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INTERNATIONAL CASE STUDY

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Case Study 1: The Selection of the IT Platform: Enterprise System Implementation in the NZ Health Board

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Executive Summary

The Health Board¹ is one of the largest public health care providers in New Zealand (NZ). In early 1999, a supply chain optimization review recommended an enterprise system (ES) implementation to provide better control and reporting of organizational finances. The focus of this case is the IT platform decision made in conjunction with the ES implementation process. This decision was thoroughly considered by all Health Board stakeholders and the final choice was made in alignment with the Board's strategic IT policy. Nevertheless, initial testing two months prior to go-live revealed major performance problems with the new system. The case documents the events that led up to the selection of the original IT platform and the challenges the project team faced in deciding what to do when the platform did not meet contractual specifications.

Keywords: IS project risk management; IT decision process; IT platform; MIS implementation

ORGANIZATIONAL BACKGROUND

The Health Board is a non-profit public organization that is one of New Zealand's (NZ) largest providers of public hospital and health services. The Board has approximately two million patient contacts annually and provides regional services for 30% of NZ's population. The organization is structured around seven business units that include four specialist teaching hospitals and other facilities offering community health services, mental health services, and clinical support services. The Health Board vision focuses on patients' needs.

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Being a non-profit organization, surplus funds are allocated to supporting patients, research, and education. Table 1 provides the organization's profile.

Health funding in NZ is disseminated through 21 district health boards (DHBs). Each DHB is responsible for improving, promoting, and protecting the health of the population it serves. For their catchment area, each DHB is delegated the responsibility for making decisions on the mix, the level, and the quality of the health services that are publicly funded. They are also responsible for entering into agreements with providers for health service delivery. DHB decisions are made on the basis of local needs, within national guidelines. Funding is based on the size and characteristics of the population of the district each DHB serves; however, a few nationally funded services still exist.

The Health Board is one of three DHBs in the same region that share a vision to promote close cooperation for the provision of health services. The Board is made up of 11 members: seven elected and four appointed. All Board members report directly to the Minister of Health.

SETTING THE STAGE

In 1999, ConsultCo, a big-five consultancy firm, was engaged to assess the strengths and weaknesses of the supply chain management function at the Health Board, with a view to provide recommendations for the improvement of that function. The product of that engagement was a supply chain optimization (SCO) review report. The SCO review identified problems in business operations and suggested a combination of an organizational restructure, business process reengineering (BPR), and ES (ERP) implementation to accomplish the change program.

The core financial modules of Oracle 10.7 ERP system had been implemented in 1997 and were operational at the time the SCO review was conducted. However, that implementation was heavily customized and could not provide for realizing the new strategic vision that aimed to “standardize, consolidate, and integrate services . . . and control finances” (Strategic Plan for the Health Board 2002–2007).

TABLE 1 Organization Profile

Categories	Health Board Profile
Core business	The provision of public hospital and health services
Type of organization	Non-profit organization
Ownership	Public organization
Business units	Four specialist teaching hospitals and facilities offering community health services, mental health services, and clinical support services
Mission statement (1999–2000)	"The Health Board will provide New Zealand's finest excellence and innovation in patient care, education, Annual Report, 1999–2000). comprehensive health service through research, and technology" (Health Board
Customers	Patients (two million patient contacts annually)
Reach	Regional (within NZ)
Organization size	8,500 employees; \$600 million budget for the year 2000/2001

In addition to the recommendation of the SCO review, in early 1999 the Health Board was informed that Oracle 10.7 financials was going to be de-supported by Oracle by the end of 2000, leading to the realization that a major application upgrade was urgently needed. As a result, and in partnership with ConsultCo, an ES business case was developed with a view to rectify these problems. The business case included eight key objectives that were linked to the Health Board's strategic plan. These are summarized in Table 2.

TABLE 2 ES Project Objectives

Objective	Descriptions
1	To achieve the savings identified in the Health Board strategic business plan.
2	To account for savings through an appropriate standard costing mechanism within inventory.
3	To have reporting systems that enable management by exception and the control of rogue expenditure.
4	To implement procurement through a standard requisition process with a catalogue environment.
5	To implement processes for the delegation of authority and risk management of the procurement process.
6	To have a platform in place which: • positions the Health Board to enter into external shared services with other local health care providers • facilitates internal interconnectivity, which allows for the consolidation of accounts payable, inventory management, internal logistics, and enables external supply chain connectivity.
7	To implement the "Health Board Way" throughout the supply chain process, with a particular focus on standardization of processes, integration of systems, and consolidation of service.
8	To act as a catalyst for the change in business processes and work practices.

Note: Adapted from the Health Board ERP System Business Case (June 2000, p. 25)

Despite the problems the SCO review had identified with the Oracle 10.7 system, there was an agreement that the new implementation would still be an Oracle ES. The Health Board would have had to write off the huge investment in the Oracle 10.7 application if it chose to change to a different vendor. Therefore, the business case for the new system was

written with a focus on an Oracle upgrade and implementation that was financially justifiable.

Organizational restructuring started by the end of 1999, with new job descriptions being written and advertised to fulfill the new organizational design. All new roles had a focus on system implementation experience in preparation for a re-implementation of ERP applications to support the change program. Table 3 presents a chronology of ES implementation events.

TABLE 3 Main ES Implementation Events (1997–2000)

Date	Event(s)
1997	- Implementation of the heavily customized financial modules of Oracle 10.7 ES.
Early 1999	- Oracle users were informed that the Oracle 10.7 ES would be de-supported by the end of 2000. An upgrade was suggested to address the loss of future support.
Mid-1999	- The newly appointed CFO recruited a BPR Manager to project manage and review both the supply chain and the finance functions in partnership with ConsultCo, a big-five consultancy firm. The output of that partnership was the supply chain optimization (SCO) review.
End of 1999	- The ES business case was developed to resolve the majority of the SCO review recommendations, including a major system upgrade, with the CFO being the ES project sponsor.
March 2000	- In conjunction with the initiation of the ES project, new organizational roles were established, advertised, and filled by March 2000. All new recruits received training on the Oracle 10.7 applications.
March–May 2000	- A request for proposals for implementation consultancy services was issued. Bids were received and evaluated, with the winning bid going to ConsultCo.
June 2000	- The new version of the Internet-enabled Oracle 11i application was released.
July 2000	- The ES business case was submitted to the Board and approved.
August 2000	- The ES implementation project started, including core financials, fixed assets, and procurement modules.

The final business case the Board considered in July 2000 compared two upgrade alternatives. These were an upgrade from Oracle 10.7 to either Oracle 11 or Oracle 11i ERP applications. While Oracle 11 was in operation since 1999, Oracle 11i was a new release that was launched in NZ in June 2000. The Health Board chose the upgrade to the Webenabled Oracle 11i application to avoid the need to undergo a further upgrade a short time later. A profile of the ES implementation project is included in Table 4.

TABLE 4 ES Project Summary

Categories	Descriptions
ES product name & version	Oracle 11i
ES core modules	Financials (upgrade), fixed assets (new implementation), and procurement (new implementation)
Number of users	8,500 users, including 120 power users
Cost of implementation in dollars	Approximately NZ\$2.3 million that included NZ\$1.7 million for hardware, software, consultancy, and internal costs; plus NZ\$650,000 for operational costs, including backfill and change management.
Number of locations	One instance implementation on multiple sites (seven business units on two geographically distributed sites).
Implementation management/consultancy	Third-party implementer: ConsultCo, a big-five consultancy firm.

CASE DESCRIPTION

It is October 2000. James Keen, the chief financial officer (CFO) of the Health Board and the business sponsor of the ES project, is faced with a difficult decision. The implementation of the Oracle 11i ERP system is scheduled to go live in mid-December. However, initial testing shows that there are some key performance problems with the system. In a meeting with the project team earlier that day, James was told that software testing on PCs that use the Windows NT platform showed substantial delays in data processing. Even worse, the tests were carried out using mockup data and the expectation was that these would be fairly manageable by the system.

James remembers that the IT platform issue was one of the issues the ES project team had spent considerable time on during the evaluation phase. The IT platform is the foundation for all business applications; hence it is key to any successful IS implementation. As shown in Figure 1, the base of the IT platform is the hardware (HW) and operating system (OS) layer. Although the components in this base layer are largely commodities and are readily available in the marketplace (Broadbent & Weill, 1997), the hardware and software architecture form the basis for the IT capability and functionality of the firm (Meyers & Oberndorf, 2001).

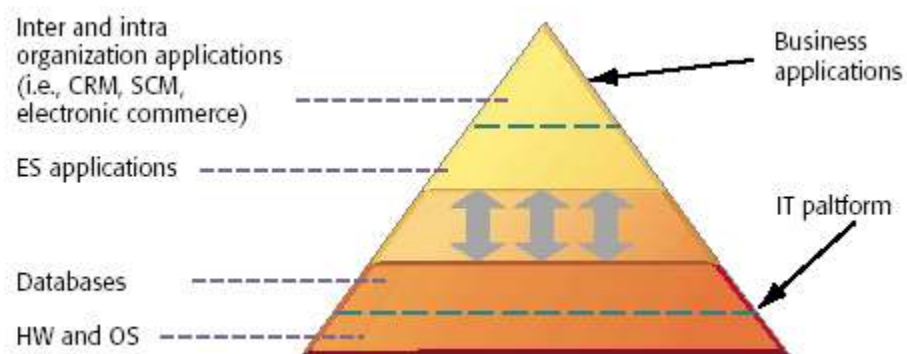


FIGURE 1 Business Applications & the IT Platform

Note: Adapted from Broadbent and Weill (1997)

When purchasing any new, large application the organization must consider a number of criteria for a suitable IT platform. One obvious factor is the vendor's choice of platforms. For example, if a Linux-based version of the application is unavailable, then Linux is not an option. A second factor is the cost of the operating system and the hardware. For example, initial investment in Windows is generally considered to be a high-cost option, while Unix and Linux cost less (NetNation Communications, 2003). However, organizations must also look beyond acquisition costs to total cost of ownership (TCO), which also includes operations and control costs. TCO can be as much as 100% more than hardware acquisition costs (David, Schuff & Louis, 2002). A third factor is any hardware/software standard

configuration policy in place, usually to solve operational problems (McNurlin & Sprague, 2002). Because of existing staff expertise, the need to integrate applications across a uniform platform, or attempts to reduce TCO, an IT department may prefer or require a standard IT platform for all applications. Other factors such as ease-of-use, portability, processing capability, track record, reliability, and scalability also influence the IT platform choice. See Table 5 for a more detailed comparison of the Windows NT and Unix operating systems platforms.

TABLE 5 Unix vs. Windows NT

TABLE 5 *Unix vs. Windows NT*

Platform features	Unix	Windows NT
Administrative support	Unix has advanced server and user management administrative functions. For example, Unix has a disk space allocation utility that can control disk space for any user.	A disk storage facility is not available with the NT platform.
Costs	Most Unix applications are free to use.	Most Microsoft's applications are proprietary; therefore companies pay for using them. Furthermore, compared with other hosting platforms, Windows often require more staff resources to maintain. Hence, the Windows total cost of ownership is relatively high.
Interface/Ease of use	Unix is text-based and uses a command line structure.	Windows uses a graphical user interface (GUI) and is the operating system of choice for many new users, with a reputation for ease of use and administration.
Portability	Unix is an open source platform; therefore, there is a wide variety of CGI scripts, PHP scripts, and MySQL applications that will work on nearly any Unix system. However, writing an application with a Shell script or Perl in a Unix environment needs a lot of programming experience. Also, not designed for Windows, many of these scripts will not work on a Windows platform. Unix is portable to numerous hardware platforms. However, different vendors of Unix have released different versions. As a result, an application loses its portability if it is not running on all versions.	The Windows platform is compatible with Microsoft applications, such as FrontPage, Access and MS SQL. It also offers the use of programming environments such as Active Server Pages (ASP), Visual Basic Scripts, MS Index Server, and ColdFusion. These server-scripting technologies are now becoming more popular because they are easy to use.
Processing capability	Unix is a multi-user, multitasking operating system that is text-based. As a result it can dedicate the full power of the server to applications. Hence, its powerful multiprocessing capabilities are still unparalleled.	The Windows NT platform is a multi-user and multitasking operating system.
Track record, reliability, and scalability	Unix has been in a state of constant refinement since its inception 30 years ago. The platform has a proven track record of performance, stability, and security. Furthermore, Unix can be used over networks that range in size from small servers to supercomputers.	Windows NT was a relatively new platform. Currently, the Windows 2000 Server is the newer hosting platform that completely replaced Windows NT.

Adapted from Alexander (2004), BroadSpire (2003), and NetNation Communications (2003)

These general factors apply to enterprise systems implementations. TCO is a critically important component in determining the business value of an ERP initiative (Meta Group, 2000). Additionally, a new ES implementation or upgrade requires knowledge and expertise in areas of software functionality, systems configuration and integration, and other technical aspects of the IT platform (Ng, 2001). Other factors that are part of an IT platform

decision for ES implementation include vendor customer support, lease versus buy options, and the working relationship, good or bad, that the IT vendor has with the organization (Hirt & Swanson, 1999).

Many of these criteria for the IT platform decision were considered by the NZ Health Board ES project team. Vendor 1 had proposed an IT platform consisting of Sun computers using the Unix operating system. Vendor 2's proposal was to support the ERP application on IBM computers running Windows NT. Michael Field, who has the conjoint role of ERP Project Director and BPR Manager, recalls how the initial IT platform decision was made:

We gave the opportunity to a number of hardware suppliers based on our statistics [that] we'd collected through the business case exercise. . . . ConsultCo was helping us write the business case. Also was Oracle. . . . We had already collected all of that information informally so we already had a view on what was possible and what wasn't.

Part of our strategy was preferably to go down an NT operating system route. That's why we went down the hardware route that we did because it was an NT operating system. . . . By the time it got to formally go out for RFP for the hardware, we knew what we wanted and how we would evaluate it. . . . We wanted to make sure we had the right guarantees. So contract negotiations with those hardware vendors was very much written into warranty—[we had a] strong focus on warranty provisions. . . . We again ended choosing objectively a hardware solution, which was based on the NT platform. . . .

Then it was up to the hardware vendor to guarantee that the Oracle software would work on their hardware. That was a large part of the negotiations because we knew we were going into a risky environment and that was the only way that we could seal it because we didn't have a relationship with a prime vendor. . . . We had to make very sure each one of the individual contracts we signed had good warranty clauses in them. . . .

The Board's IT department had favored the Windows NT platform because it was the standard IT platform for the organization. Furthermore, two years earlier, a review of information systems at the Health Board had concluded that business operations were disadvantaged because of an inconsistent approach in managing IT. A standard configuration policy was promoted and this had a strong influence in the selection of the IT platform. Finally, there were significant price savings in adopting the Windows NT platform over the Unix alternative due to lower TCO.

An issue that complicated the evaluation of the IT platform decision was that Oracle 11i had just been released at the time the IT platform was being considered. The proposed Health Board implementation was to be the first implementation of Oracle 11i in NZ. Additionally, the only planned implementation in Australia was in a for-profit business that was relatively smaller than the Health Board. As a result the Board lacked any concrete evidence of how the application would perform under either platform.

Theoretically, the Oracle 11i set of applications could be supported by both platforms,

Windows NT or Unix. Andrew Smith, the Accounts Manager for Oracle at the time, had explained that “yes, both alternatives were possible,” though he recommended the Unix platform. Experience in implementing ERP applications on the Unix platform showed that system performance was often more stable, especially for an implementation the size of the Health Board. Andrew, whose role was focused on sales and managing the client-Oracle relationship, left both options open for the Health Board project team to decide.

The other party involved in the IT platform decision was ConsultCo, the big-five consultancy firm that was the ES implementation partner. Like many public organizations in NZ, the Health Board was embarking on a big ERP project, but with a considerably low implementation budget for the size of the organization. To support the fast track project, the Health Board contracted with ConsultCo to manage both the evaluation and implementation processes.

In NZ, it is common practice that the client organization determines what the new IT platform should be. Most organizations in NZ are small and medium-sized enterprises (SME), especially when compared to organizations in North America or Europe. As a result, the resources allocated to these implementations are relatively small, even though the systems involved usually have the same amount of sophistication and complexity. As one means of cutting costs, the client organization generally takes more responsibility in implementation decisions. That was the case here—the Health Board was responsible for a large portion of the implementation risk and the IT platform was one of those risks.

After considering the advice offered by the Board’s IT department, the Oracle Account Manager, and ConsultCo, the Health Board ES project team selected the Windows NT platform for the implementation of Oracle 11i ERP system. Knowing the risks involved, and to mitigate these risks, they put into the agreement with Vendor 2 a condition to ensure that the new system performed according to specification. If performance was not acceptable, the legal agreement allowed for the contract to be terminated. Vendor 2 accepted this condition and implementation began.

Coming back into the present, James was very disturbed to learn that the performance tests during the past week had shown unacceptable delays in data processing. He realized that a revisit of the earlier evaluation decision was imminent. James knew that this could represent a major setback to the project. If this problem were to delay the go-live date, even if only by a few months, then the whole project would collapse. Any delay, he thought, would require a huge boost in the implementation cost. Specialized ERP consultants were scarce and the ConsultCo consultants working on the Health Board project were being flown into NZ from the ConsultCo office in Australia every week. To consider extending the project, even for a few weeks, would mean a large increase in costs and the Health Board did not have a large contingency fund to cover this blowout. Furthermore, as part of new government regulations, the Health Board was to start implementing a new chart of accounts in December. Plans for implementing the new chart of accounts were embedded within the new ERP system, so statutory requirements, as well as cost considerations, were at risk.

James, as the business sponsor of this project, knows he needs to move on this issue

very quickly. Going over both the earlier considerations of the IT platform decision and the contractual obligations with the hardware vendor, he wondered: Could he recommend that the contract be terminated and go for the alternative path of the Unix platform? Because of the size of the contract, organization policy necessitated that such a decision needed to go to the Board members for approval. Other questions that needed a careful assessment were: What if the hardware vendor decided to go the litigation path? What if the problems were not caused by the IT platform? What if the Board did not approve the change?

James knows that a decision needs to be made and to be made very quickly. It is one of those times when not making a decision is going to jeopardize the fate of the project any way. He picks up his phone and schedules an urgent meeting with his project team the next day.

CURRENT CHALLENGES/PROBLEMS FACING THE ORGANIZATION

One of the main problems that affected the choice of both the OS and the hardware platform was the relationship between the release version of the ES application and the IT platform. The Health Board had chosen to implement the new release of Oracle 11i; yet, experience in implementing different combinations of OS and hardware platforms with the new release was very limited. In the following, Michael Field, the ERP Project Director/BPR Manager), explains the implication this decision had on ES implementation:

One of the important areas in terms of a large ERP implementation is around the maturity of the software and its relationship with the operating system. This had quite a large impact on the issues which we had to manage for our project. For us, one of the biggest things in this particular implementation was the relationship of the application to an operating system. That triggered a whole lot of things for us. What we did on the project might have been different to some other ERP applications because this issue looked like it was going to have an impact on us being able to deliver the whole project on time.

When a lot of people do an implementation they bundle the whole implementation with no risk. They pass the risk onto the party implementer who supplies everything—the hardware, software, and implementation services. In our case we believed we didn't want to do that so we structured the project in a certain way and that was to get a third party to help us do the implementation. We'd buy our software from someone else and we would get the hardware from somewhere else. This in terms of managing a project of this size proved to be challenging. But for us, that was the only way we could afford to do this project.

It [selection of the IT platform] had a major impact on the project. So . . . [it] went up through to the steering committee, even to the Board. . . . Even though we had used all the expertise from Oracle, all the expertise from the IT platform vendor in this case, plus ConsultCo's collective expertise, so-called best around the world, the decision ended up in hindsight not the right one. But at least we made a decision.

Although the initial IT platform decision was made at the project manager level, where Michael (ERP Project Director) and ConsultCo were key decision-makers, where

performance deteriorated James (the CFO) stepped in in order to rescue the project. He says:

I didn't get involved in those [IT platform] decisions at all. That was driven out of the IS function working with the consultants. That's where we had major problems all around—around the hardware and the database. A decision had been taken to go down that path. As we got into the project, there were problems.

There are two different explanations to the software performance problems that caused the Board to consider a change in the IT platform decision. The Health Board attributed performance problems to the newly released Oracle 11i. Oracle, the ES vendor, attributed the problems to a combination of unrealistic expectations, limited vendor participation, and an immature implementation experience. A detailed explanation of these two views is provided next.

The Health Board based their conclusion that the Oracle 11i had not been thoroughly tested within an NT environment on their own experience, as well as the experience of others who were implementing Oracle 11i at the same time. Heated discussion in the online forum of the Oracle application user group (Hawaii Ebuzz, 2000; Songini, 2000) and a 2001 report from the Gartner Group ("Oracle calls Gartner Group biased," 2001) affirmed this explanation that Oracle 11i was not ready to go to the market in its initial release.

The ES vendor Oracle believed that the IT infrastructure problem was exaggerated for three reasons. First, neither the vendor nor any of its representatives were actively involved in the implementation. Therefore, critical issues did not come to their attention until a problem became significant and needed immediate action.

Second, although the implications of implementing a new release had not been clearly explained by Oracle in advance, the Health Board should have had realistic expectations when they chose the new 11i release. One fact most computer professionals are aware of is that new software releases are never bug free until they are validated by users. Therefore, problems inherent in the new software release could have complicated the diagnosis of performance problems.

Third, the ConsultCo implementation team did not have prior experience in implementing the Oracle 11i applications on an NT platform and had refused several suggestions to add an Oracle person to complement their team. The Oracle Accounts Manager best summarizes those three issues in the following statement:

IT were the people that were saying that you must use an NT system in the first place because "that's our standard." . . . They were more worried about the fact that they were trying to have an NT Microsoft type strategy. . . . We most assuredly suggested to them and recommended to them many times that they should go down a Unix path and they didn't listen to us there. . . . We [Oracle] concluded that [ConsultCo] had little experience with NT—very little experience with NT and with Oracle. Even less, [they] certainly had no experience for putting 11i onto it. They had no experience in putting 11i into a Sun box, which is why

always felt uncomfortable that they weren't taking Oracle people [as sub contractors on to the project].

In summary, the main challenge facing James Keen is how to resolve the IT platform problem within the two months before go-live. James knows that not resolving IT platform implications in a timely manner is likely to result in a failed project. Hence, a decision needs to be made and actioned quickly. Is it possible to work with Vendor 2 to resolve these problems, assuming these were only teething problems? Or need a change of IT platform be actioned as soon as possible with implications of a cost overrun and a legal suit?

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ENDNOTES

¹All organization and personal names have been disguised.

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CASE STUDY QUESTIONS

1. Describe the NZ Health Board and the environment in which it operates. Why did it need a new enterprise system?
2. Discuss the pros and the cons of selecting Oracle¹¹ⁱ ERP applications and Windows NT for the operating system for the Health Board's new enterprise system.
3. Why were there performance problems with the new system? What management, technology, and organizational factors were involved?
4. What should James Keen do to solve these problems so that the new enterprise system is successful?

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Case Study 2: A Knowledge Platform for the Customer Contact Center of Union Investment

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"Can you help me?"

"Hello, could you please tell me why the stock price of my bond fund dropped so steeply on November 23rd?" asks Mrs. Jones, customer of Union Investment. "Sure, Mrs. Jones, but it will take a few minutes. Can I call you back?" answers the Customer Contact Center (CCC) agent. She first checks out which funds the customer has in her account using a host application. Then she looks up information about the fund in a brochure on her desk. She figures out the solution of the enquiry and calls Mrs. Jones back. This is a typical customer enquiry of which Union Investment has to answer over 4,000 each day.

Founded in 1956, Union Investment is the third-largest German mutual fund company with assets exceeding USD 100 billion as of 2002. Union Investment offers public funds as well as restricted funds. The range of public funds encompasses equity funds, fixed income funds, money market funds, and mixed securities and property funds as well as open property funds. These products are distributed exclusively via partners in Germany in a co-operative of banks called the "Finanzverbund". The Finanzverbund consists of mostly medium-sized banks like the Sparda Bank or the Volks-und Raiffeisenbanken, which pool some of their resources in backend processes but are otherwise independent of each other.

Besides investment funds, Union Investment also offers services concerning the administration of deposits for more than 3.5 million customers across Europe. Union Investment has its headquarters in Frankfurt, Germany. It also has affiliates and branch offices in Germany, Luxembourg, Switzerland, Spain, Italy, and Poland.

Up to the late 1990s, Union Investment only provided customer service to bank representatives and had no dedicated service department. Rather, some employees from the department "Product Information" were available by phone for bank representatives and handled this traffic besides their regular jobs. With the booming stock markets of the late 1990s, however, Union Investment experienced significant growth in the number of customers and deposits. As a consequence, the old structure couldn't cope with the increased volume of inquiries anymore. Management therefore decided to reorganize the company in 1999, not only to improve communication to banking representatives, but also to allow customers to contact Union Investment directly.

¹Further information about the company can be obtained at <http://www.union-investment.de>.

CUSTOMER SERVICE AT UNION INVESTMENT

THE CUSTOMER COMMUNICATION CENTER(CCC) – INTERFACE TO THE CUSTOMER

Union Investment aims at sustaining its competitive position by providing high-value customer service as well as attractive financial products of all sorts. Customers typically have a long-term financial portfolio strategy and quite different levels of financial markets expertise. Therefore, they not only expect a broad spectrum of products and services that fit their investment strategies, but also superior service. This service demand exists regardless of whether the customers turn to their local bank representatives or contact Union Investment directly as their mutual funds specialist.

To achieve a high level of service without sacrificing economies of scale, the

organization has been separated into two major units since the reorganization in 1999. One is concerned with the efficient execution of transactions ordered via the bank representatives while the other, the Customer Service unit, is concerned with providing superior service in the interaction with customers. Retail-customers can call Union Investment directly to resolve problems with their existing portfolio as well as to demand information on specialized products of Union Investment. The Customer Service unit consists of the Customer Communication Center (CCC), which processes all customer communication and the supporting departments "Service Management" and "Information Support" (cf. Figure 1). In the beginning, the unit was made up mainly of employees of the former "Product Information" department.

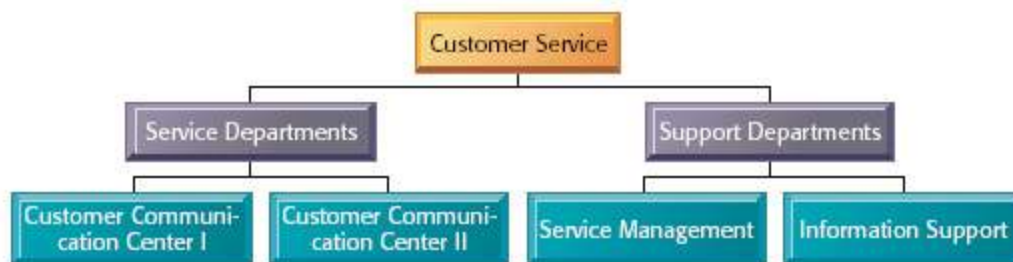


FIGURE 1 Organizational structure of customer service at Union Investment

It is the Customer Service unit that is responsible for applying concepts of Customer Relationship Management (CRM) in order to increase customer focus and strengthen the competitive position of the company. As a consequence, it is of significant strategic importance. This especially applies to the CCC, which serves as the only interface to the customers of Union Investment. The communication consists primarily of over one million inbound telephone calls a year. Furthermore, the CCC has to manage increasing numbers of enquiries via other channels such as fax, email, or letter. The services of the CCC consist of the provision of solutions for customers having problems or requiring information on their status and past transactions.

The CCC I consists of 80 employees who cover the first level of customer support. The 40 employees of the CCC II cover the second level of support with more complex topics and process enquiries in the form of emails, letters, and faxes (about 6,000 a month). Most of the 90,000 monthly calls are received on the first level and can be escalated to the CCC II if necessary. Banking representatives may contact the second level directly with questions concerning specific topics. Service Management deals with reporting issues, complaint management and process design as well as application support to the CCC. Information Support provides knowledge to the CCC and resolves questions that agents can not resolve by themselves.

The CCC attempts to increase customer satisfaction by resolving as many enquiries as possible within the first contact (first call resolution rate), making it unnecessary for the customer to call again. If enquiries are resolved immediately, efficient means of escalation are used to reduce overall cycle time. This means that the required expertise needs to be

located very quickly if the agent cannot answer the request herself. Keeping the service level constant is quite challenging as the call volume varies significantly during the day but also between different times of the year (cf. Figure 2, Figure 3). The high level of skills of the agents is helpful as each one can rapidly process questions concerning a wide array of topics, making a first call resolution more probable. However, this high skill level needs to be constantly renewed by training measures. Ideally, these training measures are offered electronically to enable agents to study them in offpeak hours. This way, agents who are not busy can still use their time productively and generate benefits to Union Investment by better serving customers later due to their improved skill level.

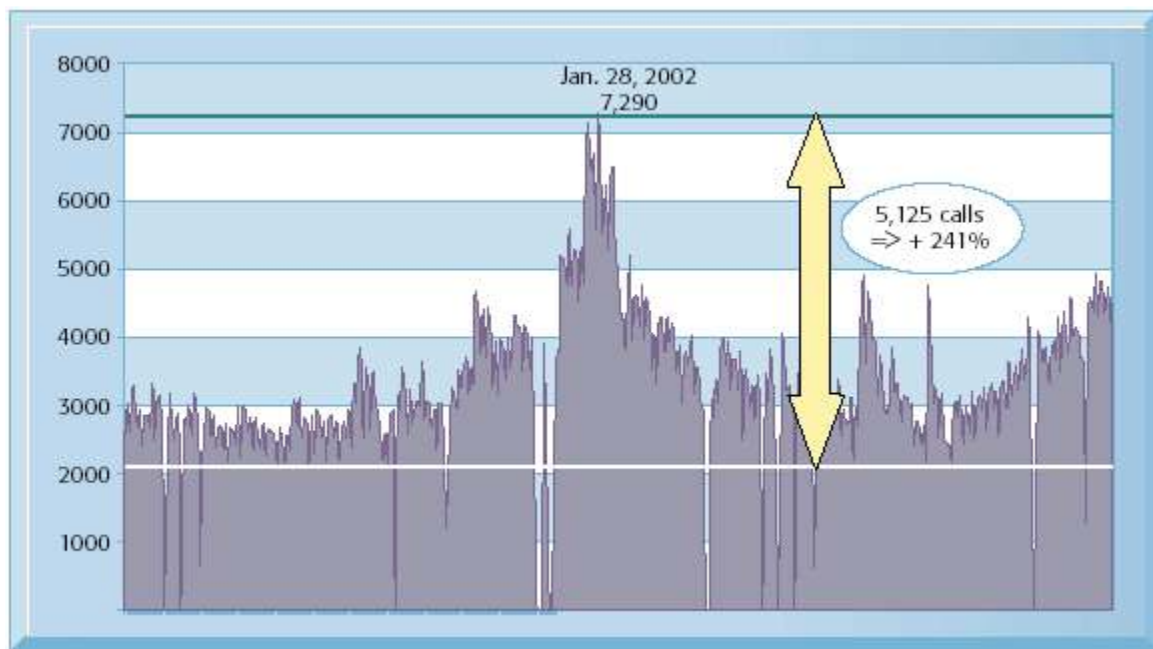


FIGURE 2 CCC daily call volume in 2002

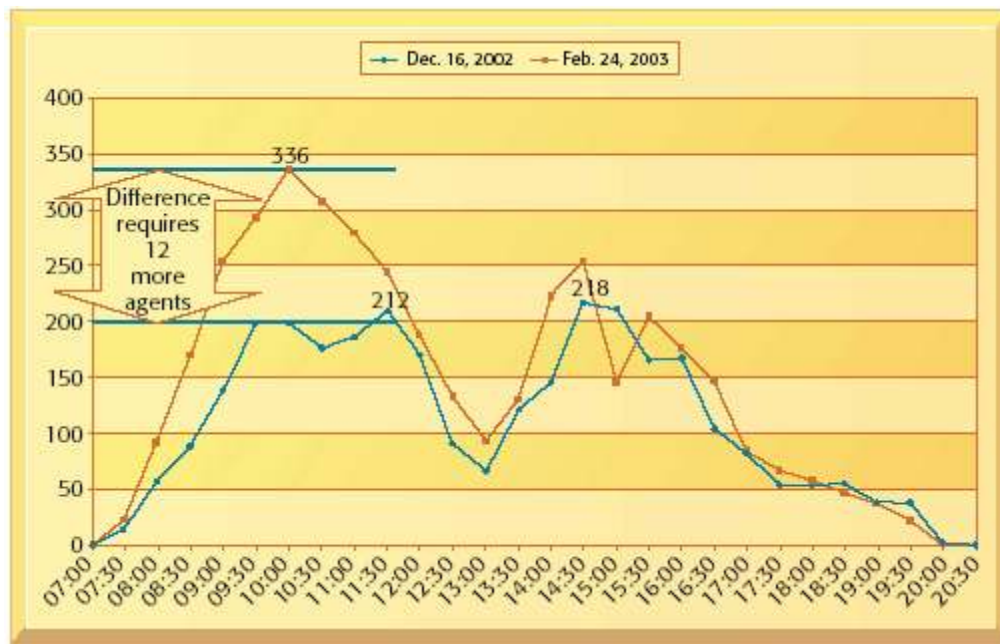


FIGURE 3 CCC spread of call volume/half hour during the day

Figure 4 illustrates the role of the CCC as a communication interface. Prospects or customers either get in touch personally or pose their enquiries to the representative of the local bank who forwards them to the CCC, usually by telephone.

Upon an enquiry, there are three possibilities for the CCC agent to answer:

1. If the request can be handled by the agent solely based on her expertise, she can directly respond to the customer, thereby not requiring any further information sources.
2. If the agent is unable to resolve the issue without further information resources, she can try to find the answer in "real-time" in the Web-based knowledge platform "HelpMe", in her email-file, or by escalating the call to a known expert within the CCC who is likely to know the answer. As in the previous case, the customer's issue is resolved instantly.
3. If the needed information cannot be retrieved in "real-time", the agent can engage in further research in "HelpMe". It not only offers short answers, but also information in the form of cases or background stories, which serve as training measures to further deepen one's expertise. If the needed information cannot be found there, the agents have the possibility of calling the Information Support team, which will deliver the needed information. If necessary, the Information Support team contacts members of other parts of the organization, thereby serving as an interface between the CCC and the rest of the company. Once the answer is determined, it is forwarded directly to the requesting agent and included in "HelpMe" so that it can be accessed by the other agents. Finally, the agent forwards the answer to the customer or bank representative

by phone or (e)mail.



FIGURE 4 Communication between Union Investment and its customers

Prior to the project described here, new information was usually sent first by email to deliver it as quickly as possible and create awareness for the news. In a second step, Information Support also published the information to "HelpMe" where it was available on demand. Therefore, CCC agents had two platforms from which to choose. This resulted in email becoming the preferred channel due to better functionality. For one, a full-text search could be applied to the email-file, which was not available in "HelpMe". And just as important was the ability to completely customize the information structure within the email file for faster retrieval. This made it more difficult for a central information repository to gain acceptance. When using email, however, each agent had a different level of information accessible depending on the time spent on the job. New agents started with no information and only developed their own collection slowly.

SUPPORTING THE CUSTOMER COMMUNICATION CENTER WITH KNOWLEDGE

The CCC agents all have a banking background and can be considered highly qualified. Nevertheless, they still need an effective information system to supply them with the required relevant, credible, and timely information. Before the 1999 reorganization, only a small number of employees were involved in answering phone enquiries. They all knew each other and were also aware of where to find information that was stored in disparate locations. But with the experienced explosive growth, management of Customer Service realized that this need required an extra department and created Information Support in 2001. Most of the members of Information Support were initially recruited from the CCC. Its scope of responsibility is essentially knowledge management and training within the Customer Service unit:

1. To provide information of all kinds to the CCC.
2. To resolve enquiries which require information from other departments within Union Investment.

3. To evaluate and process knowledge from the customers in order to enable the organization to improve its processes.

Information Support consists of seven employees who are responsible for creating, editing, and publishing all content (or information) available to the CCC. Usually, this content is forwarded from other departments to Information Support, where it needs to be reformatted. Upon urgent requests from the CCC, Information Support researches information specifically for that case. Such information is directly passed on to the requesting agent and later published in "HelpMe". As the CCC forms the communication interface between Union Investment and its customers, Information Support forms the communication interface between the CCC and other parts of the organization.

To provide the needed information to the agents of the CCC, the users of the knowledge platform "HelpMe", there needs to be supporting processes in place in the form of editorial and administrative processes. The administrative process is concerned with maintaining the technical infrastructure. Prior to the project, it encompassed such tasks as the manual administration of the navigational structure of the platform and the manual check of consistency concerning hyperlinks between different pieces of content.

The editorial process for Content Management for the CCC consisted of creating, formatting, publishing, modifying and deleting relevant content. These elements were designed as follows:

- **Content Creation and Formatting** Although most of the required content already existed in written and electronic form in the organization, it was edited to meet the needs of the CCC agents. This was done in Microsoft Office applications, which are the familiar working environments of the editors in the Information Support team. In a second step, all content was converted into the HTML-format (Hypertext Markup Language). For this, the editors used a special HTML-tool. Since they were not Web technology experts, they had to acquire deep insights into HTML first. The manual formatting and converting was a laborious process, especially for spreadsheets and tables. For emails, the documents were sent as Office files without any conversion.
- **Content Publication** The publication process did not require any further approval. The editor could save the content to the appropriate folder of the file-server in "HelpMe". In a second step, the new content was inserted into the navigational structure.
- **Content Modification** Modifications were carried out either in the HTML-tool or in the Office application, depending on the degree of revision necessary. New versions of content could not just be inserted into the old ones because there was no separation of content and layout. When a new version of a spreadsheet needed to be published, it was converted as if it were a new document.
- **Content Deletion** Outdated content was removed from the platform by deleting the file and manually adapting the navigational structure.

With the creation of the Information Support department, management realized that adequate information systems would be crucial to support the knowledge flow to the CCC. Concerning the realization of Content Management Systems, a company-wide project was to provide a solution for different areas such as the intranet, the extranet and also the CCC knowledge platform. With this project in its early phase, all other developments on a departmental level were suspended. Yet, due to several organizational issues and rising pressure to reduce costs, the company-wide project was never completed. Since the problem of explosive growth in call volumes and CCC agents still persisted, Information Support decided to set up its own knowledge platform with very limited funds which became "HelpMe". As a consequence, this project did not have an official project status and because the IT department was not involved, they would not provide support in any way for this new solution.

"HelpMe" is a Web-based Content Management System (CMS) to deliver information to the agents in the CCC. This system provides opportunities for discovering information (navigation) as well as experts in certain topics (so-called yellow pages). Furthermore, it creates awareness for new items and changes in existing content by highlighting these at prominent positions on the platform (Figure 5). As a consequence, "HelpMe" is an important part of the service process at Union Investment.

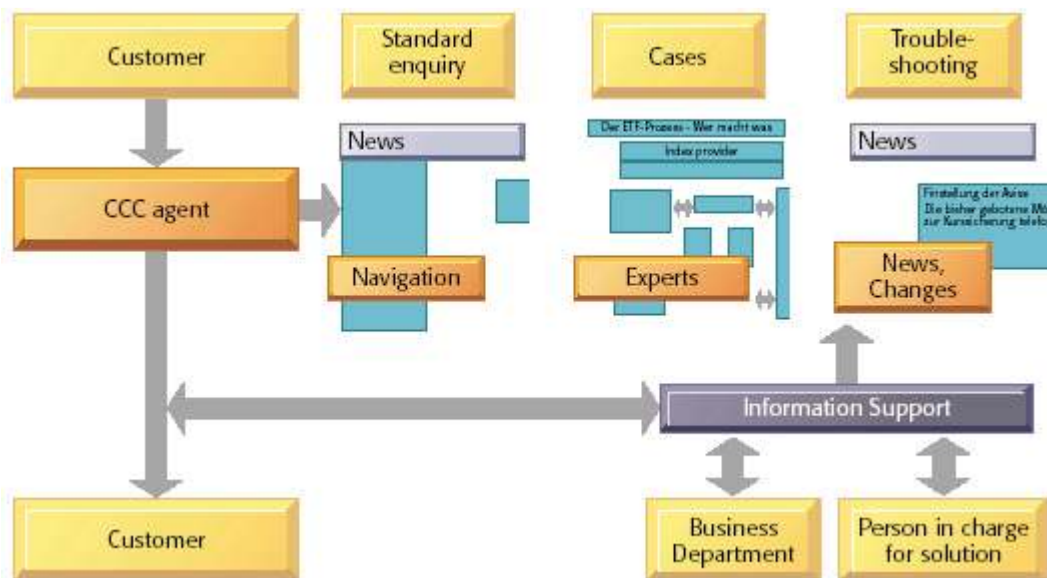


FIGURE 5 Support of the service process at Union Investment

Technically, "HelpMe" originally consisted of HTML-files stored on a local fileserver. From there, they could be retrieved with a standard Web-browser. In order to create and manage the navigational structure that linked those pages, a tool based on Microsoft Access was developed inhouse. The HTML file corresponding to the navigational structure was recreated with this tool each time a document was inserted, moved, or deleted. Furthermore, hyperlinks between the different documents had to be checked manually with each deletion

or revision of existing content. In contrast to the email files, there was no search function available in "HelpMe". This hampered retrieval, especially because the navigational structure had grown historically and was difficult to understand. Security and user management did not have to be specifically administered for "HelpMe" as the system was based solely on a file-server to which everyone in the CCC had access. As a consequence though, it was not possible to restrict access to certain areas or to personalize content, for example by CCC-level.

The platform had been programmed by a single employee of the Customer Service unit who had left the organization when the redesign took place without leaving any documentation. Besides being published in "HelpMe", new information was always sent via email as well. These emails often including attachments of up to ten megabytes in size were sent to all CCC agents. This caused storage problems on one hand, as email files of all agents constantly grew and also caused significant traffic, which put a strain on network bandwidth.

Improving Knowledge Flow— The Redesigning of "HelpMe"

WHY "HELPMÉ" NEED TO BE REDESIGNED

While solving the challenge of providing the CCC with knowledge for the customer to some extent, the original version of "HelpMe" required some improvements which would significantly increase usability and efficiency of the content management processes. So the Head of Information Support decided to launch a project to address these challenges of improving usability and retrieval in "HelpMe" as well as to streamline the costly content management processes. The project kick-off was in the summer of 2001. To improve the prior solution, the project team wanted to introduce a new technical infrastructure based on a standard software product which was implemented together with a conceptional redesign of "HelpMe". Since there were no experts in the field of knowledge management in the organization, some external consultants took part in the project to a lesser extent. For the most part, however, the members of Information Support gained expertise about knowledge management by themselves in the course of this project.

The redesign addressed the issue of complex structure by providing a new navigational structure based on the terminology of the CCC agents and implementing a search function. By concentrating the knowledge flow on the channel "HelpMe", redundancies to email were eliminated. For the editors and administrators, the redesign aimed at reducing the costs and time needed for the costly content management processes. The new system was to simplify conversion, publication and revision of existing content and provide tools to better manage the navigational structure in "HelpMe".

At the same time, budgetary and organizational constraints needed to be complied with, which meant that the software being selected should be one that was already used in-house, thereby reducing costs and integration efforts. By concentrating on the knowledge platform, the network infrastructure of Union Investment would also be relieved of a significant amount of traffic caused by emails with partially large file attachments.

To evaluate whether the goals had been achieved, the team proposed a system of

performance indicators based on the user, editor, and administrator processes. This allowed an analysis of the changes achieved at the level of the CCC agents as well as the editors in Information Support. The most important criteria were high system performance to make content available quickly as well as high quality of content.

HOW "HELP ME" WAS REDESIGNED

To properly align the new CMS to the processes it was to support, the project team started with a process analysis. After the project was delayed for several months, the project team met for a two-day workshop in late January 2002 to analyze the processes of the users, editors and administrators in using "HelpMe". During this workshop, the team also spent some time in the CCC, observing agents doing their work and checking on how they use the different information sources. Figure 6 shows how the different user processes can be supported by "HelpMe".

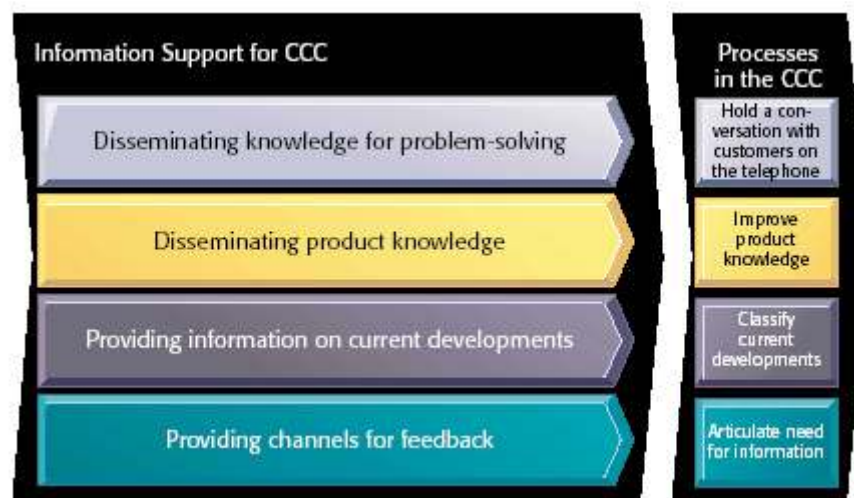


FIGURE 6 User processes are the basis for "HelpMe"

The process analysis was the foundation for deriving the requirements of the new technical solution in a requirements analysis. Each requirement was weighted to be "optional", "important" or "critical", depending on significance. Using metrics for each requirement, the team determined if the evaluated software solutions fulfilled these adequately, extensively or not at all. By aggregating the 29 requirements in a benefit analysis, the different products could be compared. For the comparison, points were assigned to the weights (1 point for optional, 5 points for important, 10 points for critical) and to the fulfillment of criteria (1 for "adequately fulfilled", 2 for "extensively fulfilled", 0 for "not fulfilled"). Figure 7 shows a snapshot of the benefit analysis for the part of the user processes. To avoid selecting a product which required extensive and costly customizing in order to fulfill the requirements, the project team created a benefit analysis for an "out-of-the-box" and a "customizing" scenario.

No.	Requirement	Importance	Arago DocMe	Pironet Pirobase	Lotus Quickplace
Requirements based on processes of users					
1	High system performance	critical	10	10	20
2	Structured navigation	critical	10	20	10
3	Sitemap (Overview of structure of HelpMe)	important	5	5	0
4	High-capacity search	critical	0	10	0
5	What's new functionality	critical	0	0	0
6	Consolidated display of relevant content with possibility to delve into details	critical	10	10	10
7	...	...	...	...	...

FIGURE 7 Snapshot of the benefit analysis "Out-of-the-box"

Besides the requirements analysis, members of the project team were also able to use a live system based on the evaluated products. This proved whether the products could live up to their promises and enabled the simulation of a typical working scenario. Within the simulation some additional factors came up which the team simply hadn't considered when doing the requirements analysis.

Because of the limited budget, only those products would be evaluated that were already in use in other parts of Union Investment. The first system was Arago DocMe, a CMS which mainly focuses on supporting the editor in publishing information and administrating the navigational structure, while not integrating its own Web server and therefore not providing any functions to manage users or restrict access to the content via a Web browser. DocMe was already used to manage the extranet and the Internet Website of Union Investment. The second system was Pironet Pirobase. It too was already in use in the organization at a newly acquired subsidiary. It is a typical Web content management system, meaning that it integrates the back-end for the editors and the Web server that controls access for the users via a Web browser. The third product was Lotus Quickplace of IBM. It was recommended by the external consultants as it focuses on managing rather small amounts of content for users engaged in a common project and is easy to implement. This product, however, was not in use at Union Investment yet and would have caused significant costs since the IT outsourcer of Union Investment did not have the expertise required for running this application yet.

Since the benefit analysis yielded very close results, some *Knock Out-criteria* were developed to better differentiate the products. A product that would not fulfill all these criteria would be ruled out immediately. Examples for these criteria were a reliable search function, no limit of the size of documents or the securing of integrity in hyperlinks within the CMS.

With the *requirements analysis* and the *K.O.-criteria* to back up the decision, as well as the financial restrictions and the integration aspect, the Union Investment team members chose Arago DocMe.

To ensure that the requirements were implemented adequately, the project team

developed a *system design draft* based on the selected software that described in detail how the requirements were to be implemented. This document also served as a basis for the communication with the software supplier, Arago.

Besides selecting and customizing the software, the *structure* of the content needed to be determined to fit the preferences of the users when navigating. The project team developed a consistent three-level *navigational structure* that defines the most relevant business terms in a way they are understood within the organization.

With the use of templates, the 39,000 documents already present in "HelpMe" were migrated to the new structure. In parallel, the project team created the documentation of the customized settings in "HelpMe" and provided training session for users and editors to ensure a smooth transition.

The project lasted for about one year. One important reason for this relatively long project duration was the fact that the team was not fully dedicated to the project.

How the New "HelpMe" changed business and support processes

The goal of the new "HelpMe" was to ease the work of CCC agents and thereby enable increased performance. This was achieved by reducing cycle times necessary for the editors to publish information and facilitating access and retrieval.

The *user process* of the CCC agent is now better supported through improvements in search and navigation. The revised navigational structure facilitates the use of "HelpMe". It consists of three levels, of which the first level can always be accessed on the top bar and the others on the left side, depending on the context (Figure 8). It helps the user find information where she assumes it can be found. If she cannot find the needed information in the navigational structure, the new search function offers an alternative to retrieve it quickly, for example, during a phone call. Since the new system also supports metadata for documents such as topic, author or publication date, agents can search specifically for these keywords in addition to just searching full text. This is quite crucial as agents only have a few seconds on the phone to find relevant answers. So in order to avoid impatient customers, the system needs to have a high performance but also provide a navigational structure that is intuitive to the users.



FIGURE 8 User interface of “HelpMe”

The knowledge flow now concentrates on “HelpMe”, making it an important part of the working environment of each CCC agent. Email is no longer used to publish information. This way, it can be ensured that every agent has access to all information, regardless of the time spent on the job. Furthermore, only the most up-to-date version is available. The “What’s new” function reminds the agents of revised content that they would otherwise not notice because they have memorized the old version already.

Within the editor and *administrator processes*, some of the time-consuming manual steps are now carried out or at least facilitated by the system. Templates accelerate the conversion of content into a format that matches the need of the CCC agents and can be displayed in a Web browser. To support the editors, several templates for different types of documents (i.e., news, charts, reports, etc.) are available. These templates can be used in Microsoft Office applications and define the layout that helps to automatically convert the content into HTML. They improve the performance of the converter, which can be customized specifically for these templates. They also make the use of style sheets possible for a centrally-managed layout. Thus, the editors do not need to redefine the layout and formats each time a document is created. The templates help the editors realize how the final result of their work will look in “HelpMe”. Editors are now able to *publish* and *disseminate* content directly from the office application, similar to the way a file is stored on a local disk drive. The conversion is accomplished fully automatically by the CMS, which also publishes the converted HTML files. This offers a great improvement in efficiency compared to the former system. The office applications are used to revise existing content as well, making the introduction of other applications unnecessary.

The administrator now uses a separate client. With this client, she can administer the navigational structure of the site to automatically include newly-added content. The administrator can also manage additional components like indices, which automatically create tables of contents for documents fulfilling certain criteria. Finally, the client can be used to

manage user groups among the editors, although not among the users in the CCC.

Divide and Conquer

With worsening economic conditions, Union Investment was reluctant to initiate large, enterprise-wide projects in the area of knowledge management. In this regard, the new "HelpMe" can be considered as a pilot project to indicate potential benefits of such concepts. Although it was intended to effectively solve a problem within a specific business process, service management, the achievement was widely recognized upon completion. At the time of writing, other internal departments at Frankfurt, Germany, as well as subsidiaries of Union Investment in Switzerland and Luxembourg were eager to be shown how the solution works and to find out how they can use it for their own processes.

"We realize how important the provision of the right information to CCC agents is to keep customers satisfied and ultimately make Union Investment successful. Redesigning 'HelpMe' was an important step to provide this information to our agents. Combined with our CRM-System, all the information needed is now available at the touch of a button, improving service and the performance of our CCC agents alike," notes Giovanni G., Head of Customer Service.

"HelpMe" is also a first step to introduce other knowledge management tools in the future that not only focus on the retrieval of knowledge contained in documents. As a significant amount of knowledge cannot be explicated and remains in the heads of employees, a possible next step could be to establish a skill management system to further improve the access to experts on certain topics. This would also make the management of competencies of CCC agents possible and indicate gaps on the department level. Finally, a challenging issue is the topic of delivering knowledge directly to the customers on the Internet and to also integrate mechanisms to support the knowledge flow back from the customers to Union Investment to enable continuous improvement in the future.

"Of course, we can help you."

"Hello, could you please tell me why the stock price of my bond fund dropped so steeply on November 23rd?" asks Mrs. Jones, customer of Union Investment. "Sure, Mrs. Jones, just a second," replies the CCC agent. She first checks out which funds the customer has in her account using a host application. Then she looks up information about the fund in "HelpMe". "Mrs. Jones, the stock price dropped because on the date you mentioned, there was the yearly disbursement." "Oh, I completely forgot. Thanks for the information."

CASE STUDY QUESTIONS

1. Evaluate the content management process before and after the project. What steps could be taken to improve knowledge flows besides the information supplied by the content management process?
2. Assess the change in information provided for the agent and the customer. What factors benefit Union Investment and how could they eventually affect its bottom line?

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Case Study 3: Citigroup's CEEMEA Sales & Trading Unit: Rapid Business Improvement Through Effective Use of Information, People and IT

Research Associate Rebecca Chung prepared this case under the supervision of Professor Donald A. Marchand of IMD and Professor William J. Kettinger of the University of South Carolina as a basis for class discussion rather than to illustrate either effective or ineffective handling of a business situation.

Infocentricity cannot be compromised. I can negotiate on other things. But not this one!

Suneel Bakhshi, former head of CEEMEA Sales & Trading

In 2000, Suneel Bakhshi was appointed head of the CEEMEA¹ Sales & Trading Business at Citigroup. At the time, the company believed the CEEMEA region had a significant opportunity for improvement compared with Latin America and Asia, the company's two other major emerging market business regions. Bakhshi was determined to put CEEMEA on a sustainable growth path through increased client satisfaction. He decided to make significant changes in the business and to increase the client focus by offering a more extensive range of client products. To do so, Bakhshi decided he needed to employ top class trading and risk management talent and take a more direct and regional approach to the treasury business to tighten controls and reduce costs. Moreover, as information flow in emerging markets was highly imperfect and the speed of decision-making in the treasury business was high, Bakhshi sought to increase the use of relevant real-time information to improve trading results across his diverse region.

To implement these changes, Bakhshi needed to leverage information, people and IT capabilities in the unit. To do so he built IT applications for decision-making and product innovation aimed at managing the fast-moving treasury business and changing the way his team sensed, shared and used information across the region.

By mid-2003, Bakhshi's team had become more effective in managing and using information. For example, the traders were more willing to share trading intelligence on a daily basis; and the salespeople focused time and attention on customer needs, designing new products to meet those needs. Over the three years, the profit of the business doubled (*refer to **Exhibit 1***).

	2000 Actual	2001 Actual	2002 Actual	2003 Forecast	Change 2002/2000
Revenue	206	277	323	347	+57%
Expense	100	107	105	103	+5%
EBIT*	106	170	218	244	+106%

*Earnings before interest and tax

EXHIBIT 1 CEEMEA Sales & Trading Unit: Financial Performance (Figures are indexed)

Source: Company information

Could the positive results of building an infocentric approach to business be replicated in other Citigroup units? If so, what lessons could business managers learn about leveraging information, people and IT capabilities to improve business performance?

¹Central and Eastern Europe, Middle East, and Africa: an emerging market region.

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TAKING OVER CEEMEA SALES & TRADING

In April 2000, Suneel Bakhshi was named head of the CEEMEA Sales & Trading business. It had hundreds of customers, including corporations, governments, and institutional and individual customers in the CEEMEA markets. The CEEMEA region covered 31 countries grouped into the following geographic clusters: Central & Eastern Europe (CEE), Commonwealth of Independent States (CIS), Middle East & Egypt, Africa, Poland, Turkey, and South Africa (refer to **Exhibit 2** for breakdown of countries).

Geographic Cluster	Countries
Central and Eastern Europe (CEE)	Bulgaria, Czech Republic, Hungary, Romania, Slovakia
Commonwealth of Independent States (CIS)	Russia, Kazakhstan, Ukraine
Middle East and Egypt	Bahrain, Jordan, Lebanon, Pakistan, United Arab Emirates, Egypt
Africa	Algeria, Cameroon, Congo, Côte d'Ivoire, Gabon, Kenya, Morocco, Nigeria, Senegal, Tanzania, Tunisia, Uganda, Zambia
Poland	
Turkey	
South Africa	
London	

EXHIBIT 2 Countries in the CEEMEA Region Geographic Clusters

Source: Company information

The unit generated revenue from two sources: 1) profit from trading financial instruments; and 2) spread revenue from customers for providing them with hedges for their

exposures. It traded two types of financial instruments: 1) “simple” financial instruments, such as foreign currencies, money market instruments² and fixed income instruments³; and 2) derivatives,⁴ such as options⁵ and forwards⁶.

²Money market instruments are short-term debts.

³Fixed income instruments pay a fixed interest rate—bonds are an example.

⁴A derivative is a financial instrument whose characteristics and value depend on those of an underlying instrument, such as currency or debt. Advanced investors sometimes buy or sell derivatives to manage risk associated with the underlying instrument by protecting against fluctuations in value, or to profit from periods of inactivity or decline.

⁵An option is the right, but not the obligation, to buy or sell a specific amount of a given currency or debt, at a specified price during a specified period of time.

⁶A forward is a contract obligating one party to buy and another party to sell a financial instrument, such as currency, at a specific future date.

BAKHSHI'S ASSESSMENT

Bakhshi used the few months before he officially took over the unit to assess the situation and gather best practices from other emerging market regions. He made the following findings:



The relationship between the hub and the countries in the CEEMEA region was different from that in the other two emerging market regions, where there was a very strong relationship between the hub and the countries. They shared common values and practices. Managing the CEEMEA region was more complicated because the countries were more diverse in size, culture, risk, financial market development, regulatory regime, and corporate

governance. Countries in the CEEMEA region were managed in a more decentralized way, and rarely shared performance results, new ideas and best practices. Management reporting needed to become faster and more accurate. There were no comprehensive systems and processes for local markets to report profitability and risks. At every month end, it took too much time to reconcile the numbers and produce even high-level management reports.

In local markets, IT was sub-optimal and information was not used as effectively as Bakhshi wanted. There was no integrated risk management monitoring process due to the fragmentation of systems across the region. In most cases, the procedures were manual, using spreadsheets to control the business. People did not trust each other enough to share information and learn from each other's mistakes. Salespeople tended to push "simple" products into the market and take orders, rather than focus on client relationships and recommend alternatives to satisfy different client needs. There were no comprehensive systems and processes to collect and maintain customer information.

Bakhshi's direct superior, Dipak Rastogi, at the time CEO of CEEMEA, suggested that he participate in the Breakthrough Program for Senior Executives at IMD in Lausanne, Switzerland, in June 2000 to gain management insights. Bakhshi heard Professor Donald A. Marchand explaining the Information Orientation (IO) Framework⁷ (refer to **Exhibit 3**). He agreed with the concept that an organization could improve business performance if it increased its IO Maturity, i.e., how well it effectively managed and used information, knowledge, people and IT capabilities. Bakhshi remarked:

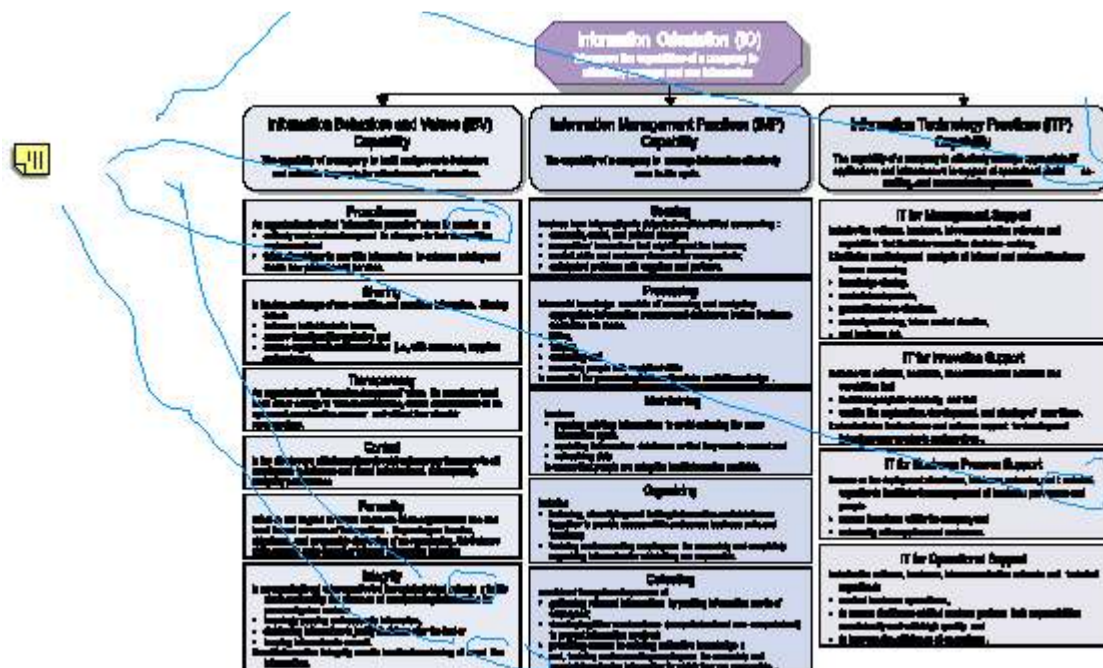


EXHIBIT 3 The Information Orientation Framework: Leveraging Infocentricity

Source: Marchand, Donald A., William J. Kettinger, and John D. Rollins. Making the Invisible Visible: How Companies Win with the Right Information, People and IT. Chichester: J. Wiley & Sons, 2001: 24.

Infocentricity is something that I thought about, but nobody ever put it on paper and explained it that way. This model is a science.

⁷The IO Framework was developed and scientifically validated during a three-year study—carried out at IMD with the financial support of Accenture—involving 1,200 senior managers and over 200 senior management teams from 103 international companies. These companies formed the benchmark sample against which an organization could measure its IO Maturity. References: 1) Marchand, Donald A., William J. Kettinger, and John D. Rollins. *Making the Invisible Visible: How Companies Win with the Right Information, People and IT*. Chichester: J.Wiley & Sons, 2001: 24. 2) Marchand, Donald A., William J. Kettinger, and John D. Rollins. *Information Orientation: the Link to Business Performance*. Oxford: Oxford University Press, 2001.

BAKHSHI'S NEW BUSINESS MODEL

Bakhshi developed a new centralized business model consisting of a regional network with strong relationships between the hub in London and the countries. The model was put in place to promote regional operational efficiency, leveraged product expertise, pooled local market knowledge, trading expertise and intense customer focus. To make the model work, he needed world-class talent with high EQ (emotional quotient⁸) and a commitment to teamwork and infocentricity.

Building infocentricity was significant because the centralized model required timely, accurate and sufficient management reporting. Moreover, the price of financial instruments in emerging markets was particularly sensitive to political factors. To be able to profit, traders needed to have smart trading ideas and real-time information about political changes. And to improve customer relationships, sales-people needed sufficient customer information and tracking of their sales activities.

However, building infocentricity in the Sales & Trading unit would be a challenge: resources for IT investment were limited; market research and analysis on emerging markets were either not available or not reliable; and it would be difficult to change the ways people managed and used information. As Robert Lustberg, a trader at the London hub, commented:

If you are a trader, by definition, you are an information collector. It's not easy to get traders to share information because traders historically have been measured exclusively by how much money they make.

⁸EQ is a measure of emotional intelligence—a person's psychological functioning and interpersonal skills. Source: Stein, Steven J. and Howard E. Book. *The EQ Edge: Emotional Intelligence and Your Success*. Stoddart Publishing, 2000.

BAKHSHI'S INTERVENTION

Bakhshi discussed his ideas and challenges with his other direct superior, Y.S. Wong, Executive Vice President and global head—Emerging Markets Sales & Trading. Wong fully supported Bakhshi and asked his team in the New York headquarters to collaborate with

Bakhshi on enhancing IT applications specific to the treasury business in the CEEMEA region.

Bakhshi recruited people whom he knew and trusted to become his direct reports, and invited Professor Marchand to present the IO Framework to them. He wanted his new management team to diffuse the concepts behind the IO Framework throughout the unit.

Professor Marchand also measured the IO Maturity of Bakhshi's team using the IO Diagnostic™⁹ tool. The results (IO Dashboard™¹⁰) showed that the unit's IO Maturity was very low (refer to **Exhibit 4**). Professor Marchand helped the new management team develop an action plan. The key initiatives included adding IT applications, improving deal capturing and client contact processes, training staff to adopt the new applications and processes, and designing a scorecard to measure an employee's effectiveness in information use. In particular, Bakhshi recognized that Michael Page, MD—business management, had high EQ and good change management skills, and asked him to orchestrate the implementation process.

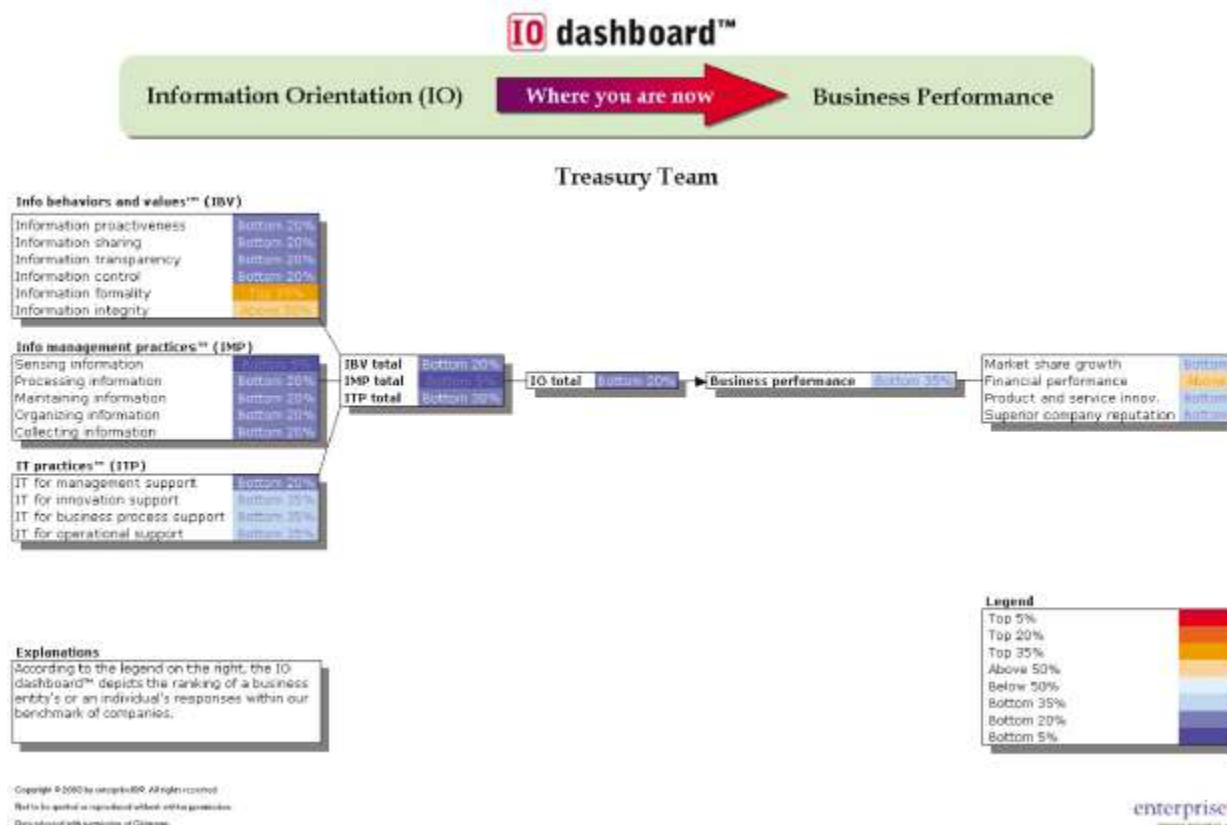


EXHIBIT 4 Information Orientation Maturity Results of Citigroup's CEEMEA Sales & Trading Unit

⁹The IO Diagnostic™ tool is a trademarked product of enterpriseIQ® (see www.enterpriseIQ.com).

¹⁰The IO Dashboard™ is a trademarked product of enterpriseIQ®.

THE NEW MANAGEMENT TEAM BUILDS INFOCENTRICITY

The members of the management team faced different challenges. They implemented various change initiatives in parallel to contribute to building infocentricity and business capabilities.

Acting as an Involved Change Agent

Bakhshi himself worked hard to drive the change. Initially, he traveled frequently to the countries to gain support for the new business model. He also initiated the distribution of messages and monthly newsletters to all staff, informing them of the progress of change and its impact on business performance. During the process, he held regular discussions with his direct reports to form a common understanding of what building higher IO Maturity in their unit was about and how it should evolve.

Acting as an Involved Change Agent

In July 2000, Bakhshi appointed Umesh Jagtiani, MD, as regional head of eCommerce for the Sales & Trading business. (By the summer of 2003, the eCommerce unit had grown significantly with a team of business and technology professionals.) In addition to rolling out Treasury products to clients, the team had built a robust intranet platform for reporting, risk and credit management, trading information flow management, and a fully functional client relationship management (CRM) application.

Jagtiani worked closely with the Business Technology team, headed by Rakesh Joshi, and Citigroup's Operations & Technology unit to integrate front- and back-office technologies. Joshi had to ensure that CEEMEA had the applications and data specific to their business requirements.

TREASURY PORTAL

The eCommerce team first built a treasury portal showing such information as the latest market news, transaction details, and profit and loss. The portal's interactive component permitted traders to share information about markets and generic client flows, along with "behind the scenes" impact analysis they were having on the price of traded instruments. Jagtiani commented:

The inherent risk of contagion between different CEEMEA clusters meant that the implications of a market event were not isolated to a specific geography. A default or domestic debt in Russia and the devaluation of the currency, for example, would have a knock-on effect on other related economies and potentially impact oil prices. The dissemination of information and the collective behavior of traders were in the past difficult to gauge. Today, with the information tools and behaviors embedded into our business, the decision-making process is based on more sound analysis from the information.

Jagtiani and the business heads encouraged trading desks from other markets to join. Lustberg noted:

When traders in other CEEMEA countries, such as Jordan, saw the idea flow between London and Poland, they thought, "If they buy in why don't we?"

CUSTOMER RELATIONSHIP MANAGEMENT TOOL

In March 2001, the team launched an in-house solution for customer relationship management. The application tracked information on revenue—broken down into spread and volume by customer, product and country—and account management activities such as frequency of customer calls/visits.

ONLINE CREDIT ENGINE

The team launched an online credit engine in July 2001. This application provided information such as credit lines, utilization and quality metrics.

RISK ANALYSIS PORTAL

In October 2001, a risk analysis portal was released to help the management team assess the risk levels of different countries. The portal included information such as consolidated balance sheets and stress tests.

Previously, it had never been a priority for traders to record information about profitability and risk exposure and submit it to the hub at the end of each trading day. But reporting this information was important. Bakhshi stipulated, "Before you go home, you need to know this information and put it on the web-based template for submission." If someone did not submit the information, the space on the template would turn red and the system would automatically e-mail a reminder to that person. Bakhshi reflected,

Once I could see the Profit & Loss and risk exposure on the web, I traveled less as I was able to know what was going on in the countries every day.

WEB-BASED CENTRALIZED PLATFORM

Historically, operational activities like quoting prices, capturing deals, verifying credit reconciliation with the back office, and reporting had been manual, inefficient and— usually— delayed. To increase operational efficiency, the team began a complex project in October 2001: to build a single centralized platform and a common database for automating and integrating the deal capturing processes for multiple products (*refer to **Exhibits 5a and 5b***). This platform acted as a core to bring all portals and applications developed earlier together.

TECHNICAL DESCRIPTION

The web-based centralized platform, linked to external systems—such as the Reuters and Citigroup's Money Market and Foreign Exchange online trading systems—to capture deals in real time. It also linked to the Global Credit Engine to obtain credit limits.

Transaction information was collected from the start, stored in a centralized database, organized and analyzed according to user requirements, and accessed through various applications or portals such as those described in the case study. In addition, the platform was connected to Citigroup's back-office systems for integration and reconciliation.

EXHIBIT 5a IT Applications

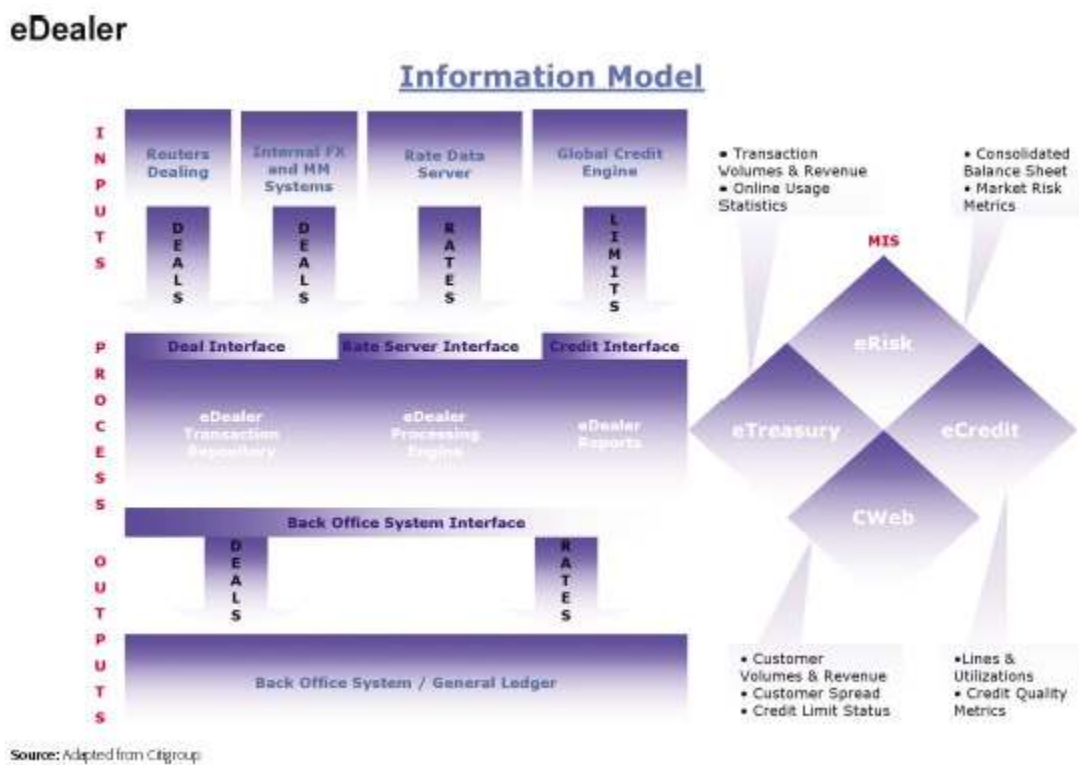


EXHIBIT 5b IT Applications

During 2002, the team launched various features to capture:

- Foreign exchange deals—in March (rolled out to 30 countries by mid-2003)
- Fixed income deals—in September (rolled out to five countries by mid-2003)
- Money market deals—in October (rolled out to seven countries by mid-2003)

The feature for capturing derivative deals would be added later.

The platform offered huge benefits. Information that had previously been fragmented across multiple systems was brought together to become real-time intelligence easily accessible by salespeople, traders and managers. Streamlined processing from the platform straight to the back office systems increased productivity. For example, in Russia, the treasurer was able to save 25% to 30% of his time per day, and then use the time saved for more proactive client services. It also allowed easier identification and speedier resolution of mismatches, and hence, solved the problem of delays in generating monthly management reports. The paperless workflow for deal booking and authorization also reduced costs. Finally, the platform facilitated the building of an infocentric culture. Jagtiani reflected:

In the past, traders saw information as proprietary and shared it strategically, if there was an underlying benefit to themselves, or if it reflected positively on their trading views and results. Today this information is no longer "personally" owned. A culture of transparency has transformed the way business is managed. Both good and bad results are shared within the team, and overall the impact on business has been extremely positive.

Strengthening the Trading Arm

Bakhshi hired Anil Prasad, MD and regional head of trading, to manage the trading team. Like all other department or cluster heads, Prasad had to build an infocentric culture within his team. At the outset, he faced a team of 18 trading desks split between two locations in London. Overall morale was low, and communication and collaboration between the two groups was limited. Prasad said of the situation, "On day one, they didn't even talk to each other, let alone share proprietary information."

When Prasad arrived, he put all the desks in a single location. He then organized team-building events to develop trust among traders. He hired trading talents only if they were team players and saw the value of infocentricity. He stressed:

We have star traders. But they need to fit our culture. . . To be the best, you have to share information and trade ideas.

Lustberg commented on his own appointment:

One of the considerations prior to joining this team was that both Bakhshi and Prasad subscribed to a view that we need to share and promote the flow of information.

Prasad encouraged such advocates of infocentricity to persuade their peers to share information and ideas by, for example, joining the chat on the treasury portal. He also improved his team's trading expertise by providing them with market research and analysis reports as well as training.

With all these efforts, the London hub became the center of sophisticated trading expertise. In addition to improving the trading expertise in countries, traders at the London hub also served as role models to encourage traders in local markets to share trading ideas

and market information.

Prasad also started to provide intensive training to traders in local markets.

Improving the Sales Team's Product Expertise and Customer Focus

In 2001, Okan Pekin, MD—Sales and Structuring, engaged Greenwich Research to conduct a survey of more than 800 clients (corporate and institutional) across 12 key countries. The survey helped the unit understand market penetration, market share and client perceptions to help segment the market.

Pekin pushed his team to use the customer relationship management portal. Only three months after launch, it covered 5,000 clients (corporate and institutional) in 25 countries. In addition to allowing Pekin to understand customers' trading history and sales opportunities, the customer relationship management portal enabled him to review his team's client contact. For example, if a salesperson had not contacted his or her clients enough, an early warning indicator reminded the salesperson to visit the customers, as well as alerting Pekin, who would then ask the salesperson why he or she had not contacted the clients. Pekin coached his team to develop the ability to sense customer needs. He commented:

Opinions of customers always override revenue numbers. The latter is backward looking while the former is about the future. A salesperson has to ask himself or herself, "If I have to contact customers more often, what do I ask them?"

He also sent his team to an in-house School of Foreign Exchange and Derivatives to improve product knowledge and client contact skills (by mid-2003, the School had successfully trained 150 staff).

Pekin's team had become better at sharing sales and product development ideas and sensing customer needs. He noted:

We had tools to communicate new concepts, disciplined processes to force new things to happen, and incentives to change behavior. Now, the challenge is to liberate people to proactively create and share new ideas, and take on initiatives.

Pushing Behavioral Changes with the IO Scorecard™¹¹

While the other change initiatives were continuing, Page formed a cross-functional team of six to work with Professor Marchand on developing an IO Scorecard™. The team's challenge: to translate the IO Framework into a Scorecard that could be used to guide the staff and measure how they sensed, shared, and used information. Moreover, the Scorecard needed to address in practical terms the functional contexts in this particular industry. The scorecard had to be in a language that all staff could understand.

In February 2002, the team rolled out the online IO Scorecard™ (refer to **Exhibit 6**), which measured an employee on 20 information-sharing activities, including how frequently and how well he or she developed quality contact with clients; how much he or she

360-REVIEW REPORTS									
Self Report		Self group App Report		Locally rated App Report		Region wide App Report			
SELF REVIEW ANALYSIS									
Note: Choosing a review period and Review type displays the group list and member list belonging to that group. Select a Group and its member from "Review On" list and click "Go" to view his Review									
Review Period	Jul 01, 2003 - Sep 30, 2003		Review Type	Self Review		Group	TREASURY		
Teamwork Client									
1.	Client satisfaction based on surveys								
	5	4	3	2	1	(N/A)			
2.	Market share based on surveys								
	5	4	3	2	1	(N/A)			
3.	Executives discuss and meetings with clients takes place on a regular basis								
	5	(4)	3	2	1	N/A			
4.	Quality of Sales / Structuring team with regards to business development and client interaction								
	5	(4)	3	2	1	N/A			
						Quantitative Type Total: 8.0			
Teamwork Product									
5.	Work in partnership with the Structuring team and London Hub on new product development								
	(5)	4	3	2	1	N/A			
6.	Ability of group to generate new ideas								
	(5)	4	3	2	1	N/A			
7.	Ability of group to sell new products								
	5	(4)	3	2	1	N/A			
8.	Encourage the contribution into whiteboard, use of BMMflow, and update of daily flow on eTreasury								
	5	4	(4)	3	1	N/A			
9.	Awareness of policies and procedures that relate to countries and functions								
	(5)	4	3	2	1	N/A			
10.	Attendance and participation in weekly trading conference calls								
	5	4	3	2	2	(1 - 2) N/A			
						Quantitative Type Total: 23.0			
Teamwork Teamwork									
11.	Staff exchanges between countries to be encouraged								
	5	(4)	3	2	1	N/A			
12.	Regular debriefing with staff on winning trades and missed deals to improve/learn from mistakes								
	(5)	4	3	2	1	N/A			
13.	Peer reviews to be initiated and feedback given to participants								
	5	4	3	2	1	(N/A)			
14.	Quarterly staff reviews to give them a sense of benchmark vs goals met.								
	(5)	4	3	2	1	N/A			
						Quantitative Type Total: 24.0			
Teamwork Others									
15.	Relationship with the Regulators / Central Bank								
	(5)	4	3	2	1	N/A			
16.	Executives controls and processes are being implemented and followed as per policy - ensure Quarterly Self Assessments are complete and corrective actions / audit finds actioned								
	(5)	4	3	2	1	N/A			
17.	Attract talent and retain key personnel								
	5	(4)	3	2	1	N/A			
18.	Increase the daily use of eTreasury within the team								
	5	4	3	2	1	(N/A)			
19.	Implementation of any applicable technology solutions								
	(5)	4	3	2	1	N/A			
20.1.	eTreasury to be updated (daily) for risk in a timely fashion								
	(5 - 10)	4	3	2	1	N/A			
20.2.	eTreasury to be updated (daily) for P&L in a timely fashion								
	(5 - 10)	4	3	2	1	N/A			
						Quantitative Type Total: 18.5			
Portfolio Analysis Summary									
Qualitative Teamwork		Quantitative Teamwork							
Teamwork Client		8.0							
Teamwork Product		23.0							
Teamwork Teamwork		24.0							
Teamwork Others		18.5							
Portfolio Overall Score in		43.5 / 52.0 (83.5%)							

Source: Company information; copy of actual screenshot

¹¹The IO Scorecard™ is a trademarked product of enterpriseIQ®.

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While the London hub continued to make progress in improving information, people and IT practices in the region, the diversity of the region required specific changes in information use by local treasury employees. Every subregion faced a different set of challenges. A few examples are looked at in more detail below.

AFTER THE ACQUISITION IN POLAND: "HOW WAS THE DAY?"

In June 2000, Citigroup acquired a majority interest in Bank Handlowy, a leading state bank in Poland, Citigroup's Treasury unit in the country had 150 customers, whereas Bank Handlowy's had a customer base of 10,000 small and medium-sized enterprises. Bank Handlowy's Treasury unit operated out of a hub in Warsaw and six regional offices, where detailed knowledge of the unit's day-to-day activities and performance was limited.

Ted Dabrowski, treasurer in Poland, recalled:

I remember when I first walked into one of Poland's regional offices and asked, "How was the day?" A trader just said, "Good." When I probed to find out the transaction volume and spread, the trader responded, "Not sure . . ."

Dabrowski decided that his team should first focus on integrating the IT platforms (three front office systems and three back office systems) and building a unified infocentric culture. Employees in the country's regional offices saw the acquisition and change initiatives as opportunities; they were open to change. Employees in the Warsaw hub, by contrast, saw themselves as professional enough to know what work to do—and how. They regarded these initiatives as infringements of their rights, and hence, resented them. Dabrowski made a point of communicating closely with them to gain their buy-in.

By mid-2001, dealers had changed their ways of sensing, sharing and using information. For example, dealers started to record trading results daily, participate in morning conference calls to share market information, and call customers. Dabrowski commented:

You can feel the activity and life in the room, which is completely opposite to the scene shortly after the acquisition. Now, my traders can tell me details of how the day was!

After the global economic downturn in 2001, the operations in Poland experienced tough times. The country's future entry into the European Union had also reduced the foreign exchange spreads. The IO Scorecard™ helped push salespeople to make more customer contacts and to launch derivatives. By the end of 2002, the team was calling 600 customers a day, in addition to what they used to do in late 2000—answering 400 incoming calls a day. They gained 350 customers and introduced 40 derivatives. According to the 2002 Greenwich survey, they received high ratings for their service quality; and they increased their market shares in the foreign exchange market and the derivative market in the CEEMEA region to 20% and 35%, respectively, making them the leader in both markets. They increased revenue by 43% between the time of the acquisition and the end of 2002. Dabrowski

commented:

We measure people's extent of information management and use more often than the rest of Citigroup. It's tiring and stressful . . . you feel like you are always being watched. But we offer very good compensation for performance.

CENTRAL & EASTERN EUROPE AND CIS: MANAGING DIVERSITY TO FACILITATE IMPROVED INFORMATION BEHAVIORS

Historically, management had focused on the largest market, Russia. After Misbah Shah took over as managing director in these clusters, he devoted more attention to other countries and used different techniques to make the whole team change the way they sensed, shared and used information.

For example, he turned country diversity from a management challenge into an execution advantage. Talents from the larger and more developed countries, such as the Czech Republic and Hungary, were more confident in themselves and less open to new ideas. By contrast, people from less developed countries, such as Ukraine, were eager to learn and deliver results. Therefore, Shah piloted new initiatives in less developed countries to create success stories to influence the more developed countries.

In addition, Shah sometimes sent employees to meet Bakhshi to let them understand the level of commitment he had to IO. Shah commented:

If you micro-manage, you can make a guy give you all the accurate information. But what's more important is whether the guy has learned how to use the information.

With all these efforts, the cluster's revenue had increased by 43% between 2000 and the end of 2002. Shah reflected:

You have to be very intense about this [the process of building infocentricity]. It's evolving . . . not just implemented once. The next step is to take infocentricity externally to the customers for value creation.

SOUTH AFRICA: LEVERAGING THE LONDON HUB'S PRODUCT EXPERTISE AND THE COUNTRY'S LOCAL KNOWLEDGE TO INTRODUCE DERIVATIVES

Four local banks dominated South Africa, accounting for 80% to 85% of the market. Citigroup was the largest and the only foreign full-scale corporate bank. Before Nadir Mahmud assumed the role of treasurer, the team had focused on "simple" foreign exchange and money market products. Mahmud wanted to serve clients better by offering more sophisticated products that satisfied local market needs. Therefore, Mahmud ensured that his team provided Pekin with the necessary inputs to develop new products, which were then localized by about 10 percent. The collaboration also allowed his team to gain product expertise from the London hub.

Traders needed to thoroughly understand these sophisticated products, so Mahmud hired trading talents with the necessary knowledge. He also trained his team and encouraged them to participate in the treasury portal to gain product knowledge.

By the end of 2002, the team had increased derivative revenues by 165%. According to the Greenwich survey, in the same year they increased their market share in the foreign exchange option market to 5 percent. And the team increased revenue by 180% between 2000 and the end of 2002.

MIDDLE EAST & EGYPT: ALIGNMENT OF MANAGEMENT MINDSET AND GOALS, AND FULL-SPEED TRANSFORMATION UNDER WAR CONDITIONS

Before Shujaat Nadeem became regional director, relationships between the cluster hub in Bahrain and the countries were weak. For example, managers in the hub did not pay enough visits to smaller countries such as Lebanon and Jordan. The cluster was fragmented, with no common management mindset or goals—management parameters, such as balance sheets, scale of measuring risk, and levels of acceptable risk, varied from one country to another.

Nadeem first had to focus on aligning goals and management mindset. He required managers in the Bahrain hub to visit all countries with the same frequency, and did so himself. He pushed his employees to use the new IT applications. For example, two months after the treasury portal was implemented, he made all his employees regularly log onto the portal.

He also initiated and encouraged more group discussions to instill the habit of information sharing. Nadeem commented:

It's not efficient and infocentric to have separate conversations with six country managers individually every day. I told them to communicate with me via SameTime so that all other country managers can participate in the discussion and know what has been discussed.

Nadeem believed that his team's performance and infocentricity would not be improved without his close involvement:

Following the lead of Suneel, it closely monitored the results of the IO Scorecard™. It allowed me to quickly monitor the performance of the group.

The cluster increased revenue by 160% between 2000 and the end of 2002. In addition, the information capabilities, product expertise and customer focus of the team created the strategic value of attracting joint venture opportunities.

IMPACT ON BUSINESS PERFORMANCE

With all these efforts, the unit's business performance improved in a number of ways. Profit increased by more than 100% from 2000 to 2002 (refer to **Exhibit 1**). According to the 2002

Greenwich survey, the percentage of clients who regarded the unit as their “lead bank” in the foreign exchange market and the derivative market increased, respectively, to 61% (from 50% in 2001) and 38% (from 22% in 2001). Derivatives were introduced in a number of countries.

The team also received exceptional client satisfaction scores across the region. Finally, the unit won a number of *Euromoney* awards in 2002, including those for “Best in Emerging Market Currencies” and “Best at Risk Management.”

THE FUTURE

Jagtiani summed up Bakhshi’s influence:

The reason why the idea of improving information management and use didn’t go away is because Bakhshi continuously drove it with a passion.

In mid-2003, Bakhshi was promoted to become Global Head of the newly formed Emerging Markets Local Finance unit and joined Citigroup’s management committee (In early 2004, Bakhshi was named Executive Vice President of Citigroup and assumed responsibility for the Emerging Markets - Corporate Banking business). Despite Bakhshi’s departure, people in the Sales & Trading unit were confident that they would continue with the new information behaviors and practices he had supported. However, moving up in Citigroup would expose Bakhshi to new challenges. Could he replicate his initiatives in strengthening information capabilities in another unit of Citigroup?

CASE STUDY QUESTIONS

1. Analyze Citigroup’s CEEMEA Sales & Trading unit using the value chain and competitive forces models.
2. What is the role of information systems at this unit? How do information systems support its business strategy and provide value?
3. What management, organization, and technology factors affect the performance of the CEEMEA Sales & Trading unit?
4. How did applying the Information Orientation Framework solve the problems of the CEEMEA Sales & Trading Unit?
5. Could the positive results of using an infocentric approach be replicated at other Citigroup units? Explain your answer.

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