Is Service Oriented Architecture delivering its promise?

The case of the Crossroads Bank for Social Security

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Structure of the presentation

- Service oriented architecture (SOA): definition of OASIS Reference Group
- Expectations of citizens and companies with regard to electronic services delivered by the social sector
- Services offered
- CBSS as a service integrator
- Towards a network of service integrators
- Critical success factors
- Why a service oriented architecture within the social sector?
- Concrete implementation

- Annex 1: basic principles regarding information management and information protection
“Service Oriented Architecture (SOA) is a paradigm for organizing and utilizing distributed capabilities that may be under the control of different ownership domains.

It provides a uniform means to offer, discover, interact with and use capabilities to produce desired effects consistent with measurable preconditions and expectations.

Enterprise architects believe that SOA can help businesses respond more quickly and cost-effectively to the changing market conditions. This style of architecture promotes reuse at the macro (service) level rather than micro levels (eg. objects). It also makes interconnection of existing IT assets trivial.”

(OASIS Reference Group)
Expectations of citizens and companies

- integrated services
  - attuned to their concrete situation, and personalized when possible
  - delivered at the occasion of events that occur during their life cycle (birth, going to school, starting to work, move, illness, retirement, decease, starting up a company, …)
  - across government levels, public services and private bodies
- attuned to their own processes
- with minimal costs and minimal administrative burden
- if possible, granted automatically
- well performing and user-friendly
- reliable, secure and permanently available
- accessible via a channel chosen by the user (direct contact, phone, electronic devices, …)
- sufficient privacy protection
Actors in the Belgian social sector

about 2,000 public and private institutions at several levels (federal, regional, local) dealing with
- collection of social security contributions
- delivery of social security benefits
  - child benefits
  - unemployment benefits
  - benefits in case of incapacity for work
  - re-imbursement of health care costs
  - holiday pay
  - old age pensions
  - guaranteed minimum income
- delivery of supplementary social benefits
- delivery of supplementary benefits based on the social security status of a person
Services offered

- a network between all 2,000 social sector actors with a secure connection to the internet, the federal MAN, regional extranets, extranets between local authorities, and the Belgian interbanking network

- a unique identification key
  - for every citizen, electronically readable from an electronic social security card and an electronic identity card
  - for every company

- 190 electronic services for mutual information exchange amongst actors in the social sector, defined after process optimization
  - nearly all direct or indirect (via citizens or companies) paper-based information exchange between actors in the social sector has been abolished
  - in 2006 511 million electronic messages were exchanged amongst actors in the social sector, which saved as many paper exchanges
Services offered

- 40 electronic services for employers, either based on the electronic exchange of structured messages between applications or via an integrated portal site
  - 50 social security declaration forms have been abolished
  - in the remaining 30 declaration forms the number of headings has on average been reduced to a third of the previous number
  - declarations are limited to 3 events
    - immediate declaration of recruitment and discharge (only electronically)
    - quarterly declaration of salary and working times (only electronically)
    - occurrence of a social risk (electronically or on paper)
  - in 2006 17.9 million electronic declarations were made by all 220,000 employers, 98% of which from application to application
  - according to a study of the Belgian Planning Bureau, rationalization of the information exchange processes between the employers and the social sector implies an annual saving of administrative costs of more than 1.7 billion € a year for the companies
Services offered

- electronic services for citizens
  - maximal automatic granting of services based on electronic information exchange between actors in the social sector
  - 4 electronic services via an integrated portal
    • 2 services to apply for social benefits
    • 2 services for consultation of social benefits
  - about 30 new electronic services are foreseen

- an integrated portal site containing
  - electronic transactions for citizens and employers
  - information about the entire social security system
  - harmonized instructions and information model relating to all electronic transactions
  - a personal page for each citizen and each company

- an integrated multimodal contact centre supported by a customer relationship management tool
CBSS as a service integrator

- board of directors consists of representatives of the several actors in the social sector and of government representatives

- mission
  - definition of the vision on E-government in the social sector
  - definition of common principles (see annex) related to
    - information modeling
    - unique collection and re-use of information
    - management of information
    - electronic exchange of information
    - protection of information
  - policy support
  - coordination of business process re-engineering
CBSS as a service integrator

mission
- definition, implementation and management of an interoperability framework
  - technical: secure messaging of several types of information: structured data, documents, images, metadata, …
  - semantic: harmonization of concepts and coordination of the necessary adaptation of the law
  - business logic and orchestration support
  - management of a reference directory for
    - preventive control on the legitimacy of the information exchange
    - organization of the routing of information
    - automatic communication of changes of information
Reference directory

- directory of available services/information
  - which information/services are available at any actor depending on the capacity in which a person/company is registered at every actor

- directory of authorized users and applications
  - list of users and applications
  - definition of authentication means and rules
  - definition of authorization profiles
    - which kind of information/service can be accessed, in what situation and for what period of time depending on in which capacity the person/company is registered with the actor that accesses the information/service

- directory of data subjects
  - which persons/companies have personal files in which actors for which periods of time, and in which capacity they are registered

- subscription table
  - which users/applications want to automatically receive what services in what situations for which persons/companies in which capacity
CBSS as a service integrator

- **mission**
  - stimulation of service oriented applications
    - modular
    - can be integrated
    - re-usable
    - loosely coupled
    - technology neutral
    - based on open standards
Critical success factors

- common vision on electronic service delivery amongst all actors
- support of and access to policymakers at the highest level
- trust of all stakeholders
- electronic service delivery as a structural reform process
  - process re-engineering within and across actors
  - back-office integration for unique information collection, re-use of information and automatic granting of services
  - integrated and personalized front-office service delivery
- focus on more efficient and effective service delivery, and on cost control
- appropriate balance between efficiency on the one hand and privacy and security on the other
- respect for legal allocation of competences between actors
- co-operation between all actors concerned based on distribution of tasks rather than centralization of tasks
Critical success factors

- quick wins combined with long term vision
- technical and semantic interoperability
- legal framework
- adaptability to an ever changing societal and legal environment
- creation of an institution that stimulates and co-ordinates
- need for radical cultural change within government, e.g.
  - from hierarchy to participation and team work
  - meeting the needs of the customer, not the government
  - empowering rather than serving
  - rewarding entrepreneurship within government
  - ex post evaluation on output, not ex ante control of every input
Towards a network of service integrators
Why a Service Oriented Architecture?

- need for
  - cooperation and process coordination between
    - 2,000 actors in the social sector
    - > 220,000 employers
    - > 10,000,000 citizens
  - respecting their autonomy and legal allocation of competences

- SOA offers the possibility
  - to develop processes across actors
  - based on loosely coupled cooperation between actors
  - based on open standards
Why a Service Oriented Architecture?

- need for re-use of ICT-assets
  - cost control
  - ability to support partners

SOA offers the possibility
  - to develop multifunctional basic and business services
  - that can be re-used by all interested actors

- need for quick adaptation to an ever changing societal and legal environment

SOA offers the possibility
  - to adapt, replace or add services without effect on other services
  - to develop new applications based on the re-use of existing services
Concrete implementation
Example of a basic service: user and access management

- identification of physical and legal persons
  - unique social identification number for physical persons
  - unique company number for companies
- authentication of the identity of physical persons
  - electronic identity card
  - user id – password – token
- management and verification of characteristics (e.g. a capacity, a function, a professional qualification) of persons
- management and verification of mandates between a legal or physical person to whom an electronic transaction relates and the person carrying out that transaction
- management and verification of authorizations
Policy Enforcement Model

User \[\leadsto\] Policy Enforcement (PEP) \[\rightarrow\] Application

Decision request \[\rightarrow\] Decision reply

Policy Decision (PDP)

Action on application PERMITTED

Policy Administration (PAP)

Policy Information (PIP)

Policy Information (PIP)

Policy repository

Manager

Policy management

Manager

Policy enforcement

Decision request

Decision reply

Policy Information

Policy Information

Authentic source

Authentic source
United Nations Public Service Award

BETTER MANAGEMENT—BETTER PUBLIC SERVICE

23 June 2006

United Nations Public Service Award

Application of Information & Communication Technology (ICT) in Government: E-government Category

This award is given in recognition of the exceptional contribution of

Crossroads Bank for Social Security, Belgium

towards improving the effectiveness, efficiency and quality of Public Service.

José Antonio Ocampo, Under-Secretary-General for Economic and Social Affairs
More information

- website Crossroads Bank for Social Security
  - http://www.ksz.fgov.be

- personal website Frank Robben

- social security portal
  - https://www.socialesecurity.be
Thank you!

Any questions?
Annex 1: basic principles regarding information management and information protection
Information modelling

- Information is being modeled in such a way that the model fits in as closely as possible with the real world.

- Information modeling takes as much account as possible of anticipated use of information.

- The information model can be flexibly extended or adapted when the real world or the use of the information changes.
Unique collection and re-use of information

- information is only collected for well-defined purposes and is targeted to meet the requirements of these purposes
- all information is collected once, from as near to the authentic source as possible
- information is collected according to the information model and following uniform guidelines
- with the possibility of quality control by the supplier before the transmission of the information
- the collected information is validated once according to established task sharing criteria, by the institution that is most entitled to it or by the institution which has the greatest interest in correctly validating it
- it is then shared and re-used by authorized users
Management of information

- A task sharing model is established indicating which institution stores which information as an authentic source, manages the information and maintains it at the disposal of the authorized users.
- Information is stored according to the information model.
- Information can be flexibly assembled according to ever-changing legal concepts.
- Every institution has to report probable errors of information to the institution that is designated to validate the information.
- Every institution that has to validate information according to the agreed task sharing model, has to examine the reported probable errors, to correct them when necessary and to communicate the correct information to every known interested institution.
- Information is only retained and managed as long as there exists a business need, a legislative or policy requirement, or, preferably anonymized or encoded, when it has historical or archival importance.
Electronic exchange of information

- once collected and validated, information is stored, managed and exchanged electronically to avoid transcribing and re-entering it manually

- electronic information exchange can be initiated by
  - the institution that disposes of information
  - the institution that needs information
  - the institution that manages the interoperability framework (CBSS as service integrator)

- electronic information exchanges take place on the base of a functional and technical interoperability framework that evolves permanently but gradually according to open market standards, and is independent from the methods of information exchange

- available information is used for
  - the automatic granting of benefits
  - prefilling when collecting information
  - information delivery to the interested parties
Protection of information

- security, integrity and confidentiality of government information is ensured by integrating ICT measures with structural, organizational, physical, personnel screening and other security measures according to agreed policies
- personal information is only used for purposes compatible with the purposes of the collection of the information
- personal information is only accessible to authorized institutions and users according to business needs, legislative or policy requirements
- the access authorization to personal information is granted by an independent institution, designated by Parliament, after having checked whether the access conditions are met
- the access authorizations are public
Protection of information

- every actual electronic exchange of personal information is preventively checked on compliance with the existing access authorizations by an independent institution managing the interoperability framework
- every actual electronic exchange of personal information is logged, to be able to trace possible abuse afterwards
- every time information is used to take a decision, the information used is communicated to the person concerned together with the decision
- every person has right to access and correct his/her own personal data