

## HIGHLIGHTS

### Business Requirement

As a cross-section for strategic planning, the Ministry of Finance Baden-Württemberg fulfills a variety of tasks including budgetary policy, financial policy, taxation policy, administration of buildings and landed property, as well as the personal policy within the county.

### The Challenge

The Ministry of Finance Baden-Württemberg uses KOMFIS, a major financial system with a turnover of 6.5 billion Euro in 2001 alone. The Ministry of Finance needed to modernize the dated character user interface and cut maintenance and support costs of KOMFIS.

### The Solution

- Micro Focus Net Express®

### Results/ROI

- Modernized user interface, using Java to design the graphical front end and processing system linked to it, while maintaining the core business logic written in COBOL
- Inefficient cycles within the organization were tightened, resulting in quality improvement of the core application

## THE COMPANY

According to the German constitution, each federal county is responsible for ensuring that towns and communities are in possession of the appropriate financial equipment in order to fulfill their duties. As a result of this decree, different financial complexities accrue among federal counties and communities. Within the provincial government of Baden-Württemberg, the Ministry of Finance is in charge of the financial relationships between the county and communities. The law for revenue compensation contains the basic policies regulating these financial relationships and specifies when the county has to consider the communities in terms of inland revenue, up to what extent and how these funds are shared among the 1,110 communities, 35 administrative districts and 2 county charities.

In addition to tax income (trade income tax, real estate tax, community contingents on inland revenue and VAT), financial allocations from the county (i.e., key allocations from inland revenue, appropriated investment funds or resources for funding of nursery schools) count as the main income sources of the communities. The Kommunalfinanzen department at the Ministry of Finance in Baden-Württemberg uses the KOMFIS (Kommunalfinanz-Informationssystem) application for the calculation and payment processing of the billions of euro annually making up the communal revenue compensation and the community contingents on VAT.

KOMFIS is one of Baden-Württemberg's central tools for payment processing and the calculation of planning data for local community budgets, as mandated by legal regulations. In order to process payment of local revenue compensation, the Ministry of Finance must individually calculate and report 40 to 45 different working steps. For further legal development and financial planning, the application can combine single, task-oriented working steps and use COBOL programs with extended functionalities.



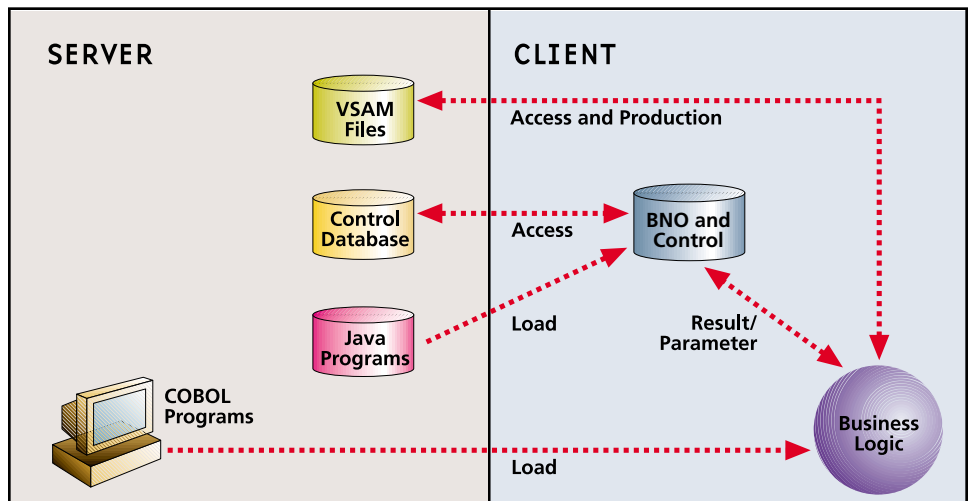
The Ministry of Finance, Baden-Württemberg.

Since the late '60s, the Ministry of Finance in Baden-Württemberg has been using the KOMFIS application, which was originally developed using Micro Focus COBOL. It is now maintained with Micro Focus Net Express, a COBOL development environment for 32-bit Windows operating systems. Previously, the entire user interaction was processed by a character-based user interface that was developed in the early '90s and had not been updated since the initial implementation. The Ministry of Finance sought to upgrade its community finance information system, not only to enhance the user interface, but to avoid future problems on the presentation level when the application was migrated from Windows NT to Windows 2000 or later.

**Future-Proofing User Interaction with a Java Front End**

The IT team of the Ministry of Finance's Kommunalfinanzen department took advantage of the technical upgrade project as an opportunity to completely update the user interface. "The business logic written in COBOL was not affected by the project. Micro Focus Net Express provides us with an effective and mature development tool for maintaining and extending the core applications, thereby adapting to such things as changes in law that impact our business processes," said Thomas Gaiser, who oversees software management for Kommunalfinanzen.

The new project concentrates on the graphical user interface and the control system linked to it; the interface was designed with Java. "We expect considerable reduction of costs in maintenance and support from the deployment of object-oriented technology," said an employee of the Kommunalfinanzen department, explaining one of the project objectives. At the time of the move from mainframes to workstations, the interface was almost completely separated from the actual business logic. Therefore, the Ministry of Finance was able to continue to exploit the strength of COBOL to quickly manage the large amounts of data and calculations, while simultaneously taking advantage of Java for the design and handling of interfaces. By working closely with the tax administration body during the KOMFIS deployment, the organization was able to completely conform with the IT requirements of the county as well as the information and communication

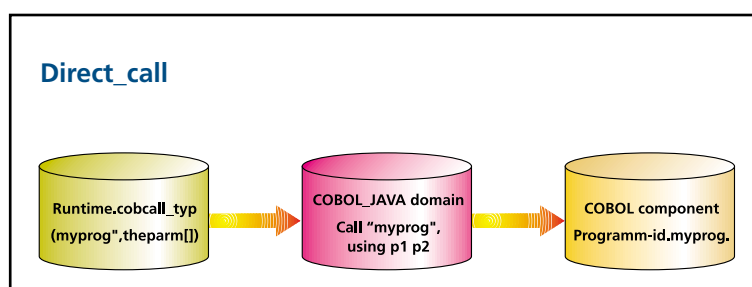
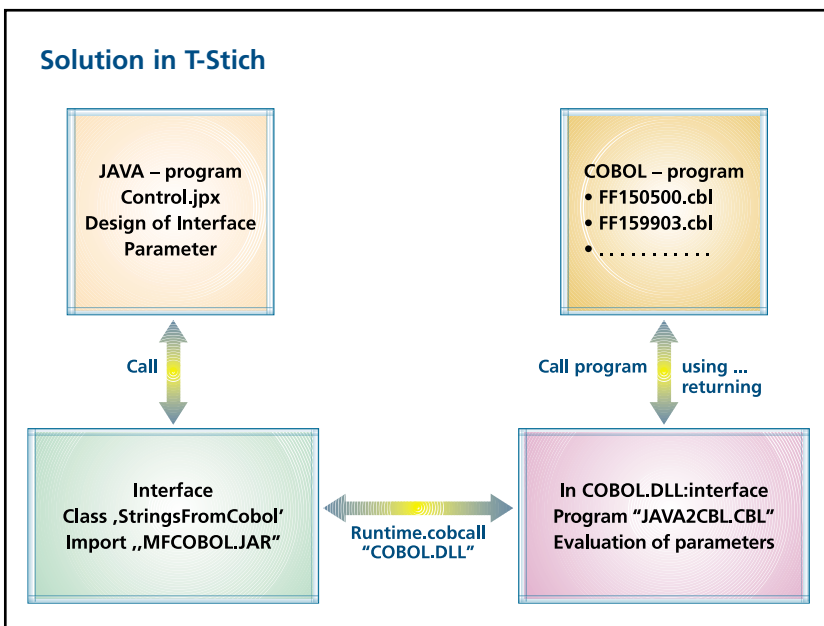


technology guidelines of the county government. In addition, the application engages the operating department in early adopter projects by describing corresponding tasks.

Before deciding on Java for the user interface, an evaluation of different solutions and approaches was conducted to determine technical and future-proofing capabilities. Different technologies for screen design, such as HTML-script or Windows-API-programming, were investigated. However, these did not fulfill the requirements, neither technically nor in other respects, according to Gaiser. Ultimately, Kommunalfinzen chose Borland Jbuilder, the market leading Java development environment.

### Study for Feasibility Completed with the T-Stich Prototyping Model

The project idea first emerged during discussions at workshops in 2000 and 2001 and resulted in a feasibility study, referred to as a T-Stich prototyping model. The T-Stich model deals with the design and programming of a single segment of functionalities within an entire planned system. Here technologies and requirements are verified and checked for feasibility, performance and stability of the tasks needed for the realization concept. Furthermore, T-Stich offers the possibility to identify potential problems at an early stage.



One of the necessary considerations about structure is the separation of business logic and the user interface (design of the COBOL components and interface) as well as a design which minimized the level of interoperation between COBOL and Java. The logic of the control system and the recognition of communication between Java and COBOL are important: Java calls COBOL and COBOL calls Java. Upon deployment, the Kommunalreferat department decided for a direct approach via the COBOL-Java-Domain included in Micro Focus Net Express. This offers bi-directional communication between COBOL and Java.

It was important to find solutions for certain problems at the interface point between Java and COBOL; for example, the conversion of data types was an issue. While Java saves a character in 2 byte (UNICODE), COBOL by default uses only 1 byte (ASCII). Another closely-related issue is the conversion of each type of font used – for example, the consistent and correct use of the paragraph-characters ‘§,’ which has an important role in official documents. The constant debugging of program code was another challenge that was addressed. Gaiser explained, "With coaching by an external consulting company, the project team was able to address Java specific questions. Within a small team of developers it would be especially difficult to cope with the planned multilingualism (COBOL and Java) and the mixture of procedural code and object-oriented methodology." In addition, the technically detailed concept had to be improved – driven by the input of the internal departments.

### Lessons Learned

As the application prototype was developed, the technical requirements of the project were formulated based on feedback from early adopters. During this process, updates and change requests from users could be gathered structurally and checked for feasibility. Gaiser reported, "It turned out very successful to integrate the professional requirements with further technical development. The understanding of the professional general logic facilitated the coordination with the technical construction and showed that some functionality that had been used for years was no longer required. As an added benefit, inefficient cycles within the organization were considered and tightened as appropriate, resulting in quality improvement of the core application."

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