

HERA: Process-oriented Cross-organisational E-Government

1. Motivation

E-government has two major objectives: to achieve greater operational efficiency and to offer improved public services. In the former case typical measures are the re-engineering of business processes and the move from paper records to electronic ones. In the latter case the typical measure is to make citizen and business services accessible through a web portal. More recent e-government approaches adopt a cross-organisational process view, which is motivated by the following observations:

- Government agencies often do not work independently but need to collaborate. This is especially necessary to offer a one-stop shop portal to citizens or companies.
- The delivery of user-oriented e-government services requires in many cases a flexible integration of the services of various stakeholders and thus resembles more a *cross-organisational process*. For example, the submission of a tax declaration not only includes the submission itself but also its preparation together with the trustee and the auditor, the delivery of the tax assessment and maybe further enquiries and requests for additional documents.

The need for a stronger process-oriented view motivated the HERA project¹ (Helvetic E-Government Reference Architecture). It pursues three major goals:

- A *generic framework (reference architecture)* for process-oriented e-government applications aims at significantly reducing the effort required to implement and maintain cross-organisational e-government applications. Among others, the

framework allows to compose the services provided by the various stakeholders into a coherent process.

- A prototypical implementation of an e-government process for the *declaration of company taxes on profits* will validate the practical applicability of the generic framework.
- The compliance with major federal e-government initiatives such as the Event Bus Schweiz (Informatikstrategieorgan Bund) and SEDEX (Bundesamt für Statistik) ensures the long-term viability of the HERA architecture.

2. Approach

Figure 1 illustrates the application of the HERA framework to the declaration of company taxes. At the core is the web-based HERA platform which offers the electronic transfer of documents between process participants and guides through the process, which is only weakly structured and allows a high degree of flexibility. HERA focuses on the cross-organisational parts of a process but the organisation-internal parts can also be supported. In any case, the internal processes are private and remain hidden from each other.

All records are handled purely electronically – either as (filled-in) structured forms or as PDF documents. HERA keeps track of each process by maintaining a protocol when which documents have been transferred to whom to carry out which task. Should the task involve a formal submission an electronic signature must be present.

As far as possible, HERA checks the records file for completeness and consistency before accepting and transferring it to the next process participant.

3. Benefits

From a user's point of view, using HERA for the submission of com-

pany tax declarations has the following benefits:

- *Process transparency:* Process participants are always informed of the process status, what has happened so far, who is currently in control of the process, etc. Currently, to find out what the process status is can take a lot of time (phone calls, emails, finding the right dossiers, etc.).
- *Faster communication:* As a side effect of more process transparency it is always clear which person to contact in which matter. Together with the fact that sending documents is instantaneous process duration becomes much shorter.
- *Complete records files:* All the documents involved in the process are in electronic form. Therefore, the checks for completeness of a records file, which are currently done quite frequently, are no longer necessary because with electronic records files single documents cannot get lost as might happen with paper files.
- *Correct processes:* Underlying business rules ensure (to a certain degree) a correct process. For example, incomplete or wrongly filled-in tax declaration forms cannot be submitted.
- *Reduced manual effort and elimination of errors:* The filled in fields of the tax declaration form can be automatically transferred into the tax assessment system. This reduces the manual effort needed and eliminates the possibility of errors. The transfer of data from the accounting system into HERA is less interesting because those data are manually processed anyway so that their manual transfer does not imply much additional effort.
- *Eliminating duplicate efforts:* Supporting all aspects of the tax declaration process within one

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process and one system (like requests for deadline extension, requests for additional documents, declaration of withholding tax) eliminates otherwise occurring duplicate efforts.

- *Integration with related e-government processes:* By accommodating and integrating an arbitrary number of e-government processes on one or a set of federated platforms the above mentioned benefits multiply (like combining corporate tax declaration with the declaration of value-added tax, the registration of address, etc.).

4. Reference Architecture

As already pointed out, HERA is not particularly focused on a specific application scenario but provides a *generic framework* in the form of a reference architecture for the implementation of arbitrary process-oriented, cross-organisational e-government applications. The framework utilizes a *model-driven approach*, which allows to introduce most of the characteristics of a particular application through models (i.e. without programming)

and then to transform the models semi-automatically into a running system. The model-driven approach is crucial for building and maintaining e-government applications consistently and at competitive costs.

A service- and event-driven approach facilitates the flexible integration of arbitrary services, which among others, allows the integration of existing information systems into HERA.

HERA employs innovative concepts such as generalised process models and interaction patterns for dynamic process control. These concepts are the key for permitting and supporting all the process variations required by the federal political system in Switzerland.

The HERA platform sits on top of a sub-bus of the Event Bus Schweiz (EBS) and thus allows a seamless integration with other e-government applications. Together with the compliance with all relevant eCH standards this ensures the long-term viability and extensibility of the HERA reference architecture.

5. Partners

- The project partners are:
- University of Applied Sciences, Institute IPM
 - University St. Gallen, Institute MCM
 - University St. Gallen, Institute IDT
 - Abraxas Informatik AG
 - Abacus Research AG
 - BOC Information Systems GmbH
 - OBT AG
 - Finanzdirektion Kanton Schwyz
 - Finanzdirektion Kanton St. Gallen
 - Kantonale Steuerverwaltung Thurgau

6. Contact

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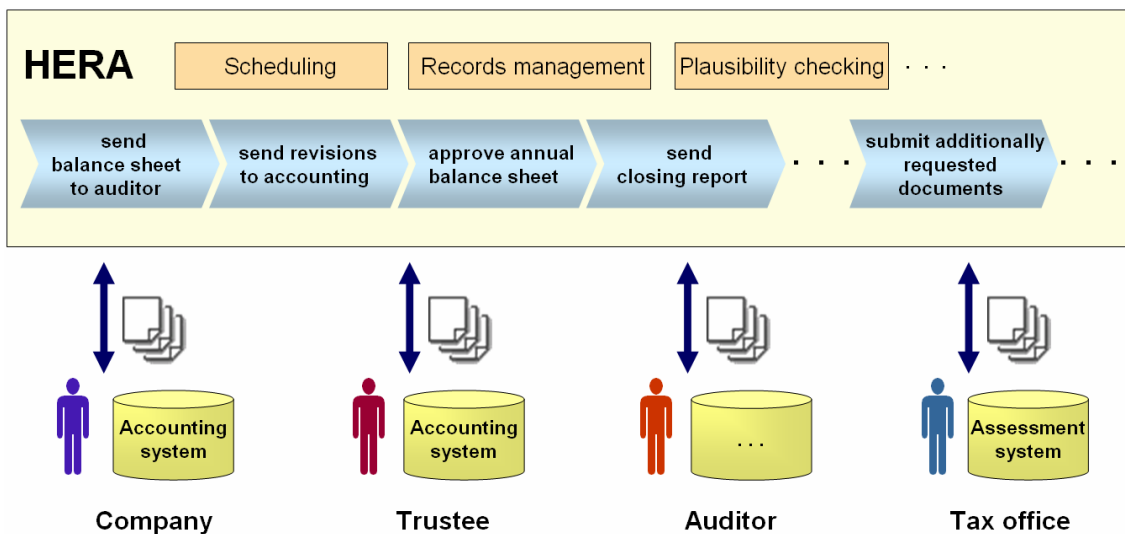


Figure 1: The web-based HERA platform for supporting the process of company tax declaration