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SAP NetWeaver™ Roadmap

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7 Roadmap to SAP NetWeaver at ABC Bank

Like many of its competitors, the German ABC Bank has significant structural problems and needs to make lasting improvements to its processes. Its aim is to concentrate on core competencies. SAP NetWeaver offers a range of capabilities for supporting and expediting this modification.

German banks, in general, are experiencing significant structural problems. During the past decade, they have hardly changed, and they have persisted in using their old structures. Practically every bank still assumes responsibility for each process in the value chain itself, leaving great optimization potential unrealized. Changes have constantly taken place in other sectors of the industry over the last decade, and now these banks have only a short time period to adapt themselves to new market requirements. Ulrich Cartellieri, former executive and member of the board of directors at Deutsche Bank, described the circumstances of the financial services industry by saying, "The banks will be the steel industry of the 1990s."

ABC Bank, which plays a significant role in the German banking market, faces problems that are typical in the industry. It's under intense pressure to make changes, and this directly affects the demands made on its IT department. Although banks generally have high IT budgets at their disposal, in no way do they have the best possible IT systems. With their long-standing and versatile use of computer systems, they have faced high costs, originating from the heterogeneity of their IT landscapes. At the same time, their complex IT structures impede fast compliance with market requirements. ABC Bank is faced with the challenge of making lasting improvements to the cost/revenue ratio and at the same time optimizing its processes, particularly where outsourcing segments of the value chain comes into play.

Pressure to Change

7.1 Scenario Description

Reunification in the beginning of the 1990s and the phenomenal market boom at the end of the 1990s enabled German banks to achieve excellent results. However, the market boom's continuously rising returns have led to a dangerous development. The banks' structural problems

were concealed for a long time and were then clearly manifested at the end of the market boom. In the last 5 to 7 years, banks in Europe weren't interested in the classic banking business with private customers because IPOs (Initial Public Offerings) and investment banking were far more profitable. However, the economic decline of the last 2 to 3 years (in which many IPOs were floated and investment banking had to enforce massive cuts) has prompted a change in the behavior of financial institutions. Banks are suddenly in the red because their core business has been neglected for years, and therefore has hardly grown.

Greater Competitive Pressure The crisis has been intensified by other problems in the industry, which, for example, suffers from bad loans and has to compete for customers. Although there is already a very high density of banks in Germany, new vendors are pushing into the market alongside existing competitors. The banks of automobile companies (subsidiary companies of OEMs) have achieved a respectable share of the market, for example, in the area of car financing.

The boom not only covered up the fact that business with both private and business customers had been neglected, but also that costs had risen sharply. It was necessary to lower expenditures, which resulted in layoffs throughout the entire industry. In addition, many branch offices were forced to close, because they were only profitable if they looked after several thousand customers. Although a considerable number of branch offices have closed during the past few years, there are still too few customers per branch.

Decade-Long Use of IT Banks recognized the great potential of IT early on, and have been using computer systems on a broad basis for decades. In the 1970s and 1980s, it became customary for banks to develop and install their own software in-house, and the use of standard industry software was uncommon. This use of homegrown solutions based on legacy technologies such as COBOL and mainframes has led to higher maintenance and repair costs.

When considering the typical banking IT scenario, we distinguish between the following three areas: *administration* (which includes purchasing and HR), *sales*, and *core banking* (which includes processing transactions and bookings). Standard software is used only in the area of administration. SAP has developed a core banking solution in cooperation with Germany's largest retail bank (Deutsche Postbank AG) called SAP for Banking. It has aroused much interest, but has not yet been distributed.

Even in small organizations, there may be more than a hundred different systems in use in the three different areas, leading to an extremely heter-

ogeneous system landscape (with many legacy and mainframe systems). Some larger banks may even have more than a thousand different systems in use. The high-security standards in the banking industry, which demand certification for every type of software, have made banks wary of changing their IT systems. The relatively high number of banks with SAP R/2 installations is proof of this steadfast reluctance.

In the banking industry, infrastructure software is typically developed in-house. Although the banking industry recognized the need for infrastructure software earlier than other industries, due to the inherent use of many different systems, further developments in this area are necessary. The integration of many systems, with their numerous interfaces, leads to high absolute costs, and therefore, the costs per transaction are also very high.

Infrastructure Software

In response, banks have started a fervent attempt to reduce costs, with the primary goal of consolidating the IT landscape. Also, investments in innovation go primarily toward the migration of existing systems, or into hardware and software updates. Completely new implementations of software are planned only to a small extent. A further decline is also forecast for the area of expenditures for IT services. In spite of these savings, the banks have failed to significantly reduce their IT costs overall, as enormous costs for maintenance and care of the existing systems are still accruing due to the high system complexity.

Cost Reduction

In banks, the organization of the IT department naturally reflects the organization of the IT systems. Almost every product in operation has its own sub-department, which is made up of people who are familiar with the highly specialized software in use. Although this structure enables the creation and development of the required know-how, at the same time it also means that the respective departments are apt to adhere to "their" system, as their jobs are connected with it. Thus, there is a strong self-interest on a personal level not to remove legacy systems.

Organization of the IT Department

Banks have a fundamental structural problem that they must solve as quickly as possible: In contrast to the manufacturing industry or to high-tech enterprises, for example, a bank is in charge of its entire value chain, from the design and purchasing phases to production, and culminating in sales and services. Employing a data-processing center to manage the posting of transactions is economically sensible only for banks of a certain size. As a result, the majority of banks cover the entire process chain themselves, and high costs accrue, because of the comparatively small number of customers.

Therefore, banks have to change, just as OEMs have changed. They will only look after part of the process chain themselves, operate unprofitable areas jointly with other banks, or simply outsource. While the change by OEMs was gradual, dragging on for more than 30 years, the change in the banking sector must happen faster. International institutes identified the need for change early on and reacted accordingly, so they are now evaluated higher on the capital market than are German banks. Therefore, it is easy for them to take over German banks.

When comparing the banking market in Germany with the rest of Europe, the heterogeneity of the German market particularly stands out. The five largest Spanish banks share about 50% of the local credit volume among themselves. In Germany, the five largest banks collectively deal with only about 20% of credits directly. The quota for the five largest banks in Belgium and the Netherlands rests at over 75% and over 80%,[1] respectively. A comparison of the market shares of the five largest European banks is shown in Figure 7.1. The German market's problems will lead to a structural change in the medium term. Through partnerships, outsourcing, or merging, larger bank units will emerge and have a size in which, for example, transactional banking will become profitable. This "National Champions" strategy has been pursued in France, for example, where several banking enterprises have merged to form one large bank, which can assert itself well in the global market.
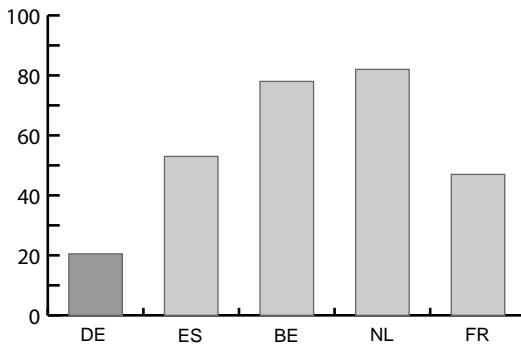
Figure 7.1 Market Share Comparison for the Five Largest Banks in Europe (Data in Percentages)

Along with the trend of consolidating several small banks into fewer larger banks, there are, of course, other possibilities that meet pending structural changes. Small to medium-sized institutions can consider spe-

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1 European Central Bank: *Structural Analysis of the EU Banking Sector*, 2002.

cializing in certain areas. For example, some financial service providers specialize in certain products (for example, the Norisbank specializes in consumer loans) or processes (for example, MPL specializes in sales). Other enterprises, such as Allianz, which took over Dresdner Bank, seek their fortune through offering insurance services.

The industrialization of the financial services sector is imminent. Banks must undergo fundamental change, because their operation has become too expensive. They have to concentrate on their core business areas as soon as possible, and enter into close partnerships, where they do parts of their business together (within as well as outside the industry). German banks have to explicitly cut back on their vertical integration, as controlling everything themselves is no longer expedient. In the IT area, the particular challenge exists in supporting this rapid modification.

Industrialization of the Banking Sector

ABC Bank's situation is typical for a German bank. Among the existing systems, there are many solutions that have been developed in-house, which, for the most part, are based on comparatively old technologies. Many programs were developed in COBOL and were poorly documented. A whole range of applications are not implemented in the client/server architecture, but they run in a mainframe environment.

Over the years, the number of systems in use at ABC Bank has increased to more than a thousand. Due to the acquisition of a smaller institute a few years ago, heterogeneity has increased further, as only small progress in the unification of both IT landscapes has been achieved. Overall, a significantly heterogeneous system landscape has developed, in which the IT trends of the past 30 years have left their mark.

Heterogeneous IT Landscape

The diversity in the IT landscape is also reflected in the way the IT department is organized. Almost every large system has its own corresponding specialized department. The members of these sub-units have great expertise in the use of specific applications, but they resist against system unification, afraid that the system they work on may be affected. The IT organization has been outsourced in the form of three subsidiaries.

For the most part, the integration of many different systems takes place through manually developed interfaces, which are very difficult to maintain, as proprietary technology has been applied. There are efforts to install a modern integration system based on J2EE, but this must be put on hold as the manufacturer of this software has gone out of business. Therefore, many interfaces still exist, which are predicated on the simple exchange of information on a data level, which only takes place every 24 hours.

Proprietary Interfaces

Using J2EE New systems comply with the J2EE standard, although relatively few software applications have been purchased. In other words, most J2EE software is homegrown. Also, first steps have been taken in the area of customer relationship management, with the use of self-developed J2EE software.

7.2　Challenges

The basic structural changes banks are currently facing are inevitable, and there are several resulting challenges that must be met. Because the main goal is to reduce cost, all projects have to focus on fast ROI and measurable results. Excessive operating costs act like a catalyst for the modification process, and intensify the effort to achieve fast and effective results.

In addition to pressure from competition and structural problems, another external factor affects the banks, emphasizing the need for change: Legislature has responded to past stock exchange scandals and has increased standards, especially with regard to transparency in lending. New regulatory standards such as Basel II,[2] tighter tax laws, and the Sarbanes-Oxley Act[3] reinforce the pressure on banks to change their processes and also the IT systems on which the processes are mapped.

Process Management As a Core Task To prevent a common misunderstanding (i.e., introducing new software will solve problems based on poor process design) from being perpetuated, internal processes must be managed. Practically every bank has big problems in managing its processes, and finding a permanent solution to these problems is necessary. This task can be supported by suitable software, but will never be solved by IT alone. Therefore banks must reengineer their IT organizations and processes, and then map these changes to the company's software.

Impending Changes In an effort toward improvement, banks will need to do the following:

▶ Consolidate the IT system, with the objective of minimizing complexity and reducing costs

▶ Disintegrate the value chain, with the objective of concentrating on real core competencies in-house and outsourcing other areas

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2 Regulations regarding the capital and surplus of banks.
3 A law that stipulates strict accounting standards for companies listed on US stock exchanges.

- ► Increase focus on the customer, with the objective of selling more products to individual customers and achieving greater sales revenue per customer

- ► Analyze the value added (profit) by individual products, processes, and customers by value management with the objective of deducing and planning measures

- ► Based on this analysis, ABC Bank will be able to formulate strategies to generate more profit out of the products, customers, and so forth. This approach is contrary to what happens today—banks don't know whether or not they're earning money with a customer or product.

Under these conditions, some considerable changes in the IT area can be expected. In particular, implementing a standard platform, on which they can reorganize and optimize using standardized building blocks of software introduces a real challenge for ABC Bank, with its large variety of systems. This reorganization should simplify the system landscape considerably. The process of disintegrating the value chain will result in the need for ABC Bank to let several systems become obsolete, as the sub-processes mapped therein should be taken over by partner companies in the future. Parallel to this effort, the bank must work on successfully collecting more specific information about customers and products, and making this information available to its staff. Both of these main objectives are explained in more detail below.

7.2.1 Optimizing the Customer and Product Portfolio

Although ABC Bank uses more than a thousand different IT systems and has spent large amounts of money for its operation, it still doesn't know enough about its customers. Data is available in single systems, but not on a condensed level. Due to the huge diversity of systems, the importance of a customer is often overlooked, that is, it is not possible to get a reliable overview of a single customer. ABC Bank has systems for virtually any product so it is forced to look in each and every system to determine whether the customer is affiliated with that system (meaning that he has that product). Only some systems have reporting capabilities, which apply to individual data sources, delivering an inexact, even a partially contradictory picture.

However, it is not only the information about customers itself that is inadequate. Similarly, no comparison of the incurred costs with the sales revenue or the returns per customer is available. In fact, the bank doesn't know whether or not it makes money on a customer. Because this type of

information doesn't exist even on a customer level, it is of course also not available on the product level (for instance, for determining what a customer has purchased or would like to buy).

It is not possible for ABC Bank to get precise information at the touch of a button, for example, about a customer's profitability. Therefore, support is by no means tailored to meet the needs of a particular customer. Rather, ABC Bank distinguishes between the market segments (retail, private banking, etc.), but within these segments the individual employee cannot discern the importance of a customer. The staff must attempt to do an initial evaluation using a customer's account balance. However, this is only an improvised procedure, which does not solve the problem.

Integration of External Information

The bank must collect precise information in order to be able to serve customers better and sell more products. Less profitable customers could be handed over to special subsidiary companies or to bank units that can generate profits with this type of customer segment due to strong standardization or automation of services. Deutsche Bank, for example, pursued this idea with the creation of an Internet subsidiary bank called Bank24.[4]

Product Costs and Revenues

It is not just on the customer side that ABC Bank has insufficient information at its disposal, but also on the product side. The correlation between returns and costs of a product is based more on the use of estimates rather than on exact and comprehensible data. Because there are many systems with no direct linkage to a product or customer, the cost that it incurs cannot be deduced. The existing costs (particularly by the required IT) can be determined only for very standardized financial products, like a current account.

Even if all the information regarding individual customers and the respective products were available, it would still be difficult for users to access it. Information is largely disseminated across the company via the heterogeneity and diversity of the systems used. In actuality, this means that the staff can see only a section of the real situation, and therefore cannot always respond properly. Consequently, one of ABC Bank's important tasks is to increase the *quality* of existing information, and to simplify *access* to this information.

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4 Meanwhile, Bank24 has been re-integrated into the parent company again due to a change of strategy.

7.2.2 Simplification of the Value Chain and IT Landscape

The second largest challenge facing ABC Bank is the transition to lean production. Just as car manufacturers are now handling only a small portion of the production chain themselves, the bank must manage to explicitly reduce their vertical integration. This entails examining practically all processes with regard to whether or not they could be implemented better or more cheaply by an outsourcing partner. If, for example, a specialized company can handle consumer loans more cheaply and successfully offers this service to other banks, then there is no reason for ABC Bank to keep offering this service. If there are no strategic arguments against or other opposition toward outsourcing, the bank can save the costs associated with handling loans, and thereby simplify its processes and the required systems.

The complexity of the IT landscape, with many in-house systems and point-to-point connections that need to be maintained, and without a manufacturer's support, along with the costs resulting from all this, practically begs for simplification. This leads to a make-or-buy decision: Should the bank continue developing its own software, or is it willing to place its bet on standardized software (that is, buy a solution and customize it)?

In most industries, including the banking industry, standard software has asserted itself. The support of a software manufacturer through updates and new releases should not be underestimated, even if regulatory changes such as Basel II require a wide range of IT customizations. As the financial industry is subject to very strict regulations, a manufacturer's support is particularly helpful here.

Furthermore, standard software offers a better time-to-market; because the software manufacturer has more resources, it can bring new software into the market in a shorter amount of time. In addition, a bank's risks, which are already attached to every solution that is developed in-house, are dramatically reduced.

Depending on market power and the setting of market standards, the software manufacturers determine which standards will be applied and supported in their products (for example, currently J2EE versus .NET) so that their software offers advantages here too. While software that is developed in-house must comply with market standards, and therefore can *react* to only new standards, standard products already support an open IT architecture from the day of their initial release.

Gradual Change Banks must realize that they need to make enormous changes. These changes will have a huge impact on the cost and resources side, so only a gradual approach to them is realistic. On this issue, Henning Kagermann, SAP's board spokesman, gives the following assessment:

> "The CIOs know they have to live with the heterogeneity for the next five years. You cannot just rip everything out and replace it, because that would be too expensive. Therefore you need a new blueprint for the next five years and a new architecture which you can develop over time. It's too expensive to do in one go. It is not a revolution, but an evolution."[5]

Interfaces As a Cost Driver The high number of systems that are required for the various individual needs brings an enormous interface problem with it. The combination of the many in-house software developments and mainframe applications usually relies on manually administered interfaces, for which there is of course no manufacturer's service or updates. Whenever an application is updated or modified, all interfaces involved are to be checked, tested, and, if necessary, customized. Obviously this process involves every system that is linked to the application to be customized.

As the funds for maintenance, which constitute 70% to 80% of the total IT budget, are allocated to the individual processes during a process cost inspection, the high number of interfaces inevitably means very high process costs.

System Integration Software Because the integration of existing systems in a company by manually created interfaces is very complex, maintenance-intensive, and therefore expensive, special software for integration has been used for a few years instead. The automation of electronic communication is linked with the objective of connecting all applications throughout the company. At the same time, this will avoid a disruption in media (i.e., changing the media from using an IT system to using paper for example). System integration helps to minimize the possible sources of error, and the quality of data increases incrementally with the pace of the business process. Ultimately, an integrated application will be created, geared toward the company's business processes. This type of software is referred to as *Enterprise Application Integration* (EAI) software.

Integration Types Aside from the pure integration of applications—the so-called application-to-application integration (A2A)—the integration of different organi-

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5 *Banking Technology Magazine: In Profile.* March 2004. *www.bankingtech.com.*

zational units is especially of interest. Such an integration across company limits is known as business-to-business integration (B2B).

To be able to divide the value chain and outsource unprofitable areas, banks urgently need software for intercompany process integration. The outsourcing of processes, or "business process outsourcing," means the transfer of company responsibilities to other companies. For this you need software that can integrate processes across company boundaries and firewalls smoothly.

Using software for process integration has advantages that should not be underestimated in the complex system landscape. The interfaces are configured in a central location; information on the existence of an interface is stored there, documented in a certain way, and thus made transparent. Knowledge about a manually created interface, on the other hand, can easily get irretrievably lost when an employee moves to another company.
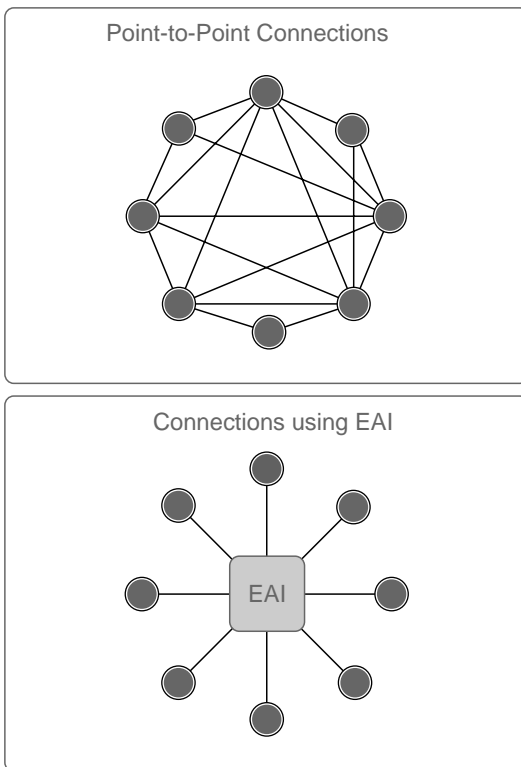
Figure 7.2 Comparison of Point-to-Point and EAI Hub Connections

While the manually generated integration of systems creates point-to-point connections via interfaces, EAI software typically creates a hub architecture. As illustrated in Figure 7.2, the number of interfaces is thereby significantly reduced, as every system has to be connected to the integration platform only once. When there's a specific number of applications to be integrated, EAI software offers large cost advantages. In Figure 7.3, the costs of the two integration types are contrasted.

The first form of integration software, called middleware, was primarily intended for the exchange of data. In contrast, EAI focuses on integration, particularly on a business process level, but also on an application and data level. ABC Bank invested a lot in middleware from a vendor that specialized in banking, a company that unfortunately didn't survive the commotion of the Internet market boom. The subsequent removal of this software, for which maintenance no longer exists, therefore, should be dealt with first.
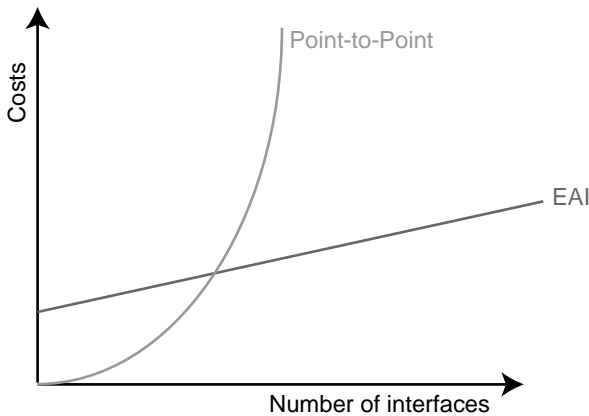

Figure 7.3 Comparison of Integration Costs (Point-to-Point and EAI Hub)

There is a clear trend toward consolidation in the integration software market at the moment. The specialist vendors who did position themselves in the heyday of the best-of-breed architectures are in an increasingly difficult situation. Because best-of-breed causes a lot of integration cost, today's companies are looking for more cost-effective integrated solutions. That's why specialist vendors are facing a lot of competition in which they can hardly win because no one wants best-of-breed. They seem to be more exposed to competition from generalists, such as SAP and IBM, that offer comparable solutions and automatic integration with a company's applications out of the box. This is strengthened by the fact

that the application server and the integration server are frequently becoming one in the same, and therefore the application vendors (with underlying application servers) find themselves in a very comfortable situation.

As a result of these developments, ABC Bank must take the following measures:

1. *Use standard software* instead of homegrown solutions
2. *Develop an integration infrastructure* to enable the outsourcing of business processes

An IT landscape that is set up with standard software—and has modern integration possibilities for the integration of external processes—has the advantages of being cost-effective and having a superior quality, because it controls the IT value chain via an effective supplier and service management.

7.3   Starting Points

In light of the developments that were discussed in the previous section, ABC Bank must do the following if it is to become a viable competitor in today's market:

1. Use standard software to reduce costs and implement process advantages
2. Increase the availability and quality of information to be able to make decisions in consideration of all relevant factors
3. Promote integration on the business process level to improve the value chain and therefore reduce interface costs

We will examine these three areas more closely in the following three sections.

7.3.1   Gradual Change to Standard Software

With its growing IT landscape that is mainly based on homegrown software, ABC Bank faces the problem that it will need to invest large sums of money into further software development. The field of software development is certainly not part of a bank's core competencies, and management must decide whether or not tying up capital in this area is a viable option. Software manufacturers invest 10% to 15% of their turnover into the development of new products, but this investment is worth it for

Software Development As a Core Competency

them, because they can sell new products to many customers, so the development costs are ultimately borne by many companies. A bank's in-house software development is self-financed only by the bank; maintenance and additional development have to be self-financed and self-managed also.

As banks are subject to strict regulatory requirements, external influences often necessitate software customization. In response to Basel II, banks must carry out far-reaching changes, and this demands further consideration as to whether a move toward standard software would be appropriate.

Integration of Standard Software

At the same time, from a financial standpoint, the advantages of using standard software instead of developing software in-house are not immediately clear; at first glance, in-house development tends to look better, because it has most likely already been amortized. However, if we consider the maintenance, customization, and integration costs associated with developing software in-house, standard software comes out on top. Therefore, the choice of integration software should be considered as to which extent the integration between the technical platform and the favored application is preconfigured, as well as what costs and expenses are accrued. A big advantage of SAP is that all SAP applications that span over many different process areas are very well integrated with each other (for example, mySAP CRM and SAP R/3, for checking product availability), and the NetWeaver integration platform is very well integrated with the applications.

SAP NetWeaver's application server, SAP Web AS, enables good integration in the Java world, because not only can it work with ABAP, but with Java as well. Thus, it can be easily connected with IBM's WebSphere Java platform, for instance, which is widely distributed.

Standardization of Processes

The decision in favor of standard software for mapping business processes also enables a stronger unification of the processes themselves, which can increase efficiency and consequently reduce costs. A template design is frequently chosen for it, that is, create a basic customizing and roll it out to all organizational units. Further customization can take place in the separate organizational units, but the processes are substantially the same throughout the group. Similarly, the correct balance between unification and necessary individual features is found on a client's design. (A system can be divided into technical clients with each having different customizing settings.)

Due to the unification of processes, systems can often be eliminated, reducing costs. At the same time, by standardizing its processes, the company creates the basis to enable further optimization in which certain processes in special departments, shared service centers, or other companies (in terms of BPO) are relocated. A first success can now be seen in the creation of service departments: easy telephone queries about account balances or wire transfers were outsourced to an external call center service provider. The comparatively expensive bank employee will only be required for more complex queries. Therefore, efforts toward the standardization of business processes and the systems and formats used will be intensified.

Along with the standardization of processes and the systems used to manage those processes, the standardization of desktops should also be endorsed in order to promote potential cost savings in this area as well.

All in all, the use of standard software provides a great opportunity to shift the IT landscape's build/run ratio in favor of innovation. If the bank uses ready-made software, it can concentrate more on its core business because fewer investments will be going toward maintenance of complex homegrown solutions. The make-or-buy decision has to be examined against the background of a banks' high vertical integration.

Software: Make or Buy?

The German bank HypoVereinsbank has come up with an interesting answer as to whether or not to use standard software. The company recognized the advantages of standard software, and it tried to install it in areas where it is generally not used yet. Under the motto of "Make and Sell," the bank created a banking software in cooperation with SAP for its own use, but also to be sold to other companies.

The discussion of the advantages and disadvantages of converting to standard software will not be explored further, as SAP NetWeaver is the focus of this book. In this context, it should be mentioned that NetWeaver is delivered with the new applications (i.e., almost all applications delivered in 2004 and later from SAP). The respective license is contained in the respective software package.

NetWeaver As Standard Software

7.3.2 Quantity and Quality of Available Information

The poor availability and quality of relevant information is ABC Bank's major problem. It is laborious for staff to access relevant content, as information on customers and products is distributed over several systems. A portal can help the bank eliminate this problem.

Problems do not only exist in the direct retrieval of data on individual customers. Compiling and condensing information for use in evaluations and reports is also difficult. Reporting delivers imprecise and partially contradictory information, which on top of all this is not available in the required granularity. A modern business intelligence system offers the possibility of receiving fast reliable information in this area. Only with consolidated and structured files can we evaluate the contribution of individual customers or products to the overall financial performance of the company.

Portal and Knowledge Management

ABC Bank's staff uses two words to describe the company's information situation: *intransparency* and *redundancy.* The system landscape is substantially shaped by the following:

▶ The large number of interfaces, which distribute information in an insufficient manner

▶ The use of different sources of information, which make use of individual user interfaces and require different types of operation

▶ Highly individualized programming in the individual systems

▶ Distribution of applied logic across the entire IT landscape so that employees are forced to access all systems to find the information they need

The solution would be a portal that acts as a central access point for all information. It is possible to integrate the bank's heterogeneous system landscape in the front end using the portal. This means a system layer will be implemented that conceals the complexity from the user. The availability of relevant information will be improved significantly, as the user will no longer see the confusing complexity of the system. As a bonus, training expenses will be reduced, as training will no longer have to be carried out for every individual system. The administration expenses associated with login problems and forgotten passwords will also fall dramatically.

The introduction of a portal offers the chance to implement a Knowledge Management system (KM) at the same time. All unstructured documents that are required for work can be stored there. Its primary purpose is to make current product information available. Background information on products and the bank's sales strategies are also stored here. Regulatory changes and their effects on the business process can be documented in

electronic form in the KM system so that expensive paper circular mails can be dropped. Training can even be eliminated in some areas.

Easy routine queries (for example, account balance queries or wire transfers) can also be processed by lower-level personnel, who have access to all required information at the click of a mouse.

Figure 7.4 illustrates the possible front-end integration of ABC Bank's systems.
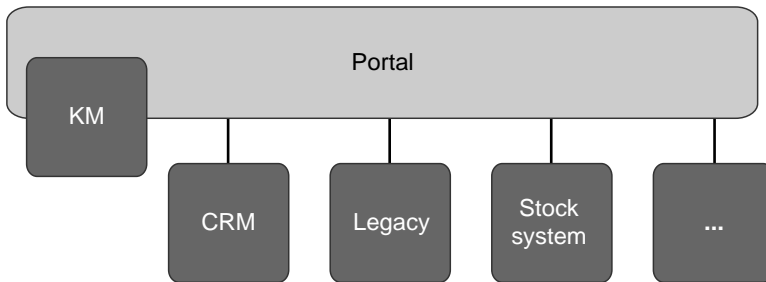

Figure 7.4 Portal and KM at ABC Bank

The simplification achieved by improved access to information and the structural arrangement of information eventually serves one large objective: to make the bank's entire knowledge about customers and suitable products available to the employees by collecting all relevant information.

You can introduce the portal step by step. While one user group is already using it and therefore gets integrated information, the other user groups can still access the systems individually (for example, a KM system) without the portal. While some user groups will immediately start using the portal, others will be not impacted right away by its implementation. Little by little, use of the portal can be expanded to more user groups, and the integrated contents can be refined. For example, the area of *private banking* could serve very well as a pilot for implementation. As a relatively small group of staff is affected, the volume of the project size for improving their work environment is limited. Because very wealthy customers are looked after in this area, a realized success can have a positive impact on the overall result. If you manage to improve the customer satisfaction in this rather small segment, it can have a remarkable impact on your overall financial result because there is a lot of money involved.

Procedure: Step by step

Another objective that should be achieved by the optimization of available information is the improvement of customer care. In the past, ABC

Improve Customer Care

Bank has undertaken its first steps in this direction by developing CRM software. This software allows you to retrieve detailed customer data and uses data from other source systems for that reason. Certain additional information about customers can be stored, so that, for example, information is available about a customer's interest in certain products. The management team will now try to align this information with categorized product information, so that products can be suggested automatically. The system is based on the J2EE architecture; however, it is not enhanced, because the consolidation of files from different sources requires a great deal of effort, and the expected degree of success has not materialized.

Necessity of CRM The first steps toward CRM were made in an attempt to increase the bank's low cross-selling rate with IT support, and this idea was taken up again using SAP NetWeaver. Accessing the distributed customer information will become significantly easier with the implementation of the portal, and with the possibility of accessing the different data sources via the unifier technology. Fortunately, the legacy CRM system is based on J2EE, so a large part of it can be used again. The algorithms in particular, which align customer and product information, don't need to be changed. Additionally, the capabilities of the KM system can help here as well. Based on recommendations, detailed product information is supplied at the touch of a button, which informs the bank staff of current conditions or of legal changes, for example.

Stronger Customer Focus ABC Bank is also counting on this solution to help it provide more customer-focused products. In terms of *mass customization*, financial services should be offered that are relatively easy to develop, and at the same time correspond to the customers' specific requirements. The difficulty here is in finding the right balance between standardization and customization.

In the medium term, a stronger focus is applied to one-to-one marketing, which is supported by sales activities in the area of e-business. In a similar time period, financial services in the form of mobile business is expected to serve customers better, and at the same time gather more information about them.

Profitability and Risk Evaluation of the Customer Business

Access to necessary information is drastically improved by the portal, and working with this information becomes more efficient, however the quality of the underlying data remains unchanged. Therefore the next logical

step for ABC Bank is to implement a data warehouse that can extract and process all necessary information from the many source systems. Not only should the current data be available, but it should also include target figures and estimates.

The objective is to make progress, particularly in the area of cost and profit accounting. This accounting method is used to analyze the cost-effectiveness of individual products or customers, and can be used to compare different time periods or organizational units with each other. Measures for controlling the company are devised from this analysis, for example, it might identify the need to improve certain areas. By comparing two profit centers, for instance, it is soon clear where the strengths and weaknesses of a bank can be found.

Furthermore, the data warehouse can process important information from the administrative systems. Knowledge on the number of employees on sick leave in a department, for example, or the quality of the staff's time recording facilitates conclusions about efficiency in these areas.

With the introduction of a central reporting and analysis platform, one of the bank's basic problems is being addressed. As a result of the highly heterogeneous system landscape, the information situation is characterized by a high degree of redundancy. Information is available in various locations in a different context, whereby it is not often clear how the system processes the displayed data due to a great deal of individual logic being used. In the worst cases, the information is even contradictory.

Because of the large number of interfaces between systems, information must not be consolidated or gathered over many systems, but instead extracted from individual sources. This way, errors that could ensue as a result of individual programming can be avoided.

The data warehouse should serve as a central source of information that is used as a basis for decision-making processes. Due to the multitude of different systems, master data isn't always reliable (it's changed in one system but not in the next system and so on). The data warehouse will be used as the foundation for the unification of master data to increase the quality and consistency of data in the heterogeneous environment. With the approach of implementing a central system instead of procuring information from a multiplicity of sources as before, a cost-effective central administration of the system will also become possible.

The main objective of the implementation of the data warehouse system is to make exact value and risk analyses available. On the basis of this

Methods to Ensure Success

Avoiding Redundancies

One Central System

information, it is possible to determine a customer's profitability and provide that customer with service accordingly. To do this, the accumulated economic result, which is deduced by totalling all products sold to the customer, is taken into consideration.

Contacting the Customer

Knowledge of the profitability of a customer (or under marketing factors, possible profitability) is used as a foundation for better customer care. The financial institution has accumulated a huge amount of data during its support relationship, which is not used in the optimization of the business. For example, thanks to account movement, it has information about which leasing contracts a company handles. Due to the pattern in the expense behavior (for example, if, in the past, the leasing amount changed every three years because a new machine was acquired), customers could be individually addressed, and a suitable offer could proactively be submitted to them.

The specific customer sales approach should be viewed with the understanding that the capital market conditions for an individual institution are predetermined. That means the margin between what the bank may charge for a loan and what it has to spend for the loan cannot be changed. The financial market sets this margin. Therefore, the primary way the company can distinguish itself is by providing offers that are tailored to the customer's individual situation.

Consideration of Actual and Planned Data

ABC Bank's objective is to better serve the customer. From a financial controlling standpoint, it is therefore now important to focus on the customer's possible revenue potential, and not—as in the past—on the cost factors generated by a customer. Thus it is essential to maintain planned values along with the actual values, and to always align both with each other. The considered data should incorporate the following points:

▶ Customers

▶ Products

▶ Market

▶ Competing vendors and their products

Integration of External Data Sources

If a sufficient amount of this type of data is not available, of if the data lacks quality or detail, it can be bought from an external company. This practice already plays a large role in the context of benchmarking. The integration of (purchased) data from market research must therefore be considered in the conceptual design of the data warehouse.

In addition to the revenue side, we also have to consider the risk side in detail. As a result of the increased standards imposed by Sarbanes-Oxley and Basel II, it is very important to have an information system that is based on key figures to enable a suitable risk. (They use the key figures to create a risk classification from which, for instance, refinancing costs can be derived.) In this context, planned figures and simulations are also very important, as stress tests analyze how solidly a bank has safeguarded its risks in the portfolio.

Product Portfolio Optimization

The bank's lack of information about its products can be viewed in the same terms as its lack of information about its customers. The initial circumstances are the same; information is decentralized and not transparent. As the accrued costs are directly allocated in only a few areas, it is hard to estimate the degree to which individual offers are profitable. ABC Bank does not know exactly what added value it attains with its individual products. For the same reason, a comparison of various organizational units is only possible to a certain extent, as the resulting conclusions don't really have a solid foundation.

With the implementation of the data warehouse, you can analyze a product's added value and, if necessary, optimize it. Depending on whether a product is self-financed by fees and provision or by an interest margin, information about current accounts, loans, and services can be processed and interpreted. By comparing actual data with planned data, you can expect more reliable information about the contribution of individual products to the company's overall success.

Analysis of the Value Added

Using this exact information, the bank can decide which business option is best for each product. Successful core products can be further developed and promoted in terms of both sales and processes. The positioning of products that are successful only within a certain target group can be adjusted (for example, they can be handed over from one of the company's organizational units to a shared service center), and less successful products can be outsourced to specialized companies.

7.3.3 Cross-Company Integration of Processes

Many bank services, such as a current account, (a bank giro account) are so highly standardized that they are basically interchangeable. Nevertheless, most banks handle such transactions and business processes themselves, without making cost-conscious decisions in this area. By no means

do the accrued costs reflect the benefits. The operation of different systems is necessary for a comparatively small number of customers, and the bank has to absorb relatively high costs per customer.

Economies of Scale

To achieve economies of scale and to clearly reduce the costs per customer, it is critical that larger units process the back-office operations. This can be done either by using data processing centers (in the case of savings banks and mutual savings banks), or by entering into partnerships with various financial institutions (as with Deutsche Bank and Dresdner Bank in the area of payment processing). In the medium term, we can expect to see the development of *bank factories*. These are banks that specialize in individual transaction procedures and offer these services to other banks. The German Norisbank, for example, specializes in consumer credits. Thanks to a good scoring model to classify potential and existing customers, (i.e., they assess the risk of a credit loss), the company has been very successful. Furthermore, Norisbank offers the service of transacting credits to other banks.

Outsourcing of Business Processes

Needless to say, in practice the outsourcing of business processes involves more than just simply handing over a loan application form. Because the intermediary bank must have access to all information relevant to the loan, combining the systems of both companies is necessary. As a matter of fact, all processes related to the allocation and processing of loans are outsourced. For some time, outsourcing in the area of securities trading has also become standard. But in general we can say that in the area of outsourcing, German banks have a long way to go, especially compared to their European competitors.

Apart from those business processes that deal directly with banking, another area that has the potential to be outsourced is administration. Deutsche Bank, for example, made headlines with its decision to outsource its whole purchasing department.

Need for an Integration Platform

However, to enable such a cross-company collaboration, there must be an integration platform in place that facilitates electronic links between the participating companies on a business process level. Such a process integration solution allows the systems to connect and operate even through the firewall boundaries. Of course, besides the simple and cost-effective operation of the platform, security must also be considered. Lastly, the transparency that exists for interfaces—as well as the ability to monitor them during operation (for possible troubleshooting)—must be ensured.

The linking of the different systems does not take place via manually created interfaces, but through adapters that create the connection between the integration hub and the applications involved. For communication purposes, XML has now become the standard language of integration systems. While the costs for point-to-point connections with every other connected system tend to rise exponentially, the use of Enterprise Application Integration (EAI) software stabilizes costs per integrated system, due to its hub architecture.

The decision to use EAI software should not be based on operational reasons alone, despite all the cost advantages and persuasive arguments based on practical experience. Rather, the decision for an integration platform should be strategical, as it plays an integral role in affecting the foundation and the direction of the company. The decision must help to separate the bank's value chain in an economically sensible way, and to change the entire organization accordingly.

Strategic Role of Integration

In our particular example, ABC Bank has decided to outsource the processing of classic bank transactions. For these purposes, in cooperation with another bank, ABC Bank has recently founded an operating company to handle these transactions for both institutions. In the medium term, the German market expects to see consolidation in this area, and in the future probably only five vendors will remain. ABC Bank may very well outsource to Postbank, which is one of the companies that insources these exact processes.

7.4 Integrated Project Planning Procedure

In order to optimize the identified approaches, a project planning procedure is designed, consisting of the following three sub-projects:

1. Establishment of a portal with an integrated KM system
2. Implementation of an analytics platform
3. Implementation of an infrastructure for business process integration

These three sub-projects are explained in more detail in the following sections.

7.4.1 Quick Win: Introducing SAP Enterprise Portal (EP)

As already explained, the users at ABC Bank work with many different systems. They need to use all of these different systems in order to get a

comprehensive picture of a customer's financial situation. By introducing a portal, ABC Bank hopes to benefit from two big advantages:

1. The (front-end) processes will be optimized and unified across all organization units

2. By automating and finally removing frequently recurring routine tasks (such as system logins or searching for customer data), the users will save a substantial amount of time

Introduction by Department

To master the comprehensive integration approach, a gradual process is recommended for portal projects. Typically, one organizational unit at a time is allowed to access the portal, so that all the required content is provided for each organizational unit. Larger organizational units can be broken down into departments. ABC Bank has decided to create business cases that specify previously defined and prioritized individual steps. The advantage is that the scope of the individual sub-projects is precisely defined, and the particularly relevant project areas are derived from the business cases.

"Think Big, Start Small"

In planning the project procedure and the definition of the sub-project, the bank will attempt to incorporate the final objective of a company-wide portal rollout, and at the same time implement the individual departments' special standards. According to the motto "Think big, start small," the individual sub-projects enable the gradual implementation of the bank's various individual business areas. Due to the short timeframes of the sub-projects, fast results can be achieved relatively quickly, constituting a success factor that should not be underestimated. These early successes are critical when it comes to motivating the persons involved.

Moreover, ABC Bank puts great emphasis on an elaborate security concept that controls the authorizations for access to different content. This means that it makes sense to create an organizational plan that spells out how different users will be grouped together at a very early stage in the project, so that both the distribution of content and the assignment of authorizations can be managed relatively easily.

Information Flow Between the Project Team and Users

The gradual approach to implementation ensures that there is a constant flow of information between the users and the project team, which continually increases quality. Problems and optimization potential can be discussed based on existing practical examples. Alternative solutions can be considered and discussed at length. The expertise in the individual departments grows because of the tight collaboration with the project team. Generally, the inclusion of all those concerned is extremely impor-

tant. The experts who know the (future) portal content best can be found among various departments. Therefore, these departments must be involved in the definition of the project or sub-project scope from the very beginning.

In portal projects, contrary to conventional software projects, content is key. A portal is worthless without content. If too little content is provided, the user will not accept and use the portal. This means that the project planning team should spend much more time on contextual topics than on questions that pertain to conventional IT areas, and everybody involved in planning the project should be prepared for this shift in emphasis to content. The applied technology is not that important, as long as a certain degree of functionality is ensured. Instead, the concepts of integration and processing of content, as well as of structuring and navigation, have a much bigger impact on user-friendliness, and thus on results.

A portal is an integration platform that has points of contact in practically every organizational unit. Nearly all processes will be modified; at least the way that process steps are carried out and operated will radically change.

All companies have information structures that were not planned or developed in a logical manner, but that instead grew "organically." Although these structures are far from optimal, they are astonishingly resistant toward change. However, with the introduction of the portal, and especially the Knowledge Management component, great changes can be expected.

The integration of existing homegrown software for CRM-type tasks in particular is supposed to increase the quality of customer care, which should have an effect on the bank's revenues. Due to the unification technology contained in SAP Enterprise Portal, it is relatively easy to integrate the various data sources required for a comprehensive view of customer data.

7.4.2 Implementing an Analytics Platform

The second big step in the transformation of ABC Bank's IT landscape is to implement SAP Business Intelligence (BI)—SAP's data warehouse solution—with SAP Business Information Warehouse (BW). The goal is to significantly improve the quality of information that serves as a basis for decision-making. The implementation project includes providing a cen-

tral information warehouse that gathers and processes data from source systems and answers the questions of all users.

The basis for this central information warehouse is a sophisticated authorization concept that allows users to access all necessary information, and simultaneously ensures that no unauthorized access to confidential information takes place. Access rights can be granted to employees with certain roles, or on an individual basis.

One advantage of SAP's BW system is that data is available on the Web front end, or alternatively in Microsoft Excel format. This way, it can be easily provided and processed. Above all, the possibility of navigating deep down into the data structure from data that is currently displayed enables users to navigate through the interrelations within the reporting structure.

From an organizational standpoint, the portal should allow the establishment of key users in each separate department in addition to predefined user queries. Besides the predefined queries, you should try to have key users in every organizational unit who can implement additional special queries for the "normal" users. The key users in ABC Bank's different departments can develop specific expert knowledge and will then be in the position to create queries and reports themselves and customize them according to their respective department's requirements. Aside from the basic data, the derived key figures are of particular interest here.

The concept of using just one centralized system also facilitates administration. The administration of SAP BI can be done centrally in order to cut costs. The actual evaluation processes and the creation of reports can then be done by the individual departments, so that the required information will be autonomous and separate.

From a technical standpoint, the central reporting system takes a lot of load off the operative systems, which, in turn, will then be fully available for handling the actual processes. They will only be used for current evaluations (for example, to get status information such as "open orders" or "orders to be processed"). Consolidated reports will be retrieved from the BW system.

When implementing the BW system, usually data from only the most important sources will be available at first. More systems will be integrated successively until all relevant information is available in the single system. In conjunction with this gradual system growth, legacy systems will also be removed gradually.

A deeper integration into the portal is planned in a further expansion stage of the system. Although the information from the BW system will be available on the Web from the time of implementation and can be retrieved from the portal, there is still room for improvement: the combined use of both components makes it possible to work with the content on a much higher level of collaboration. In particular, the controlled information exchange within the team and the freely defined order in which the work is done (with regard to BW reports) offer great potential.

7.4.3 Implementing an Integration Hub

Finally, the third step (implementing an integration hub) will allow ABC Bank flexibility in the design of processes, especially in processes that cross the borders of the company. The basis of this is the EAI solution from SAP. With the implementation of SAP Exchange Infrastructure (XI) as a central integration component, it will be possible to integrate systems relatively easily and to replace them if required. Given the fact that ABC Bank's vertical integration is too high, as is the case with many other banks, using XI opens up many exciting possibilities. For example, unprofitable process areas can be grouped together and outsourced with the help of XI. There is also the opportunity to use business process outsourcing (BPO) offerings to unload processes that aren't part of the company's core competencies.

Not only does XI offer advantages in the modification of the process landscape, it also enables you to reduce the complexity of the existing system landscape, particularly with regard to the multiplicity of existing interfaces. Instead of having many separate connections between the systems, every system connects to XI, which, in turn, handles the distribution of process information.

When you have SAP XI, it is less costly and takes less time to make changes to the IT landscape, such as installing a new system, because you only have to ensure that it integrates with XI, not a variety of systems.

Similarly, changes that are carried out solely in the process area can be implemented faster and with much more ease, because only the affected systems have to be customized, not the interfaces. Thanks to the modular structure of the integration landscape, the required time decreases while flexibility increases when developing new processes or customizing existing processes.

To implement all these advantages, you must consider all the relevant factors when creating the plan that precedes the technical implementation of XI. Aside from general technical considerations such as the types of protocols available, organizational questions must also be addressed. Of course, the design of the platform is particularly important. And it would be "fatal" if the system's integration were to be put on hold because the used hardware did not meet the requirements. Therefore, sufficient contingencies—and upgrade possibilities—have to be planned for in order to prepare for both peak loads and company growth.

The top-down approach has proven itself to be the best approach in the design of the EAI architecture. Based on an analysis of the system and processes, and considering the company's strategy, the large EAI structure and architecture is first defined and validated. The sequence in which the individual systems will be implemented is already being planned at this stage. Only after this step is completed will planning of the activities associated with the technical implementation begin. The objective is a smooth transition from the existing to the new architecture, which includes the gradual removal of the legacy interfaces.

The imminent modification of the IT landscape is also felt in other areas. ABC Bank has already started its first projects testing the use of Web services. Banks are typically early adopters of Web services; from a technical standpoint, it obviously makes sense that Web services would be used to solve integration problems that are evident within the banking industry.

7.5   ABC Bank—Value Consideration

ABC Bank has seen decreasing profits during the past years, which acted as a strong impetus for change. Compared to its European competitors, ABC Bank does not have enough revenue, and it's spending too much money per bank customer. Last but not least, the CIO is under increasing pressure to take action to reduce the high costs of the computer systems. It is imperative for those responsible at ABC Bank to cut the costs of the IT landscape. At the same time, the bank's new innovative products need to be supported by corresponding IT systems and processes. Therefore, the focus is not only cost reduction but also the implementation of a modern IT landscape as a basis for flexibility. Management has decided to modernize the information systems and would like to start in this direction with the following processes:

▶ Creation of a standardized user interface for application integration

▶ Improvement of analysis possibilities due to data integration

▶ Development of a flexible architecture for IT system integration

Take a look at the current IT situation at ABC Bank: it is characterized by a high amount of in-house software development as well as a heterogeneous system landscape. The potential of an IT architecture based on SAP NetWeaver is shown in the following paragraphs.

As already noted, the question of whether to *develop software in-house or use standard software* is particularly important to the bank. Due to the high costs of homegrown software, the managers of the IT department must insist on the transition to standard software. In our evaluation, we will now focus on the advantages of using SAP NetWeaver.

7.5.1 Standard User Interface

The success of a bank is considerably influenced by whether employees have fast and easy access to reliable information. Because ABC Bank currently has a heterogeneous system landscape, information about customers and products is disseminated throughout the IT landscape. The company has taken the first steps toward improved customer care by implementing a CRM system. Figure 7.5 shows an interesting picture. The ratings in the areas of flexibility and innovation, which deal with the company's added value, are hardly distinctive (the two areas got low ratings) (compare value chain, value added, and company value). Implementing a company portal is considered the optimal solution for improving this situation. SAP Enterprise Portal (EP) provides users with a unified view of the different IT systems and supports them in their daily work. Thus, a bank employee can concentrate on providing the best possible customer care instead of on the process of searching for information.

Knowledge Management (KM) is another important requirement in the development of an information platform. All product information that is available in the form of unstructured documents, such as PowerPoint, Adobe PDF, or MS Word files, can easily be made available to every portal user. If we look at the evaluation of the target concept (i.e., the blueprint with SAP NetWeaver in the diagram), we can see that there is still room for significant improvement in the areas of communication and quality.
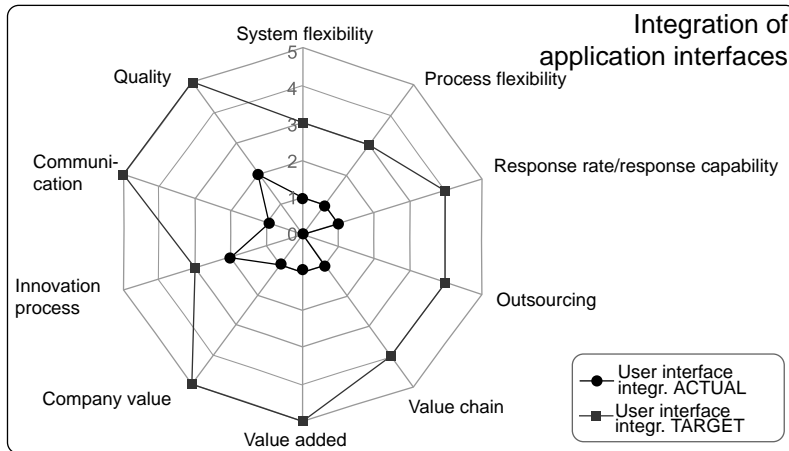
Figure 7.5 Evaluation of Portal Integration

At this point, we would like to mention the evaluation of outsourcing. Recently, banks have been outsourcing their non-core-competency processes to external companies. With a portal solution, this process can be supported by an integrated application interface across system boundaries.

Potential for Cost Reductions

In terms of costs, the following points stand out:

▶ A portal solution cuts the processing time of business processes considerably via the use of a role-based approach to granting access to necessary information.

▶ Saving potentials in the area of knowledge management are mainly found in centralized information access and in the consolidation of existing application systems.

7.5.2 Data Integration

Insufficient Data Quality

Even the best portal installation is useless if the data displayed is not of good quality. For this reason, it is of strategic importance for ABC Bank to consolidate heterogeneous data sources into one single system. Figure 7.6 clearly shows the present low ratings for innovation and flexibility. According to the illustration, the bank is hardly in the position to use its operative data for significant analyses. This is particularly emphasized by the rating of quality.

SAP Business Intelligence (BI)

With SAP Business Information Warehouse (BW), SAP Business Intelligence (BI) provides a platform for integrating the various data sources. As

a result, improved data is available regarding the risks and profitability associated with the bank's customers This is indicated in the evaluations in Figure 7.6, which show higher values for the forecasted situation in the areas of added value and flexibility and the now possible increase in the company value. In terms of costs, BI provides the following advantages:

Here are the potentials for cost reduction:

▶ Fast customization and enhancement of existing reports

▶ Removal of manual tasks in the context of financial controlling

▶ Use of predefined SAP reporting models for the implementation of modified reporting requirements

▶ Decreased analysis efforts ("reporting at the touch of a button")
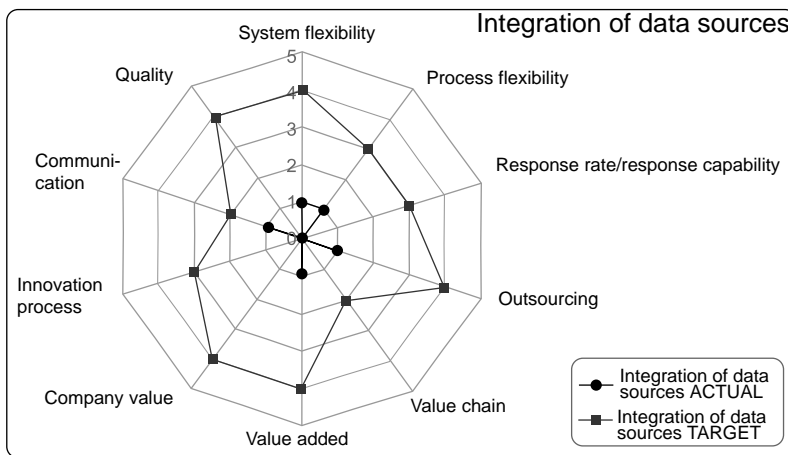
Figure 7.6 Evaluating Data Integration

7.5.3 Process Integration

Two considerable tasks are the main focus during process integration at ABC Bank. One is the outsourcing of business processes that are not profitable or are not part of the bank's core competencies, such as software development. The other is the simplification of the complex process infrastructure, which is the responsibility of the managers of the IT department. The actual situation is determined by little flexibility and innovation possibilities. In the AS-IS situation (regarding process integration) we have little flexibility and it is difficult to implement innovative new solutions. As shown in Figure 7.7, the current IT architecture is not prepared for these requirements.

SAP Exchange Infrastructure (XI) provides the tools to tackle this problem. With the help of this software, ABC Bank can organize its processes more flexibly, which is enabled by unifying the interface architecture. In this way, the integration of third-party systems in the context of business process outsourcing (BPO) is made easier and considerably cheaper. Figure 7.7 shows the potential that could be realized in all areas by implementing XI.

Other potentials in the area of cost savings are:

▶ Savings in development, maintenance, and monitoring of the system interfaces

▶ Reduced effort in the operation of the XI integration software

▶ Shorter implementation time for cross-application business processes due to graphical process modeling or when converting the interfaces because of release changes

▶ Decreased implementation costs when integrating outsourcing partners

▶ Generally lower project costs, as no expensive external consultants need to be hired for the implementation of standard connections
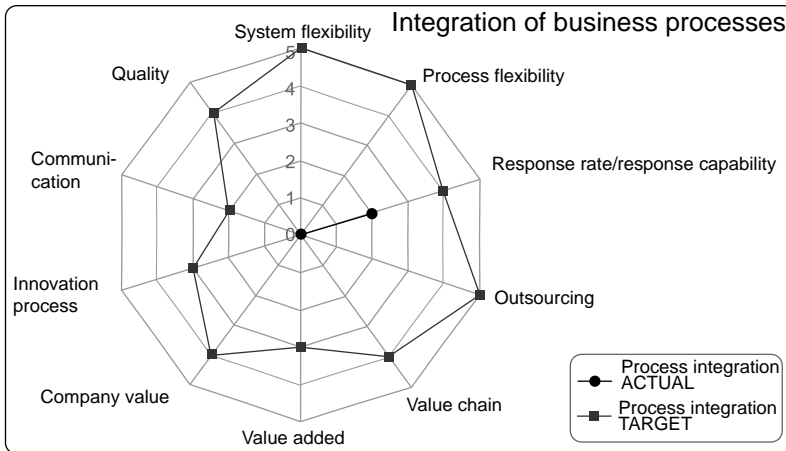
Figure 7.7 Evaluation of Business Process Integration

7.5.4 Evaluation and Recommendation

It is vital that ABC Bank modernize its entire IT system architecture. This does not mean replacing individual systems with new ones, but rather that fundamental changes like the implementation of standard software

or of an integrated infrastructure solution have to be carried out. To illus-trate the considered processes, we will now draw a comparison to the reference value. (The reference value is based on the IT strategy of a com-pany. To determine what the contribution of a single project will be, the projects can be compared with that reference value.) The reference value represents a subjective evaluation of the criteria of *flexibility*, *innovation,* and *cost reduction*. Figure 7.8 illustrates this comparison.

It is apparent that the greatest potential lies in the area of process integra-tion. In the portfolio matrix, the evaluations for the actual process and the target architecture are at opposite ends of the spectrum.
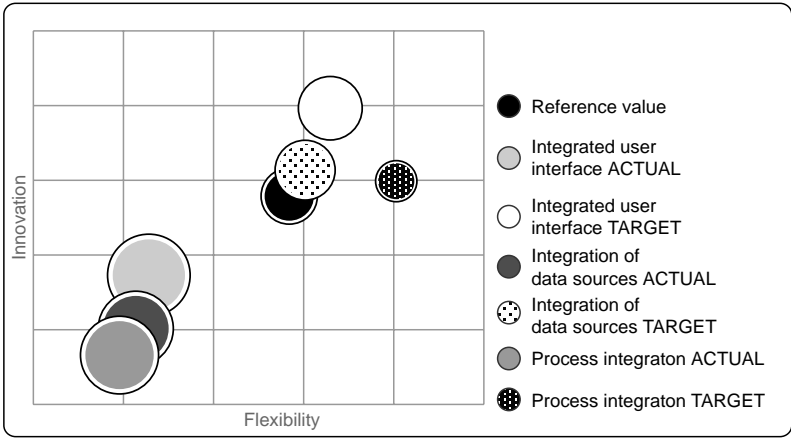
Figure 7.8 Portfolio Matrix

An interesting picture ensues in the area of the forecasted processes enabled by the SAP NetWeaver components. Costs can be reduced through *data integration* and *process integration*. The cost-saving potential for a standard user interface is lower in comparison. This phenomenon is explained by the fact that a company portal can realize only indirect cost advantages (for example, through the consolidation of several legacy applications). In a nutshell, ABC Bank should be aware of the great IT challenges it will face in the coming years, and implement planned invest-ments promptly.

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