, lumber, real estate, telecommunications and venture capital. The company operates in more than 15 countries in 4 continents.

Many factors collaborated for the implementation of the workflow technology in SDB. Some were external, defined by the market, while others were internal. Besides that, as the use of the technology expanded, the benefits of the systems (see sections 4 and 9) became clearer, and stimulated even more the implementation of new workflow systems. The following subsections illustrate the main motivators.

Priority in consolidation instead of expansion

SDB is a relatively new company. The Grupo Sonae initiated its operations in the Brazilian retail market in the late 80's, through a joint venture with a supermarket chain in the State of Rio Grande do Sul. However, only in 1998 SDB was constituted through the incorporation of another chain (Cândia Mercantil). From then on, SDB initiated a fast and strong expansion in other states, through the acquisition of existing chains and the opening of new stores, hypermarkets in its majority.

Following the strategic planning of the company, the expansion reduced its pace from 2001 on. An inversion of priorities took place, where the consolidation of the company became its priority. This took an enormous effort from the IT department, represented, among others, by the implementation of new systems (as SAP R/3), by the replacement of legacy systems and by the training of new employees. Critical systems, such as the store operating system, were expanded, allowing the desired management to take place.

However, a great amount of processes of the store continued to be made without headquarters control, either because they used legacy systems or because they had never been automated. SDB saw in workflow technology the exact tool needed to make this bridge, totally integrating the company

and making geographic and organizational limits irrelevant to the execution of any process.

Economy retraction demands cost reduction

Starting in 2001, the Brazilian economic situation started to worsen. Since 1999 indications of retraction could be perceived (due to the unstable situation of Brazilian money). Since then, the worldwide recession started to affect the Brazilian economy, specially after the tragic events of September 11. The country suffered with increasing tax rates, income loss by the workers and reduction of the economic growth.

The retail area is always one of the first to be affected by the economic crisis. The market as a whole faced stagnation, or even sales reduction. SDB was not an exception. Thus, with the enormous difficulty to increase sales, it became essential to work on the reduction of costs to keep the company's balance sheet positive (is important to stress that this concern always existed in SDB; the economic situation only increased it).

So, new tools to control expenses and budgets were critically needed. The expenses that lacked control the most were the administrative expenses, generated both in the store and in the headquarters. SDB immediately perceived that with workflow technology there was a possibility to balance these expenses, using a process of approval that was better structured, safer and trustworthy.

Users and senior management open to change

A technology like workflow, that promotes drastic changes in the company, can only be implemented with great political support. Fortunately, the leading users and the senior management received the new technology with great enthusiasm. Mainly after the presentation of the pilot project (developed in only 3 weeks), senior management and leading users were sure that workflow technology was the right tool to promote the changes they knew SDB needed. Therefore, the rhythm of implementation of the first systems was really frantic. Anxious to achieve the desired results, senior management did not hold any resources back to speed up systems implementation. A powerful proof of this was the fact that the CIO got personally involved in the interviews and definitions of the initial phases of the project. Thus, the way to adopt workflow technology in a wide scale was definitively paved.

THE OVERALL BUSINESS INNOVATION, SHOWING IMPACT TO MANAGEMENT RESULTING FROM THE NEW SYSTEMS

The introduction of workflow technology transformed SDB in many ways. In a general way, all the innovations are connected to a central matter: the integration of the activities of the company. This integration made possible to “marry” operational decentralization—an unquestionable requirement of the retail area—with operations control—central interest of senior management. Then, SDB, being a geographically dispersed company, started to operate in a more synchronized and efficient way.

The next topics detail the diverse innovations brought by this new form of management.

Control of Expenses and Budget

From the 10 workflow systems currently in production in SDB, seven are related to the control of expenses and budget. The reason for this is that, before the implementation of these systems, real situation of the budget for each department was a mystery, because information was scattered in different documents and applications. The identification of eventual budget problems was only made after the monthly closing, when the expenses could not be undone.

With workflow systems, the way the expenses are approved and executed was disciplined, assuring the update of a budgetary database in real time, according to the following rules:

- Each department has a set of headings with its respective budgetary forecasts;
- Requested expenses must be approved by the people responsible, as it was defined in the process;
- Approved expenses are automatically reserved in the monthly budget, making available to the person in charge of the department the information about how much of its budget is already taken;
- After the execution of the expense, the invoice is registered in the system and the total amount is paid to the suppliers;
- The manager, at any time, can have access to the forecasted, reserved and spent amounts of each one of heads of its department.

With the creation and maintenance of this budgetary base, the people in charge of that began to have access to the situation of its headings in real time, helping in its management.

Expenses that exceed the forecasted budget are sent for the approval of the directors of a higher department. A sensible analysis is made there in order to identify if the expense is really necessary. This additional approval forced people to evaluate more carefully each one of its expenses, because eventual mistaken decisions will be directed to its superiors and probably disapproved. The same happens to those solicitations that in the first moment do not compromise the budgetary limits, but whose approval will compromise a resource that can be valuable for more important expenses of that department.

Another important aspect was the assurance brought by the automated process that each expense will be directed to the right person. Before its implementation, the decision on the continuity of the approval process was made by each evaluator. In a complex structure, where hundreds of people take these decisions daily, this was a very weak point.

Now the proceeding of each request is determined according to the level of power of each employee. The lesser the amount of the request, the lesser the number of approvals demanded. Each employee has a limit of approval based on its position. Requests above this amount demanded the approval of the superiors, until it reaches an employee with a bigger power to approve the solicitation.

Elimination of Failures and Frauds

Many imperfections that were barely noticed during the manual proceeding of the process started to be monitored and even prevented by workflow systems. When the process of expenses was made manually, it was very common, for example, to see the employees make an expense before its approval. After its execution, the employees directed it for approval and the person responsible for that had no idea the expense was already made. The person responsible for the approval could only identify these circumstances if he disapproved the expense and discovered, later, that it was already made. Another common problem was the solicitant to make an expense in an amount bigger than the one that was approved.

With the process automation, the system started to identify and report these events. With the introduction of the expense invoice, the system now verifies if it was issued before the approval of the expense and whether the total amount was bigger than what was approved. In such cases, the person responsible for the approval is notified by the system. Moreover, management reports were developed to recognize these situations, allowing managers to identify the departments or employees who were not following the procedures.

Another demonstration of the impact of the new technology could be observed in the price change workflow. In the retail business, it is essential that each store is free to establish the prices of its goods, considering that there are local factors (e.g. a sale going on in a nearby competitor store) that have to be considered. Thus, in SDB, the manager of each store had the autonomy to change the prices. However, internal auditing detected anomalous behaviors in several stores, as products being sold with a price that was only 10 percent (or even less) of the original cost, causing great losses to SDB. To correct this problem, a workflow system was developed that only allows the store to modify the price of a product after the approval of the respective manager in the headquarters. The problem was resolved at its root, because once the store manager is aware that his request needs to be approved by the headquarters, will dissuade him of cheating the rules. Thus, there is a better balance between store autonomy and headquarters control, what dramatically reduces the risk of frauds.

Process agility

Although in the beginning it wasn't a key motivation for workflow technology implementation, process agility soon became one of the aspects most valued by the managers. At this point, it is important to note that the dynamism of the retail area makes it necessary for SDB to work in a constant

urgency, where decisions are taken fast and deadlines are very strict. It can be said that the workflow technology “matched” this culture perfectly.

With the workflow systems, requests on paper or by email were eliminated and replaced by electronic forms. Moreover, paper documents, like invoices, were digitized, making them available for all the participants in the process. Therefore, there was no need for a physical process anymore, enormously increasing the speed of processing. It makes possible for the employee to work on that wherever he might be, breaking the barriers of time and place.

Critical activities began to be monitored by workflow systems. They started to be pro-active to prevent process delay. One of the systems where this is more critical is in customer support workflow, because there is the commitment of SDB to solve any question in a time limit of 48 hours.

It was also essential to make the processes more intelligent, in order to simplify work. For example, expenses foreseen in contract have a simplified approval process. Thus, when an expense is requested, the workflow system automatically queries the contracts database. If a matching contract is found, only one level of approval for the expense is demanded, regardless of its amount. Thus, the approval time is shortened, contributing to speed the process.

THE OVERALL TECHNOLOGICAL INNOVATION, SHOWING PROCESS AND WORKFLOW CHANGES/IMPROVEMENTS

In several ways, SDB's workflow experience brought technological innovation. The following topics describe some of the most important ones.

New methodologies for light speed implementation

One of the biggest challenges in systems implementation was SDB's extreme urgency to put them into production. In fact, senior management's enthusiasm with the technology along with the company's culture resulted in a huge pressure on the project team. It was demanded that systems that would take months to be implemented were developed in weeks.

It was clear that conventional workflow systems implementation techniques could not be used. Common wisdom would have condemned most projects to failure. In order to change this situation there was a need to conceive new ways of doing things, both in systems development and user education.

Regarding development, one of the biggest worries was the time needed to define the new business process. Typically, this can take a long time and can result in a huge number of meetings and interviews, where lots of conflicts between process participants are detected. This is also where many decisions involving changes have to be made, resulting in user resistance and procrastination.

In order to overcome that, project meetings were conducted based in a JAD (Joint Application Design). Instead of having individual meeting with every department, large meetings were scheduled with all the participants together. The choice of the people that would take part was decisive. They called the most experienced people and the ones who really knew how the work has done. Their managers were also invited, so if there was any other decision to be made (process redesign, task reallocation, application design, new business rules etc.) it could happen during the meeting.

Another key-point for success was the unconditional support given by senior management. That made intermediate managers feel comfortable to redesign their processes so that they could take maximum benefits from the technology. Any attempt of boycott, if there was such thing, was rapidly suppressed.

User training was another challenge. With hundreds of departments and thousands of employees to be trained, this task required a huge mobilization. Users had to be highly skilled in the systems since inability to operate critical processes (such as price change) could make their department stop. In a corporation that is present in many states, this challenge usually took a couple of months to be overcome.

Considering this, some system characteristics were fundamental to overcome these challenges, such as:

- no need of client software installation
- being available to every computer connected to SDB intranet
- making it easy to learn and navigate due to its Web interface
- make electronic forms resemble as much as possible the paper forms
- workflow graphical definition so that users can easily understand the new business process

To achieve its goals, SDB created education teams formed by final users belonging to the departments involved in each system. Each team underwent an intensive training from the development team to learn about every system detail. Afterwards, each team had to write an operational manual for final users.

Besides, every education team member was responsible for a set of departments. In every department an employee was chosen to be the system expert; this person should learn the system and help the workmates. Each team member had to monitor their experts' progress and continually remember him or her about the importance of the system, the date it would go into production and how he or she should prepare his or her department. Therefore, it was possible to call people's attention to the changes the system would promote, keeping them informed and secure. As a consequence, despite the very fast system implementation, post-release problems were fewer than it was expected.

Extensive legacy system integration

Another important technological innovation was the extensive legacy system integration. Workflow technology was soon found to be the “missing link” that could connect a wide range of information systems in single, streamlined processes. In fact, most information systems carried by the workflow systems developed came from other existing systems. In the expense approval process, for instance, workflow integrated with the following five systems:

1. BDN (Base de Dados de Negócios – Business Database): stores information about suppliers, department and stores
2. RH (Recursos Humanos – Human Resources): stores information about hiring and firing employees
3. SGO (Sistema de Gestão Orçamentária – Budget Management System): stores information about the budget of every account;
4. Microsoft Exchange: stores information about the employee’s username and e-mail and sends an e-mail whenever an user receives a new work item
5. SAP R/3: receives approved, consolidated information about expenses

Each one of these systems required different integration strategies. Some of them were HTTP, TCP/IP, FTP, batch files and database replication.

Productivity-oriented user interface

User interface received special attention in all workflow systems and its design was based on the search for more productivity. The key idea was to offer in a single screen all the information needed to execute the tasks, mainly the decision-making ones. The picture below illustrates this approach.

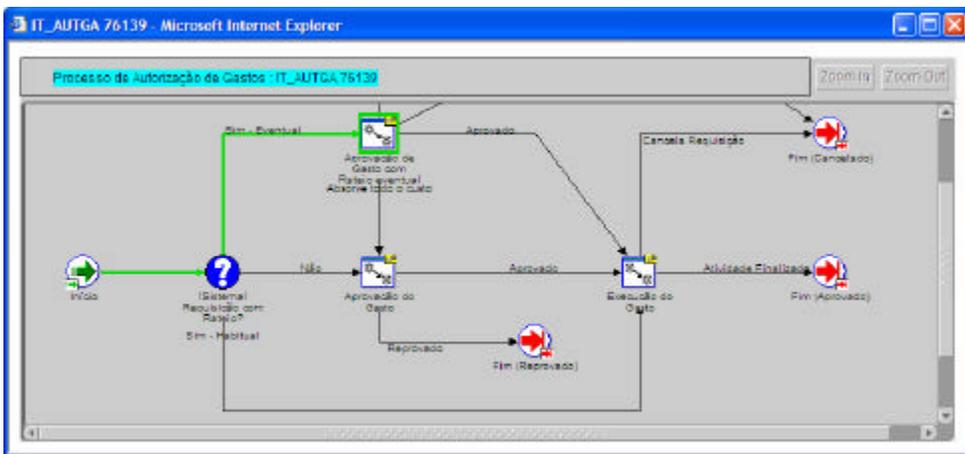


Figure 2. Graphical workflow monitoring (Java applet)

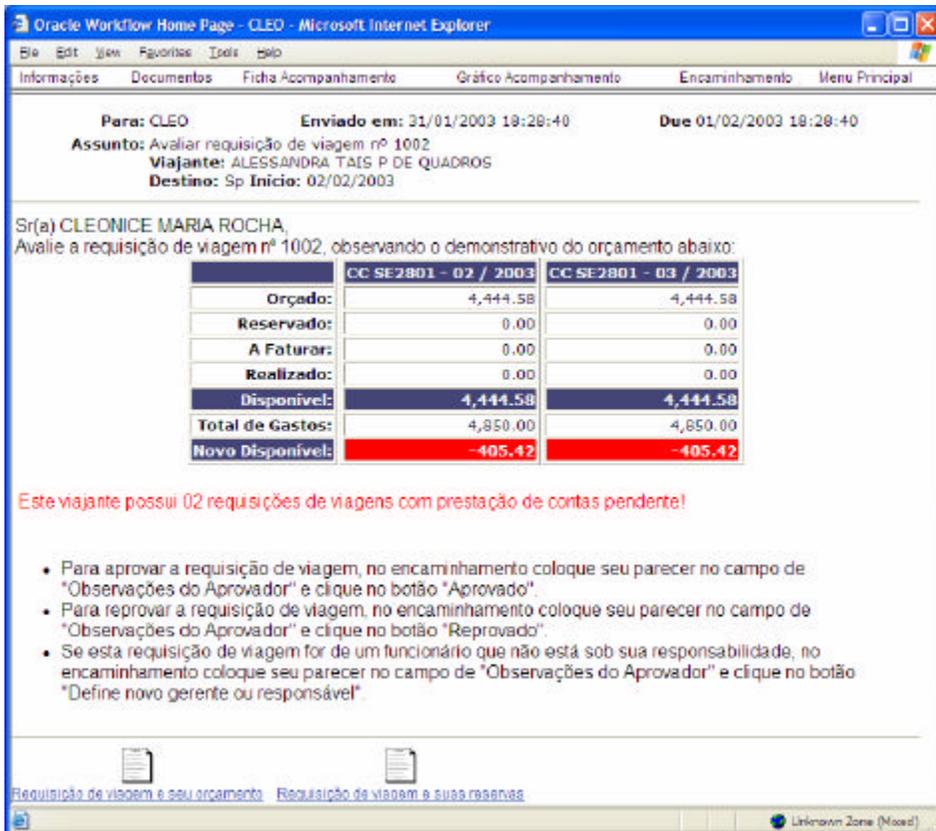


Figure 1. Travel approval notification. The red cells show that the cost of this travel exceeds the available budget. Icons at the bottom allow user to view the attached documents. Budget data is taken from the SGO system and user data from the RH system

It can be seen that much of the presented data was brought from other information systems. In a less sophisticated workflow system, maybe only hyperlinks to the other systems would be provided or even only instructions about how to access them. But SDB workflow systems had a permanent preoccupation of hiding complexity from the user, so he or she could concentrate only in the business issues. Therefore, the workflow systems became the single reference to the user, making work easier and increasing the productivity. No doubt this was one of the most important reasons for a very fast acceptance of the system.

THE SYSTEM USERS AND WHAT THEIR JOBS NOW ENTAIL COMPARED TO PRE-INSTALLATION

The large-scale workflow usage at SDB affected the work of almost every employee. The most important changes were:

- greater organization at work, because one could easily check his or her worklist to see pending activities. The user also receives an email every time a new activity arrives

- access to documents and tasks anytime, anywhere. Senior management was greatly benefited since a significant part of their time is spent on traveling
- transition from paper documents to electronic documents, allowing several data validations, easing cooperation and speeding the process
- electronic workflow monitoring, making full process history available and allowing one to know who's delaying the process
- greater attention to task deadlines, because of the workflow deadline detection and the tracking process
- bigger awareness in decision-making for all the approval tasks, since the system always presents a complete set of relevant information
- several users report being less anguished because they feel that will never lose the process control
- transformation of manual tasks into automated ones, such as SAP R/3 invoice entry

THE BIGGEST HURDLES OVERCOME IN MANAGEMENT, BUSINESS AND TECHNOLOGY

Management

In a general way, management hurdles were small when compared to the size and impact of the implemented systems. There was some kind of apprehension in the early stages when some employees, mainly secretaries, were afraid to becoming useless and being fired. But that didn't happen, and in no way any of the systems implemented were promoted as a staff-reduction tool.

A potentially tough issue (but soon dismissed) was the dissatisfaction of a few employees that used to take advantage of the previous lack of control to do unethical acts. Workflow systems put so much light on the processes that there was no way to keep these damaging practices. Fortunately, these people could not find any other reason to reject the systems. So, they had to resign and accept the new rules.

Another challenge was how to map the process approval responsibilities. The formal hierarchy had little to do with the real approval flows. That is why it was necessary to define a special team to get the effective hierarchy. The difficulties to do this job impacted some of the first systems.

Technology

The main technological hurdle was certainly legacy system integration, specially the SAP R/3 integration. The problems were not related to the software itself, but were due to the team's little experience in using R/3 integration resources. That's why some systems were first released with manual integration, and only weeks after they were fully integrated.

THE NEW SYSTEM CONFIGURATION

SDB chose Oracle as the workflow development and deployment platform. The system infrastructure combines:

- Workflow Server: an IBM RS/6000 Enterprise Server S70 Model S7A running AIX 4.3.3, Oracle Database Server 8.1.7, Oracle Workflow Server 2.6 and Oracle HTTP Server 1.3.22
- Workstations: Intel (several speeds), 32 to 256Mb, running Microsoft Windows (95, 98 and 2000), Microsoft Internet Explorer (5.0 to 6.0), Microsoft Outlook, Oracle Workflow Builder (only process analysts)
- Email Server: Microsoft Exchange Server
- Legacy systems servers: SAP R/3 Server, BDN System Server, RH System Server, SGO System Server

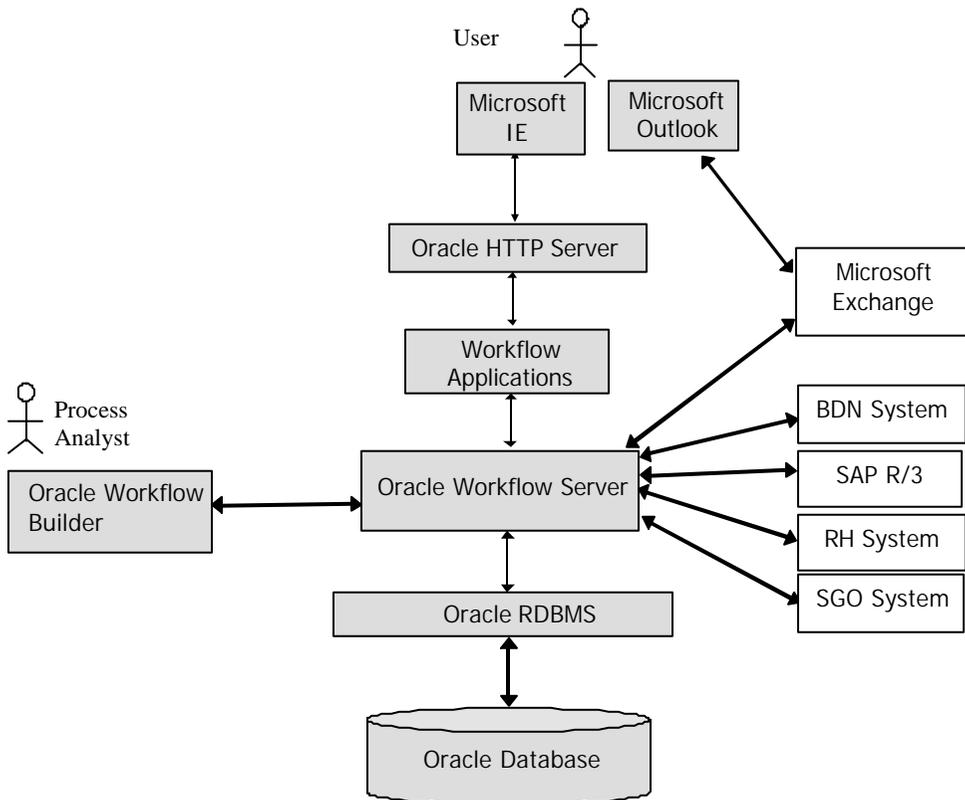


Figure 3. Global system architecture

COST SAVINGS, INCREASED REVENUES, AND PRODUCTIVITY IMPROVEMENTS

Workflow technology has impacted SDB in so many ways that is really hard to specify all the benefits obtained. Sometimes the benefit is clear (e.g. process agility), but hard to measure due to the lack of accurate data about

the pre-installation situation (e.g. how long the process used to take). Nevertheless, there are some very quantifiable benefits such as:

- Due to the optimized user interface, time to approve an expense requisition has dropped from 10 to 2 minutes in average. Since around 103,000 requisitions had been approved in 2002, this leads us to a 14,000-hour saving this year. Since this is basically a managers' time, this is very representative figure.
- Cost reduction due to fraud elimination in the price change process is estimated in R\$ 6 million annually (US\$ 2 million).
- Task automation has produced at least a 20,000-hour annual saving
- Before workflow, only 40 percent of invoices were processed in the same month they were issued. This led to fines due to tax payment delay. Now this number has increased to 70 percent, producing R\$100,000 (US\$ 33,333) annual savings.

Phone calls asking for process status information were virtually eliminated due to the self-service workflow monitoring application and produced a 1,500-hour annual saving.

All these benefits totalize R\$ 6.1 million (US\$ 2.03) and a 35,500-hour savings. Although these numbers are very impressive, these were not the most important advantage to SDB. The greatest one was the discipline brought to every decision taken, in every department, allowing everyone to have a clear perception of the consequences of his or her acts. Expenses approval, for instance, many times was made in a "blind" way, since the approver simply didn't have accurate information about the available budget. Situations like these can put a company down when you have around 300 people taking this kind of decision every day—like SDB has.

For example, let's take the travel expenses budget. This budget is now controlled by the Travel Workflow—the first one to be implemented. In 2001, travel expenses were 26.23 percent *above* the budget, what represented an R\$ 1.5 million (US\$ 500,000) overflow (a similar behavior was found in the preceding years). In 2002, travel expenses were *below* budget, taking only 93.52 percent of the forecasted resources. Considering that the workflow system was implemented only in April, it is possible to have even more savings in the coming years.

It is important to point out that impact is not only financial, but also cultural. The workflow systems implemented connect systems and people, allowed them to take more responsible decisions and making them partners in the search for more efficiency.

COMPETITIVE ADVANTAGES ACQUIRED AND HOW YOU MOVED COMPETITIVE GOAL POSTS FOR YOUR INDUSTRY

The retail industry in Brazil is very competitive. It is a business based on large volume and low profit rate. Nowadays it is going through a very fast

market consolidation (the market share of the 4 largest companies grew from 27 percent to 43 percent in the last 5 years), what points to an even tougher competition in the near future. So, an extraordinary effort is needed to keep (and increase) market share and leadership.

Since its arrival in Brazil, SDB has defined that low product price would be its key competitive advantage. The whole marketing of the company is based on this idea and is explicit in some of its most important slogans such as “The champion of low prices!” and “You know BIG is cheaper!” (BIG is the fantasy name of one of SDB’s networks).

It is easy to see the importance of cost reduction to a company proud of offering low prices. Reduction on internal costs opens space to lower prices even more and/or increase profits. In any situation, the company gains a competitive advantage. From this perspective, workflow technology is totally aligned to SDB’s way of doing business and it certainly has contributed to improve its competitiveness.

IMMEDIATE AND LONG-TERM PLANS TO SUSTAIN COMPETITIVE ADVANTAGE

SDB sees workflow technology not as a system or application but as a tool to become more and more efficient. So, for SDB, expanding workflow usage in the company is something strategic. Senior and IT management indicate which business processes should be addressed and new systems are developed fast. This increases the trust in the technology and stimulates managers to ask for more and more systems, building a virtuous cycle.

It is very interesting to point that Sonae Distribuição (the Portuguese company that owns SDB) is very excited with workflow technology and desires to reproduce in Portugal what is happening in Brazil. So there is a strong possibility of expanding workflow technology not only in SDB but to other, maybe many, Grupo Sonae enterprises. This would certainly be an extraordinary next step.