Boeing Employees' Credit Union: 
Leveraging the Data Warehousing Investment

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Abstract

The Boeing Employee Credit Union (BECU) has been providing financial assistance to employees since 1935. By 1938, membership had grown to 850 members. During the 1990s, BECU grew from 150,000 members with 362,000 accounts to 260,000 members with 1,170,174 accounts. BECU is the largest financial cooperative in Washington State, and the third largest credit union in the country. Without significant investments in information technology, however, it would be impossible for BECU to deliver personalized service to its members. The idea of creating a member-centric information systems capability was first expressed in May 1999. Today, the data warehouse has resulted in many benefits, including plans to leverage the $2 million investment by providing three distinct types of service. This case study details these three types of service, the impact of each service on BECU’s performance, and the future directions and the lessons learned from the project.

Introduction

Data warehouses consolidate information from disparate operational systems into one source [1]. They are “electronic repositories” that combine and store vast amounts of data. The goal of a data warehouse is to make operational data available in a format that is appropriate to support decision making and other user applications. Data from source systems and MIS applications are extracted, cleansed, transformed and loaded into a data repository. Benefits that may result from a successful data warehouse implementation include “better, immediate, and previously unavailable information about business trends, customer activity, market movements, performance analysis, and other key metrics” [2]. Using more sophisticated data mining techniques, users gain insight into trends and relationships among the elements in the database and are better able to manage customer information and deliver a higher level of customer satisfaction.

There are also numerous risks involved in implementing a data warehouse, the most notable being outright failure of the project to deliver any of its stated goals. The trade press highlights success stories in a variety of industries, but tales of spectacular failure are also common. Considerable research has been conducted to ascertain the reasons for failures or correspondingly, the factors affecting success (See [3], [4], [5] for a more complete discussion). For example, since data warehousing often sparks extensive change within the organization, data warehousing needs broad-based, ongoing support from all levels of management as well as a substantial commitment of financial and human resources [5].

In this paper, we present a case study of the data warehouse project at Boeing Employees’ Credit Union (BECU). Using a staged development and implementation approach (i.e. a data mart), they have consistently met the goals they established for the project. Moreover, they have leveraged their investment by marketing information services to other, smaller credit unions. While some technical details regarding the project are provided, the paper presents a business focus, and proceeds as follows. First we set the historical stage for BECU’s data warehousing project, including the firm’s mission and business strategy. Next, we discuss the role of IT and the business need for data warehousing. Project development details follow, along with a description of the services BECU offers. The paper concludes with BECU’s future directions and a summary of the lessons they learned from the project. This case study is significant as it describes BECU’s leveraging of their investment by making the warehousing services available to smaller credit unions.

Boeing Employees’ Credit Union

Originally named The Fellowship Credit Union, BECU has been providing financial assistance to Boeing employees since 1935, when Elmer Eggleston, BECU’s first Treasurer, undertook the mission to bring economic democracy to “people of modest means” through the extension of affordable financial services. Today, BECU works hard to establish a competitive position in the financial marketplace through emphasis of their basic cooperative philosophy and democratic purpose.

The 1990s marked a decade of significant growth for BECU. Membership grew from 150,000 members with 362,000 accounts to 275,000 members with 1,215,000 accounts. As of September 2000, BECU had assets of more than $3.04 billion, was the largest financial
cooperative in Washington State, and the third largest credit union in the country.

In 1990, BECU opened a new 150,000 square foot facility that includes an expanded member service center, ATMs, and corporate offices. BECU members can also receive express service at two Boeing company facilities. In 1999, BECU introduced express service centers at TOP Food & Drugstores. They also installed an additional 22 no-surcharge ATMs throughout the Puget Sound area. Members can now check deposits, loan applications, and other financial transactions from the grocery store as well as at many other convenient locations.

Product and service enhancements were top priorities during the tremendous growth experienced in recent decades. In the 1980s regular savings and loans were expanded to include checking accounts, ATMs, VISA cards, home equity loans, and financial counseling. In the 1990s, BECU introduced mortgages loans; offered debit cards, enhanced VISA cards with travel awards, and financial planning; and revamped their loan processes to make money available faster for more of their members. By early 1999, BECU introduced a new mortgage product that tailors loan conditions to meet unique personal and financial circumstances. They also launched the BECU Internet banking service. By July 2000, thirty percent of BECU members were on-line -- a higher Internet penetration percentage than most retail banks.

Without a significant investment in information technology, it would have been impossible for BECU to deliver such a level of personal service to its members. Their data warehouse solution has enabled them to redefine their service strategy and deliver more competitive financial products. The concept of a member-centric information system was first expressed in May 1999. Today the following benefits are a result of the data warehousing initiative:

- Better campaign development and tracking;
- New products and services that are suitable to member needs;
- Increased response rates to targeted marketing campaigns;
- Enhanced performance as both return-to-member and number of services per member have increased;
- Thirty percent of members are currently on-line; and
- New business opportunities for BECU.

BECU plans to leverage their $1.5 million data warehouse investment by providing three distinct types of service: (1) information and decision support to BECU employees, (2) personalized information to members, and (3) information and decision support to other credit unions. These three types of service will be discussed in more detail later in the case.

BECU's mission, statement of commitment, and business strategy

BECU's mission is to join together persons with a common bond into an organization that provides a balanced program of quality savings, loans, and other financial services. As a cooperative, BECU works hard to establish a competitive position in the financial market, while at the same time, staying true to their basic philosophy and democratic purpose. In the past few years, attention has refocused on how to best communicate the difference between credit unions and other financial institutions to members. Following the lead of the Credit Union National Association's (CUNA) Board, BECU developed a Statement of Commitment that reemphasizes their philosophy and shows how they plan to fulfill their commitment to members. The Statement of Commitment includes the following operating principles as representation of good business practices that will ensure the financial strength of the credit union and serve BECU's members well:

- BECU welcomes all eligible members, regardless of age, race, sex, or creed;
- BECU is committed to providing ongoing financial education, planning, and counseling to its members;
- BECU provides leading edge financial products and services at rates and fees usually less than those at banks and other financial institutions;
- BECU will never engage in unfair or unscrupulous lending practices;
- BECU respects and protects the privacy of its members and the security of their financial information;
- BECU is an advocate of volunteerism and community involvement, and supports a variety of causes for the betterment of the community;
- BECU is governed democratically by a volunteer board of directors. All members are encouraged to participate in annual board elections; and
- BECU actively supports other credit unions and the credit union movement as a whole, both in philosophy and in the political arena.

The Statement of Commitment lists a variety of service to members, as well as commitment to the credit union movement and community. At BECU and other credit unions, the loyalty of their members is unique to their competitive position. In fact, today BECU defines success as its ability to meet the needs of their members.
Transforming the role of information technology at BECU

In May 1999, the Board of Directors hired a new Vice President of Information Technology, Weldon "Butch" Leonardson, who transformed the information technology services within BECU. Leonardson has a strong IT consulting background in the banking industry as well as experience as a CIO in the health care field. He encouraged the IT group to become strategically engaged in the business and better service the needs of internal IT customers. The vision for IT was to be a great service organization.

In order to service internal IT customers more quickly, Leonardson shifted his group’s focus from in-house application development to rapid development using third party software packages. This shift had a significant influence on the data warehouse project as the team was assigned a 90-day implementation schedule for the first phase. During this phase, the IT organization furthered its technical expertise and developed new skills related to project management, quality assurance, and vendor relationship management. Because of these changes, Leonardson's group earned a position on BECU's honor role for internal service.

Business need for the data warehousing project

Leonardson arrived at BECU with a belief that an integrated data architecture was critical to BECU’s ability to meet the needs of members. The first step was to improve BECU’s knowledge of its members. Accordingly, a data warehouse initiative was launched.

The marketing research area provided a strong business need for developing a data mart. They had been looking to upgrade their legacy system to provide more in-depth access to member data. The legacy system was a DOS-based marketing customer information file (MCIF) that stored a limited amount of member transaction data. Extracting data from MCIF was a formidable task. It took hours to run the needed reports and further analysis required manual integration of hardcopy and on-line information.

The BECU directors also recognized that managers would benefit from easy access to customized reports that integrated data across subject areas. This information would improve managerial decision-making. There was also a need to provide members with more information. BECU recognized that delivering personalized information to members was becoming an important component of providing high quality member service.

The data warehouse team

Leonardson introduced the data warehouse concept and provided the vision behind the data warehousing effort at BECU. Also behind the project were an executive sponsor and a user sponsor. The data warehouse team consisted of a project manager, a data warehouse developer, a technical analyst, a quality assurance manager, and a project administrator. Only the project manager and user sponsor had 100 percent of their time dedicated to the project. The project manager was Chad Laske, Program Manager of Marketing, who was responsible for managing all of the resources related to the data warehousing project. Micki Dodge, Marketing Research Project Manager, was the user sponsor. She worked closely with all parties to identify user needs and business rules critical to the development of the data warehouse. A partial BECU organization chart is shown in Figure 1.

The data warehouse team met twice a week. At critical points in the project, they met briefly every morning to discuss their progress. Consultants also helped with the project.

Figure 1: BECU Organization Chart (partial)

The data warehouse development model

The data warehouse development effort had three phases. Each phase was related to the systems that had to be integrated into the data warehouse and would result in a specific data mart being developed. Because the first system was the marketing customer information file (MCIF), the executive sponsor of the first phase was Mike Dunn, the Director of Market Research. Phase Two integrated mortgage and credit data and the executive sponsor was Joe Brancucci, Vice President of Lending. Phase Three will integrate investment and insurance data. Details of the three-phase development model are presented below.

Phase One: checking, savings, loan, IRA, and CD data

The goal for Phase One was to implement a data mart that would: (1) provide an SQL-based interface to
information stored in the MUMPS database; (2) integrate MCIF household data into the data mart; (3) provide a reporting capability (summary and detail) for BECU transaction data; and (4) record transaction level detail measures.

During this phase, BECU worked closely with one primary vendor, Sagent, to define relevant business rules. Sagent consultants were the primary drivers of the Phase One implementation and created a 90-day implementation schedule. As a result of the 90-day initiative, the requirements were not as well defined as they should have been. Although quality assurance was involved during this phase one, the rapid development also resulted in data quality problems. Project team members agreed that the 90-day rollout was too optimistic. However, in the end, the project team successfully validated the data warehouse architecture; validated use of the tool for data movement and integration; developed in-house expertise in data extraction, transformation, and loading; and gained experience in the management and execution of data mart development.

**Phase Two: mortgage and credit data**

The goal for this phase was to integrate external data from VISA card and mortgage vendors into the data mart. Management believed VISA data was critical to support more effective market trending and product development decision-making. Previously, VISA data was uploaded monthly from a vendor-supplied tape. Scheduled as a 120-day project, the goals were to extract, translate and load data from Visa and mortgage vendors. Two Sagent consultants were still on board during Phase Two; however, their primary responsibility was to develop standard reports and train users. BECU took over primary responsibilities related to development. Slack time was built into the schedule as data had to be extracted from systems maintained by external vendors over whom BECU had little control. BECU also felt that the extra time would decrease employee stress and burnout.

During the Phase 1 implementation, Leonardson had introduced another initiative: he transformed the quality control area to a quality assurance area. As part of the quality assurance area’s charge, a project development methodology was put into place. Similar to life cycle methodologies, this one consists of six stages, each with specific tasks. A quality review takes place at the end of each stage, and deliverables are reviewed. A decision is then made to either proceed to the next step or spend more time on the current one. Inherent in this methodology was also a higher degree of involvement with the users.

**Phase Three: financial services data**

Phase Three will integrate data from the Credit Union Services Organization (CUSO). CUSO provides for-profit services including stock brokerage and insurance.

**Architecture and Source Systems**

To satisfy the business needs, Leonardson decided the data warehouse architecture had three essential technical requirements: (1) an effective ETL engine, (2) a web-enabled data access tool, and (3) an on-line analytical processing capability. Leonardson had worked with the selected platform vendors in the past and was confident that an investment in their products and consulting services would result in a system that satisfied the business needs at BECU. The data mart was built using Dell servers, Windows NT 4.0 operating system, Microsoft SQL 7.0 database, and Sagent's ETL and analysis tools.

Once all development phases are complete, the data mart will extract, transform, and load data from four primary source systems. The first is the transaction systems for checking, savings, loans, IRAs, and CDs that currently store several months of transaction data in a MUMPS hierarchical database. The second source is MCIF for demographic and household information. The third source is external data from VISA card and mortgage vendors. The fourth data source will come from CUSO and will include investments and insurance data. Figure 2 illustrates the data warehouse architecture at BECU.

**Figure 2: The Data Warehouse Architecture**

**Data warehouse services**

Development of the data warehouse, while not yet complete, has resulted in a higher level of information and decision support capability to its three primary users: the BECU employees, BECU members, and other credit unions.
BECU employees

Currently, some BECU managers access the data mart from client workstations to view standard reports. Eventually, managers will be able to access standard reports over the Intranet. These reports fulfill a "quick click and know" requirement to support decision-making. Each manager can customize his or her view to include a set of favorite reports.

Within BECU, marketing analysts use the data mart to perform complex analyses and data mining related to product development and campaign management. These individuals also develop customized reports for business units that do not have a power user. To date, marketing analysts have used transaction level data to determine what delivery channel (e.g., ATM, teller, Express Center, drive-up) members have used. They have also used the data mart to segment customers into target-marketing groups for specific campaigns.

Three financial analysts have recently been introduced to the data mart. In the past, financial analysts worked with 45 to 60 day old summary data. Activity-based costing models were developed at a very high level because specific member transaction data were not available. Projections on the implications of any new financial initiative or cost-cutting measure were always broad estimates, and they were often negotiated back and forth among the department heads, financial analysts, and marketing analysts. With the data mart, financial analysts will be able to access data on a transaction level basis and generate a complete picture of member activity. With this level of data, financial analysts will be able to develop models to determine what BECU needs to change in order to increase performance.

BECU members

BECU is empowering their members with personalized information to better serve their needs. The BECU website allows members to create their own personalized, customized access page, called MyBECU.org (Figure 3). Members can access their account information and request information specific to their needs, such as financing information for loans or current interest rate information. BECU also plans to analyze demographic information provided by MyBECU.org and push information out to members that is relevant to their needs. The website also returns not only current interest rate information; but also informs the member of any special promotional interest rate offerings coming in the next few months.

Another vision is to give front-line employees access to detailed member information designed to better service member needs. This involves a culture shift as well as an information shift for BECU. Currently the performance evaluation of a lobby service representative (i.e. a teller) is based upon the number of members they serve. With the advent of more member-specific information, these service representatives may be judged more on the number of services they were able to provide to each member. In a sense, BECU must redefine sales to a consultative selling, a way in which tellers can assist members in understanding and obtaining the services they need. BECU has always offered financial counseling and education (even to non-members) but the warehouse provides them with the ability to target such information to members who need it most.

Figure 3: Sample MyBECU screen

Other credit unions

The data warehousing project also led to the inception of a new business intelligence provider: CUBIweb. A subsidiary of BECU, CUBIweb was founded in February 2000. From an industry perspective, this subsidiary will enable credit unions to keep up with member expectations in an information-based economy, leverage scarce technical talent, and provide the credit union industry with "member intelligence" equal to any financial institution (Figure 4). The concept is to source data from participating credit unions each night, store the data in a data mart, and provide standard reports through an online subscription service. This new subsidiary is consistent with BECU's cooperative philosophy. In essence, as BECU is very committed to helping small credit unions reap the benefits of current technologies with minimal investment, CUBIweb provides a way to outsource a relationship management system. They are confident it will allow smaller credit unions to reap the benefits of data warehousing with minimal investment.
The data warehouse investment, impacts and benefits

The total data warehouse investment, made up of hardware, software, and consulting, was $1.5 million at the end of Phase Two. Phase Three was projected to cost an additional $250 thousand. This dollar value does not include internal human resources, expected to be about 5,000 hours for Phases One and Two. The projected annual maintenance cost is $150 thousand.

Figure 4: Sample CUBIweb Screen

With an annual IT budget of 8 to 12 million, the funds were made available as the business need for the data warehouse solution was well supported. The credit union culture demands that employees watch expenses; therefore, the project manager was expected to control costs and monitor funds and was not given a budget.

ROI is not in the vocabulary at BECU. The two metrics used to measure performance are return-to-member and number of services per member. Two performance metrics have been improved: (1) return-to-member, and (2) number of services per member. Return-to-member is the number of dollars the member has saved by doing business with BECU, as opposed to doing business with a commercial bank. This metric is calculated by adding the average dollars saved due to no fee services, dollars saved on lower interest loans, and dollars earned due to higher interest on savings.

As of July 2000, the return-to-member value at BECU was $272, meaning that each member saves $272 annually by doing business with BECU rather than one of their commercial competitors. Number of services per member measures how deep the members' relationship is with BECU. As of July 2000, this number averaged 4.6. Not only has data warehousing provided the necessary information to calculate these metrics, BECU also expects that the usage of the data warehouse will improve them. For example, analysis may uncover other sources of savings and enable development of alternative products to satisfy customer needs. In the future, front-line employees will be able to inform members of alternative products that suit their needs in an attempt to deepen the relationship.

Among the other benefits of the data warehouse at BECU are lowered costs of marketing campaigns and improved analyst information. Currently, BECU uses the data mart to identify and target members with loan needs and/or savings opportunities to increase performance metrics. To date, targeted campaigns have lowered costs and increased response rates. Analysts have also identified new product or service opportunities based on an analysis of member needs. The data mart has enabled BECU to enhance performance and sustain growth without altering their member-centric philosophy.

CUBIweb is the primary source of return on investment. As CUBIweb is a for-profit organization, they expect they need 50 credit unions to sign up for CUBIweb to break even on their data warehouse investment. With 10,000 credit unions being targeted, they expect to break even in 2002.

Future directions

To date, BECU has worked hard to create the infrastructure to provide a better understanding of member needs and help determine the products and services that will service them best. The focus is to identify ways BECU can enhance value, relationships, convenience, access, and trust. In the short term, BECU plans to complete the three phases of data warehouse development, provide personalized web-based service to members, and build membership of the business intelligence subsidiary. The following is a list of long-term plans for future development.

• New systems for front-line employees will help them sell products and services. Employees will have access to information that will inform them of upsell and cross-sell opportunities related to an individual member's needs. These new systems will enable BECU to push product and service sales to the front-line, rather than depending solely on pull strategies to attract additional business.

• BECU will negotiate with VISA card vendors to obtain more current data. Ideally, BECU management would like to move from monthly downloads to daily as they believe daily VISA data are critical to making informed market trending decisions.
Lessons learned

• A strategic plan is critical. In order to avoid isolated development efforts, strategic planning needs to be taken seriously. Development of the data mart was driven by a corporate-wide strategic plan to get to know members better.
• Manage user expectations and involve the users from the beginning. Although the users in Phase One have fully embraced the data warehouse and consider it successful, they initially resented the project because they had not been consulted about it. BECU had defined clear deliverables for each phase of the data warehouse development. The goal of Phase One was to quickly implement a working data mart and develop internal technical expertise. Along the way, customers developed the expectation that the system would deliver a gold-plated analytic suite with clean data. BECU learned the importance of managing user expectations and applied that lesson to subsequent development.
• Implement a solution quickly. To support the strategic plan, IT needed to get the data mart solution developed and implemented quickly. A rapid implementation schedule allowed BECU to stay focused on the goal and generated immediate commitment from the users.
• Concentrate on internal customer service. To be successful, IT needs to serve the interests of the internal customers and generate user acceptance. BECU made sure they delivered timely solutions in order to better serve departmental needs. As a result, they dramatically increased their corporate rating for internal customer service.
• Develop a plan to transfer expertise. Because data warehousing was new to BECU, its initial development depended heavily on the expertise of consultants. When internal BECU developers started the second phase, they faced many challenges along the way. In retrospect, BECU developers felt that they should have had a plan that involved more knowledge transfer from consultants during the first phase. In essence, the plan would have enabled BECU to learn from consultants, rather than relying so heavily on them to complete the development.
• Invest in a project management. BECU hired a project administrator that documented functional and technical specifications, printed daily project tasks for members of the project team, and kept budget information up-to-date. The project manager planned and managed resources that enabled the project to stay on time and within budget, while maintaining quality. Project management and adherence to a methodology is critical.

• Build in contingency. Some tasks within a project plan are beyond the control of the project manager and therefore building contingency into the plan to account for uncertainty is critical. One area of uncertainty likely to be relevant in all projects is delivery of third party requirements. In the data warehouse project, BECU had little control over the third party vendor used to extract data from legacy systems and the solution was more complex than expected, this caused a two-month lag in schedule.

Summary

BECU has used information technology to break new ground in the credit union industry. They have invested more than $1.5 million to develop a data mart solution that will enhance their ability to meet the needs of their members. Standard “quick click and know” reports are currently available to support managerial decision making, and analysts use the data mart to perform analyses and data mining related to product development, campaign management, financial management, and process improvements. MyBECU.org will empower members with personalized information that better meets their needs. Finally, BECU’s new business intelligence subsidiary will allow other credit unions to reap data warehousing benefits with minimal investment.

BECU is confident that, once complete, the data mart will be fundamental to the delivery of a balanced program of quality savings, loans, and other financial services to their membership. In essence, the data mart has planted a seed that will enable BECU to continue to grow their membership, while at the same time preserving the basic cooperative philosophy and democratic purpose, the very factors that defined the unique identity of a credit union since the beginning.

Conclusion

This case provides an interesting and insightful look into a successful data warehousing initiative and the lessons learned thus far in its implementation. BECU’s data warehouse is achieving its goal of providing enhanced information to its employees and its members. Moreover, BECU is successfully leveraging their technology investment by marketing data warehousing services to other credit unions.

References


