Best Practice: Integrated Software for Youth Services

REPORT UPDATED: FEBRUARY 7, 2012

CITY: BERLIN **POLICY AREA: SOCIAL SERVICES; TECHNOLOGY**

BEST PRACTICE

Berlin's **ISBJ** project (Integrierte Software Berliner Jugendhilfe - Integrated Software for Youth Services in Berlin) aims to improve transfer payment procedures in the field of child and youth services by optimizing management processes for service contracts and payment processes by using technology. This initiative helps to determine whether specific services such as kindergarten care can be outsourced to external partners and how confidential information can be integrated into electronic procedures without compromising security.

ISSUE

Prior to the ISBJ project, the Berlin Senate Department for Education, Youth and Science used monolithic applications which did not allow for cross-departmental accounting. As a result, IT administrative processes were time-consuming and grew increasingly outdated. Thus, in 2002, it launched the ISBJ project to improve work flows for the operating clerks and to outsource work processes like "self-services" to external partners such as day care centers. ISBJ also enabled the Berlin Senate Department for Education, Youth, and Research to add to Berlin's growing list of e-government initiatives.

GOALS AND OBJECTIVES

The main goals of ISBJ are to:

- Introduce domain-wide accounting and performance measurement.
- Streamline internal and external administrative procedures and processes.
- Maintain and manage browser-based centralized data processing and storage.
- Outsource activities such as registration for day care slots to private partners (i.e. organizations running day care centers and youth welfare services).
- Offer innovative services to citizens and business partners.
- Automate and simplify information flows between Child Protective Services, institutions running day care facilities and parents.

IMPLEMENTATION

The Senate Department for Education, Youth and Science created a ISBJ project team which worked closely with the Fraunhofer Institute for Open Communication Systems (Fraunhofer FOKUS, until end of 2011 Fraunhofer Institute for Software and Systems Engineering Berlin ISST) during the planning stage to supervise the implementation of ISBJ. Fraunhofer FOKUS developed the component-based reference architecture that later served as a basis for the establishment of the e-government platform.

The project would install a cross-departmental accounting system, impossible with the existing monolithic applications, to improve work flows for the operating clerks and to outsource work processes like "self-services" to external partners such as day care centers. ISBJ would offer a range of innovative services to the citizens of Berlin within the framework of Berlin's e-government initiative. For instance, software and systems architecture of the KiTa (Kinder in Tagesbetreuung - children in day care), a sub-project must administer data on approximately 150,000 children a year and enable distribution access both to approximately 300 clerks across Berlin's 12 boroughs and the Senate Department itself on the intranet, as well as providing access via the internet to about 1,000 organizations running day care centers.

One key requirement of this project is that functionality is to be developed only once and reused across different applications. Apart from non-functional requirements for performance and availability, a close account must also be taken by

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the Federal Office for Information Security's (BSI) specifications for e-government applications and the following over-arching non-functional requirements such as:

- A wide degree of independence from software vendors;
- Amenability of the software infrastructure to sustainable further development;
- Reduction of the varieties of software systems in use.

In 2003, the first project phase was initiated via a call for tenders to implement E&D [Einrichtungen und Dienste – Institutions and Services], a management and information application containing all information concerning available institutions and the youth welfare services that provide such services as day care and children's homes. It was required that system functionality should be provided in the form of JEE (Java Enterprise Edition), conformable components to enable its re-use by the systems realized in further project phases. Oracle was chosen as the application platform by the implementing company. However, a migration of service-providing components to the open source JBoss platform was tested during the project.

In the second phase, due to the fact that there was already a system with restricted functionality for handling children in day care, a local enterprise was chosen to migrate the system to the JEE platform and to improve its functionality. To fulfill the requirements of data security of the Federal Office for Information Security (BSI) for e-government applications, a generic and extendable portal platform had to be developed and integrated into the system architecture to enable secure communication of external partners connected to the internet with an internal system.

Since, there are software systems available to cover processes for economic youth assistance, the third project phase was initiated requiring the integration of functionality in the existing software and system architecture, as well as the re-use of existing functionality, such as the RBS service (Regionales Bezugssystem – Regional Reference System), which provides information concerning the register of real estates, to validate addresses.

To aid the project, a central data warehouse was implemented where ETL processes (Extract, Transform and Load) are set up to feed actual data into the data warehouse nightly. A report portal provides standardized reports for authorized users so that reports can be subscribed to and can be delivered according to the chosen time interval.

Most of the applications, components, and infrastructure of ISBJ were developed by third parties, including Siemens AG IT Solutions and Services, Schütze Consulting Informationssysteme GmbH, and the IT Service Center Berlin.

Cost

In 2003, the first-year investment amounted to €1.5 million ($1.9 million USD). From 2004-2008, investment costs were €2 million ($2.5 million USD) annually to implement the applications, components, and infrastructure. Since then, ongoing expenditures have been approximately €1.9 million ($2.4 million USD) per year.

Results and Evaluation

The ISBJ system has already been implemented for procedures related to day care. Approximately 1,700 day care centers for approximately 110,000 children, run by close to 800 independent non-profit organizations and after-school programs for 60,000 children in more than 400 schools, are currently working with the new system.

Annual transfer payments amounted to over €840 million ($1.7 billion USD). When the first services were introduced at the beginning of 2006, staff members benefited immediately from easier and more efficient procedures. According to cautious estimates, integrating the institutions running day care facilities directly into the workflow in registering and billing day care slots eliminated the need for about 50 public administration jobs.

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The central configuration system contains unique and validated service descriptions, costs, etc. used by all applications in the youth domain.

The success of ISBJ cannot be expressed in monetary terms. Apart from streamlining organizational processes the main success factor of ISBJ is the flexibility the system provides for citizens to chose the most appropriate day care institution for their children everywhere in Berlin. These flexibility results in a stronger competition among the day care service providers which again improves the quality of services. Without a system like ISBJ it would be impossible to realize the processes around the day care voucher in a city of Berlin's size.

TIMELINE

The ISBJ project was developed using an incremental and iterative approach, dividing it into the following phases:

2002	Planning phase
Since November 2003	E&D and ISBJ-Kita, migration of the old application, was developed
2004	ISBJ-Kita has been run as a web-based application
August 2005	Integration of after-school programs
January 2006	Integration and use of the day care voucher
As of 2010	Integration of youth services, start of pilot phase in November 2010

LEGISLATION

There are several relevant laws pertaining to this best practice:

- Federal Child and Youth Services Act (SGB VIII)
- Reform of Berlin's State Day Care Act
- Berlin State Schooling Act
- Federal Implementing Regulations of the Child and Youth Services Act

In addition, technical standards and recommendations by federal agencies were taken into account:

- State of Berlin: IT Rules and Standards, IT Organization Principles of the Berlin Administration
- Federal Ministry of the Interior: (SAGA) Standards and Architectures for E-Government Applications
- Federal Office for Information Security (BSI): recommendations for standard safeguards and security

LESSONS LEARNED

One factor critical to the success of the ISBJ project was that its development was primarily driven by business needs and not by technical possibilities. Furthermore, security issues were incorporated into the architectural considerations from the start of the project.

Building software systems in accordance with the SOA paradigm on the basis of providing services proved to be the right choice. This way, service-providing components could be modified gradually, without affecting the whole application, to incorporate necessary changes due to changing governmental rules.

In addition, if components are fully documented in a structured way, the maintenance and evolution of single components can be outsourced, if needed, in order to decouple maintenance from development processes. However, one must take into account that compared to monolithic development, a service-oriented approach is more expensive because the service must be designed in such a way that its functionality can be reused in other application contexts.

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Coordinating different producers of components is a real challenge. Only IT Infrastructure Library conformable processes provide a guarantee for the architectural integrity of the whole system.

ISBJ was the first project in Berlin realized in accordance with the SOA paradigm. In addition to the development tasks necessary to realize the business functionality, a SOA infrastructure had to be established and operated in the project context. Other Berlin Administration units were responsible for data needed in the business processes of the project. Therefore, the project context had to be expanded to develop the necessary services.

In order to ensure stable and reliable operations, additional hardware had to be provided for acceptance tests, development tests, training, and the project hotline. Monitored system management tools assist service-level management, end-user performance and resource consumption of components and applications.

The introduction of SOA into an organization brought the potential for increased adaptability and responsiveness to changing conditions representing a major necessary improvement, but not sufficient in itself to guarantee the further development of IT enterprise systems. The ability to cope with and master the numerous organizational and coordination challenges involved remains the single most critical factor that will determine whether the declared goals of SOA such as evolutionary IT infrastructures and reduced costs can be achieved.

TRANSFERABILITY

ISBJ is a true e-government flagship project, not only because of its innovative optimization of transfer payment procedures in child care, but because it was also the first large SOA project of the Berlin Administration. The SOA approach makes it possible to use a system architecture focused on centralizing and standardizing IT services. The main idea is to make specialized IT procedures leaner and more efficient by extracting repetitive components from the procedures and standardizing them to set up general services for other procedures as well. The federal state of Berlin is setting up other major IT procedures for Child Protective Services and for the implementation of the European Union services directive.

Even if the implemented solution cannot be reused directly in other governmental contexts, the processes used to identify business services and their mapping to IT services, as well as the experience and processes needed to design and run the SOA infrastructure, can be reused.

CONTACTS

Michael Richter
ISBJ Project Leader
Michael.Richter@senbwf.berlin.de

Senate Department for Education, Youth and Science
Division III E
Bernhard Weiß Str. 6
D-10178 Berlin
Germany
Tel.: +49 30 90227 5353

Dr. Ulrich Kriegel
Senior Architect and Supervisor
Fraunhofer FOKUS
Ulrich.Kriegel@fokus.fraunhofer.de

Steinplatz 2
D- 10623 Berlin
Germany
Tel.: +49 30 24306-446
http://www.fokus.fraunhofer.de

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