Coordinating Interdependent E-Government Solutions Illustrated on the Electronic Change of Address in Switzerland

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Abstract: In this case study we illustrate the high complexity of a rather simple inter-agency e-government service: change of address in Switzerland. This enables us to identify typical sources and dimensions of complexity for inter-agency services in countries with decentralised competencies among government agencies. From the resulting picture we draw conclusions on how to deal with complexity – and how to avoid further dramatic increases of e-government complexity. In particular, we discuss the role of coordination of e-government service development projects plays in the fight against exploding complexity.

Keywords: complexity management, stakeholder management, coordination, infrastructure, interoperability, interdependence.

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1 Introduction

This paper focuses on the challenges of the implementation of an inter-agency e-government service, which requires the coordination of a very large number of autonomous actors – the more as it relies on the use of e-government infrastructure being under development in projects carried out in parallel. Such a highly complex situation is typical for contemporary Swiss e-government development projects. We analyse the project *A1.12 - Change of address, notification of departure and arrival* [1] *as a concrete case*. Its goal is to set up a nationwide service allowing residents to register their change of addresses electronically with the public administration and with some third parties

[1] See: http://www.egovernment.ch/en/umsetzung/

they select. A1.12 illustrates that the heterogeneity of local e-government environments is typically high and replacing legacy is not a realistic option. Yet there is a strong need for seamless end-to-end processes. Therefore, a high level integration of the diverse local solutions becomes necessary.

2 Coordination Perspectives: An Analytical Approach

Projects digitising analogue services and realising them as seamless end-to-end processes are highly complex [Gg12]. Coordination becomes a systemic challenge, involving heterogeneous stakeholder groups, areas of expert knowledge, infrastructures etc., none of which will remain constant throughout the duration of the project [Rr05], [Gg12]. Stakeholder coordination starts with the identification of the relevant supporters and critics [PNB12]. They form heterogeneous groups, with diverse specialist backgrounds [Rr05]. State actors from different levels of the political competence structure interact with private actors from various economic and scientific domains. In the Swiss context, all state actors are autonomous, none of them being in the role of a primus inter pares. Furthermore, local laws and local processes implementing identical tasks typically differ in specific details. Except for rare cases, no actor can be forced to change its laws and processes. The national government is rarely willing to push harmonisation through legislation. Involving stakeholders is therefore essential [BW11], those at the core of the issues and those at the periphery. However, the complexity of stakeholder management may by itself threaten project success. Unfortunately, the challenge of stakeholder management grows considerably when faced with multiple, autonomous yet interdependent projects, as it is to be expected for the implementation of seamless end-to-end processes [FSH12]. Existing mutual dependencies imply the necessity of coordinated collaboration, aimed at the timely creation of effective and efficient solutions for all involved projects [Jm12]. As this means prioritising components and outsourcing of non-core functionalities, timing is highly critical. To solve the project specific issues, technical, semantic, organisational, procedural, legal, and economic aspects are to be considered [Rr05]. These areas of expert knowledge will often not be independent from each other and thus need coordinated approaches [Jm12]. Stakeholders involved in the solution process will have diverging views of the specific knowledge areas, the interpretation of overlaps of those areas, and the potential solutions. Area specific knowledge needs to be generated, translated, spill over and get absorbed by the experts in other areas. The complexity of the areas, the project specific questions, and the solutions generated within each area, thus require coordinated collaboration within each and between all workgroups. Therefore, coordination is important within separate areas of expert knowledge and even more so regarding their overlaps.

3 Coordination in Swiss E-Government

Switzerland has a history of rather uncoordinated development and implementation of e-government solutions on all federal levels. This is a growing challenge for sustainability due to non-interoperable systems, recurring development of redundant solutions,

increasing costs due to path dependencies, and re-collection instead of re-use of existing data [FSH12]. The Swiss public sector thus aims to increase efficiency and quality of its e-government services. One way to achieve this is through shared use of basic infrastructure services, data registers, and reusable applications [FSH12]. Apart from reducing redundancy costs, this would enable a networked public administration, offering seamless end-to-end processes with minimised consumer to administration interaction requirements [LSS10], [Gj12]. According to the high autonomy of government agencies, the only feasible approach is to interconnect local systems, while leaving intra-organisational processes largely unchanged. Since the activities for connecting local services are taking place in many independent projects (the Swiss e-government programme counts more than fifty by now), the establishing of shared services requires the collaboration of autonomous project teams. With currently no public agency providing overarching steering, the actual task of coordination falls onto the individual project leaders themselves.

4 The Case A1.12 Electronic Change of Address

4.1 The Project

The initial attempt to implement an e-government service for the electronic change of address was undertaken from 2004 to 2006 within the EU Integrated Project "GUIDE"[2]. The implementation then struggled heavily with electronic identity issues and failed to gain wider acceptance among users. A1.12 was launched in 2010 by the *Swiss Association of Resident Registration Offices VSED*. First a rough concept was designed [VSED10]. In 2012 the Swiss e-government action programme decided to provide financial support and the implementation of the refined concept [DW12] was started.

4.2 The Use Case and the Core Actors

In its current, analogue form, a change of address requires physical presence of the resident at the counter of one or two resident registration offices (RRO). It also requires the presentation of official, physical documents providing evidence of a person's nationality and legal residency. For example, Swiss citizens have to physically transport their certificate of origin (Heimatschein) from the former place of residence to the new one. While in general this might look like a standardised process, in detail processes and laws differ from municipality to municipality. This holds true for the mere change of address and to an even larger extent for affiliated administration processes, like taxation, which rely on exact residence data. In many cases data is exchanged in some way between municipalities, even electronically, but not in all cases. And if errors occurred at the former place of residence, things get complicated. In order to settle cases of

[2] Specifically the Proof of Concept *Relocation Service ZH/SG.*

administrative mistakes [3] it may become necessary to track the historic changes of laws. While such intricacies are rare, the heterogeneity creates substantial challenges even in everyday cases. Creating an electronic, seamless end-to-end process thus poses significant technical, legal, and organisational challenges: Processes, systems, and legal foundations must be adapted, on all federal levels. A nation-wide change of address e-government service involves over 2400 communal RRO, 26 cantonal migration offices, the *Federal Statistical Office* (FSO), and the *Federal Office for Migration* (FOM), plus a number of legal agents [4]. In addition, a multitude of software products from more than 40 IT-solution providers has to be adapted and integrated into the technical service implementation.

4.3 The Stakeholder Scenario

The fundamental challenge for A1.12 is to draw a solution architecture, which creates as few costly changes as possible. Systems to be included are communal and cantonal resident registers (EWR), national registers of building and dwellings (GWR), national migration information system (ZEMIS), and the national civil status register (Infostar) – all under the responsibilities of different authorities. The key challenge thereby is the stakeholder management. Not only independent, autonomous, public agencies have to be coordinated. The integration of the major IT-solution providers for municipalities, cantons and the Confederation into the solution development process is necessary, because local legacy systems will stay in place and thus have to get connected to the service. While giving these actors decision power within the project is not feasible, it is important to inform them timely and to give them a voice in the requirements collection and the solution design process. Unfortunately, the group of A1.12 stakeholders is considerably bigger than just the core actors: The project relies on infrastructure to be developed in other national Swiss e-government projects, which are also critical stakeholders. For example, A1.12 needs a solution for identity and access management, currently under development in another project. Similar dependencies exist e.g. with the project on register harmonisation and with the set-up of a future shared e-government services centre, which may eventually deploy some of the components of the service. In addition, there are further stakeholders from the service industry. The electronic change of address is conceptually designed as a shared service that can be embedded in various portals of private service providers, and thus can be offered to the consumers in different contexts. A1.12 aims to create a benefit for the private sector, by linking processes and systems with existing and future solutions owned by private stakeholders. It intends to connect its e-government solution with e-health (e.g. basic insurance providers), e-business (e.g. mail delivery services), and potentially also electronic services for e-education. This creates various interdependencies with private solutions and involves an additional group of stakeholders. It should also be noted that private industry is building competing services for certain regions, while also universities are building prototypical, overlapping services in state-funded innovation projects.

[3] E.g. concerning the correct spelling of a name of a Swiss citizen who originally had a foreign citizenship.
[4] Data protection officers, cantonal state chancellors, and others.

4.4 The Management Set-up

A key factor for successful stakeholder management is the appointment of a well networked, highly experienced facilitator, with a fitting professional background [PNB12]. For A1.12 two such facilitators were chosen for a joint lead. The management team was set up with highly experienced professionals, bringing together views from different federal levels and political regions, and expertise from different public agencies. Close attention was paid to stakeholder heterogeneity right from the start. Public and private, central and peripheral stakeholders were strategically involved into the solution process. Their group was neither exclusive nor static but was adapted according to project needs and stakeholder motivation. A negative effect of this is knowledge discontinuity, as for example expertise developed in 2012 has been discarded in order to speed up the pilot development process in 2013. This corresponds to similar dynamics in the project which took place eight years earlier. However, this time networking among all relevant stakeholders is actively fostered.

4.5 A Possible Path towards Success: Coordination

Although we have presented only a specific case in this paper, a comparison with other Swiss e-government projects shows that the challenges are systemic. The development of both infrastructure and legal preconditions for inter-agency e-government services has to take place in a coordinated way. As long as stakeholder management is conducted by each project individually, stakeholder attention will suffer and any systemic goal will be non-communicable. As a result the stakeholders' willingness to adapt and to support any of these projects will decrease. If, on the contrary, coordination successfully takes place, the complexity for each single project will decrease dramatically. Correspondingly, the burden of its stakeholder management will decrease, as stakeholders perceive cooperation among key projects, which will in turn increase their willingness to cooperate. In order to reduce the complexity for each project, and to reduce the risks of a further, dramatic increase of system complexity through the creation of new inter-agency e-government services, it seems mandatory that the coordination activities lead to a clear enterprise architecture picture [RWR06] for the whole of Swiss e-government. One which depicts shared technologies, shared registers, and, possibly in the future, shared processes. In order to gain the commitment of all stakeholders involved, the architecture development will have to be organised as an open and transparent process, supported by communication experts explaining the impact of decisions to those stakeholders without detailed architecture knowledge.

5 Conclusions

E-government services like the change of address may look innocent, yet in countries without a strong central control of e-government, their realisation can be highly complex. A first dimension of complexity stems from the fact that, although only a few agencies are affected by each use of the implemented service, numerous agencies are involved in the development and implementation process. That number becomes even

larger, when additional agencies have their say on legal issues. A second dimension of complexity stems from the fact that the development project relies on other development projects running in parallel, which too involve many stakeholders. A third dimension of complexity stems from the fact that the service targets a use within future consumer portals provided by industry. The fact, that there are competing service developments under way adds a fourth dimension of complexity (which is otherwise only observed in private markets, but not in government). This enumeration of dimensions (or sources) of complexity illustrates how a seemingly not very complex idea can initiate change on a systemic level, if interoperability, reuse of solutions, and the creation of seamless end-to-end processes are a goal [Jm12]. The result is a highly challenging solution design task with respect to technology, organisation, and legal issues, which in turn leads to highly complex stakeholder management. Right now a large and growing number of Swiss e-government projects face these challenges. As long as their activities are not stringently coordinated, their progress will further increase the complexity challenges for everyone. Successful coordination resulting in a concise enterprise architecture for the whole of Swiss e-government could dramatically reduce the challenges for each such highly complex project – in particular the challenges of stakeholder management. We conclude that a coordinated collaboration of these projects is a must. Future research shall focus on methods for coordinating this increasingly interwoven field, moving from the project perspective up to the strategic programme level, where the coordination of projects is naturally positioned.

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