Improving the Performance of Business Networks in E-Government

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Improving the Performance of Business Networks in E-Government

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Abstract

Strategic alignment between business and IT is known to be important for achieving good business performance in one organization. It is not clear how strategic alignment influences the performance of a business network consisting of multiple organizations. This paper presents a method to assess inter-organizational Extended Strategic Alignment (ESA) based on the analysis of inter-organizational alignment processes consisting of drivers, levers, and impacts. The method is applied to a large e-government network for social security in the Netherlands between 2002 and 2006. Six examples of ESA were found, all being very complex and time-consuming sequences of activities. Six years after the government decision to implement the new Social Security Act, none of the six ESA examples has resulted in significant improvement of business or IT performance.

Keywords: strategic alignment, e-government, social security case, network performance

1 Introduction

In 1994, Ring and Van de Ven (1994) wrote that ‘an unprecedented number of business firms in many industries have entered into a variety of inter-organizational relationships aiming to improve their competitive advantages’. Many organizations are ‘establishing new forms of inter-organizational systems with their suppliers and customers in an effort to improve total channel performance’ (Clark and Lee, 2000). Various authors have indicated the emergence of new organizational forms, enabled by IT and globalization in the past decade (Clemons et al, 1993; Benjamin and Wigand, 1995; Klein and Selz, 2000). Although the IS literature repeatedly outlined the fundamental importance of strategic alignment between business and IT to improve organizational effectiveness (Chan, 2002), much less is known about how IT can lead to better performance of business networks that consist of multiple organizations or units that decide more or less independently about IT and business issues (Straub et al, 2004; Kuo and Smits, 2003). The aim of this research is to determine how (extended) strategic alignment occurs in a business network and it affects the performance of individual organizations as well as total network performance. Ultimately, this research leads to insight in extended
alignment processes and guidelines for the application of IT in business networks. Our research methodology is qualitative, and aims at describing the complex processes of inter-organizational alignment and how these processes affect performance (www.qual.auckland.ac.nz).

We first define strategic alignment and extended strategic alignment (ESA) and a method to assess ESA and performance in a network organization. We then apply the method and assess ESA and performance of a large social security network of government organizations in the Netherlands between 2002 and 2006.

2 Strategic alignment and performance

Theory on business-IT alignment has focused on alignment and business performance in one organization. We address alignment in multiple organizations in one business network and relate intra-organizational and inter-organizational alignment to business and network performance. We first define alignment in one organization and then our research model to assess extended alignment in a business network.

2.1 Business-IT Alignment in one organization

Henderson and Venkatraman (1993) introduced their classic ‘Strategic Alignment Model’ in which they distinguish between the business domain (business strategy and business processes) and the technology domain (information strategy and IT processes, including systems development and maintenance) in an organization. Alignment is pursued along two dimensions: strategic fit (between strategies and internal infrastructures and processes) and functional integration (between the business and the technology domain). Poor alignment results in sub-optimal business performance, despite heavy investments in IS (Chan 2002).

Alignment is characterized by Chan as a multi-dimensional phenomenon, and as ‘a superset of multiple, simultaneous component alignments that bring together an organization’s structure, strategy, and culture at multiple levels (IT, business unit, and corporate) with all their inherent demands’. Chan (2002) and Sauer and Yetton (1997) conclude that alignment is not a state (a situation of equilibrium between the domains that an organization can reach), but a journey (‘a continuous managerial effort, not always predictable, rational, or tightly planned’).

To analyze how alignment between the domains can take place we build on the refinement of alignment theory introduced by Luftman (1996). He defines alignment as a process with a typical sequence of activities and three major components that form a complete pattern of strategic change: driver, lever, and impact (see also Hsiao and Ormerod, 1998). In one perspective the business strategy is the driver for business processes or information strategy (called ‘levers’), ultimately affecting the IT processes (‘impact’). In another perspective the information strategy is the driver for IT processes or business strategy (the ‘levers’), ultimately affecting business processes (‘impact’). Note that such alignment ‘sequences’ consist of one driver, one or more levers, and one or more impacts. And, an alignment ‘sequence’ typically begins in one domain (business or IT) and ends in the other domain.

2.2 Business-IT Alignment in a business network

While most alignment studies focus on strategic alignment in one organization, some researchers stress the importance of network level considerations (Salemela and Spil, 2006). To analyze alignment processes between business and IT domains within an organization and across organizations in a business network we use an ‘extended strategic alignment model’. Figure 1 shows the model visualizing alignment from a single company perspective (intra-organizational) along the vertical dimension, and alignment from an inter-organizational perspective (across companies A and B), along the horizontal dimension. The rationale of Figure 1 is that within an organization (say
Company A), the IT domain and the business domain influence each other vice versa along the arrows 1 and 2, similar to the original strategic alignment model (see above). Also, business domains can influence each other across organizations A and B along arrows 3 and 4 (indicating strategic and operational influence respectively). An example of strategic influence can be the decisions to use shared supply chain metrics in the business relationship. Also, the IT domains of companies A and B can influence each other vice versa, as indicated by arrow 5 (IT strategic choices, for instance to deploy IT standards or an IOS) and arrow 6 (operational data exchanges).

Figure 1: Extended Strategic Alignment model to analyze alignment processes between business and IT domains within an organization (lines 1 and 2) and in a business network (3 to 6)

2.3 Extended Strategic Alignment Constructs

We start the analysis of ESA with an inventory of the classical key building blocks of alignment: business strategy, process management, IT strategy, IT systems, and IT processes in the individual organizations that form the business network. We add the analysis at the network level by assessing supply chain management aspects, network structure, and performance. Table 1 gives an overview of the constructs and theory base.

**Business strategy.** We use the business maxims typology of Broadbent and Weill (1997) and identify business strategy based on having one or more of the following six performance objectives (business maxims): reducing costs (cost focus), improving quality (value differentiation perceived by customers), business flexibility (flexibility and agility), growth, synergies in company capabilities (human resources), and management orientation.

**Process and Supply Chain Management.** Ganeshan et al (1999) identify three process management levels (related to supply chain management (SCM) levels): operational, tactical, and strategic decision-making on products, services, markets, value, and business networks. They add that a process across multiple organizations can be managed as a single entity through one dominant member or through a system of partnerships requiring well-developed cooperation and coordination (‘high scope’). A business network can also consist of multiple entities where coordination between entities occurs through markets, and where the scope of process management is limited to one entity (‘low scope’). Related to the scope of process management is the level of process integration in a network. A high level of integration (integrated SCM) means coordination across many activities (a large scope) and multiple levels in the SC.
Network structure. Sarkar et al (1998) give four parameters to describe the structure of a business network: (i) the channel length being the number of organizations through which products (or services) move as they go from producers to end-consumers, (ii) the number of organizations (including intermediaries) involved in the channel, (iii) the mix of virtual (information) channels and physical channels, and (iv) linear or parallel sequence of activities. Sarkar et al hypothesize that IT and IOS can result in business networks that support shorter physical channels (a shorter linear sequences of physical goods through a SC) while leading to more complex, non-linear, and longer networks of information exchanges. Grieger (2003) gives five dimensions to characterize a network: (i) buyer orientation versus seller orientation, (ii) vertical network (within one industry) versus horizontal network (across industries), (iii) fixed or variable pricing mechanisms, (iv) the purchasing mechanisms (‘what and how’), (v) open or closed networks, (vi) limited or extended support of the phases in the transaction process, and (vii) the value adding mechanism of the network being aggregation (grouping buyers or sellers) or matching (bringing together buyer and seller). The dynamics of the network structure can be assessed by analyzing the changes over time in the ‘static’ structure characteristics listed above. E.g., Sarkar et al (1998) report that networks can start with many intermediaries, reducing these over time because of internalization of markets and vertical integration.

IT Strategy, Systems, and Processes. Oesterle et al (2000) list examples of IOS and IT applications and focus on the IT infrastructure across organizations in a SC. They define a high tech ‘business bus’ as an infrastructure in a group of organizations (or even an industry) consisting of a communication network, communication standards and services, application services and intermediaries, ideally in the form of a standardized socket and a plug to go with it for organizations to do business. Weill, Subramani and Broadbent (2002) define IT infrastructure as a collection of reliable, centrally coordinated services and comprising both technical and human capability. They identified ten clusters of IT infrastructure services supporting various business processes and needs. A firm’s IT infrastructure is a major business resource and a key source for attaining long-term competitive advantage. IT infrastructure can be shared across boundaries and enable better business processes (Weill and Broadbent 1998).

Network and Business Performance. Operations Research and Management Science provide guidelines to measure business performance of the total business network, as well as

<table>
<thead>
<tr>
<th>Construct</th>
<th>Indicators</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business strategy</td>
<td>objectives per company</td>
<td>Weill et al (1998)</td>
</tr>
<tr>
<td>Process Management</td>
<td>the levels of SCM per company</td>
<td>Sarkar et al (1998)</td>
</tr>
<tr>
<td></td>
<td>the scope of SCM per company</td>
<td>Cox (2000, 2001)</td>
</tr>
<tr>
<td></td>
<td>level of integration (number of separate entities in the chain or network)</td>
<td>Grieger (2003)</td>
</tr>
<tr>
<td></td>
<td>management focus (narrow versus broad)</td>
<td></td>
</tr>
<tr>
<td>Network structure</td>
<td>channel length, number of organizations in the network, mix of physical and virtual channels, linear versus parallel sequence of activities</td>
<td>Sarkar et al (1998)</td>
</tr>
<tr>
<td></td>
<td>firm influence (buyer – supplier dominance)</td>
<td>Cox (2000, 2001)</td>
</tr>
<tr>
<td></td>
<td>degree of network dynamics</td>
<td>Grieger (2003)</td>
</tr>
<tr>
<td>IT Systems and Processes</td>
<td>assessment of IT and IOS applications</td>
<td>Hong (2002)</td>
</tr>
<tr>
<td></td>
<td>metrics on planning, sourcing, assembling, delivering</td>
<td>Fairchild et al (2004)</td>
</tr>
</tbody>
</table>
as of individual companies. Performance indicators are typically based on the Supply Chain Operations Reference model (SCOR). SCOR is based on five distinct management processes: plan, source, make, deliver, and the return process. The SCOR model shows that the performance of a business network can be evaluated in many ways, e.g., higher flexibility, customer orientation, customization, flexibility and better cost-effectiveness. Gunasekaran et al (2004) use the SCOR perspective and conclude that SC performance refers to meeting the end customer requirements, including product availability, on-time delivery, and all the necessary inventory and capacity in the SC to deliver that performance in a responsive matter. So, performance can be regarded ‘good’ when performance objectives are achieved on all levels and as set by all managers and organizations involved.

2.4 Assessing Extended Strategic Alignment.

Following the previous sections, our analysis of extended strategic alignment starts with a relatively simple inventory of the existing IT and IOS applications and the IT infrastructure in the organizations in the business network. Further analysis includes documentation of the business processes, IT processes, IT strategies, and information flows within and across companies. Strategic alignment (driver – lever – impact) can occur in Figure 1 in various ways, for instance: business strategy can drive IOS, leveraging network structure, impacting process management, supply chain management, in the end influencing network performance. Analyzing extended alignment implies analyzing the constructs of section 2.3 within one company (e.g., IT strategy and process performance) as well as across companies (e.g., IOS strategy and SC performance).

3 Methodology

Analysis was done in a social and retrospective context. We used primary data and historical secondary data and we interviewed various managers involved in the business network since at least 2002. This research method is qualitative. Klein and Meyers (1999) propose a set of principles for the conduct and evaluation of case based field research in information systems, along with their philosophical rationale. From the critical viewpoint our methods of data collection include the use of multiple sources (interviews with different respondents and using various documents) and triangulation (comparing findings from different sources).

4 Case: Social Security E-Government Network

4.1 Introduction to the SUWI network organization

We analyzed the social security (SUWI) network in the Netherlands, consisting of several government-related organizations that went through a series of changes over the past years. In terms of the social security system, the Dutch welfare state started in 1901 with the first law on work injury benefits. From then on, the system of employee insurance was expanded through a mixture of company-based provisions, national insurance, and a growing amount of legislation covering the risks of work injury, invalidity, old age, sickness, and unemployment. Since the 1990s this large and complex nationwide system was drastically reorganized by merging the many small and dispersed organizations into a new network aiming to implement the so-called ‘comprehensive approach’, as determined in the new SUWI act. This new law on the Implementation Structure for Work and Income was implemented per January 2002.

Figure 2 shows the structure of the new network and the two core operational processes: the dotted arrows show the process leading to new jobs for unemployed and the full arrows show the process to unemployment benefits. All people who are newly registered
as unemployed (left side of Figure 2) and who are not able to find work themselves are offered a place in a reintegration program within twelve months. The ‘comprehensive approach’ chosen in the SUWI act of 2002 aims to prevent people joining the ranks of the long-term unemployed. A key objective of the SUWI Act is to provide a clear implementation structure. The Act is aimed at achieving greater efficiency and effectiveness of social security processes (providing income and work to unemployed citizens), as well as focusing more on the client. Basic assumptions are that clients should be in the centre and that tasks not suited to the private domain are implemented in the public domain (notably claim assessment) while those suitable for competition (like reintegration services) are carried out in the private sphere. The new SUWI implementation structure intends to reduce (i) the number of people claiming benefits, (ii) the costs of implementation, and (iii) the administrative burden for employers.

Figure 2: Overview of the social security network in the Netherlands in 2002-2006. Horizontal arrows indicate client streams for social benefits requests (full lines) or job requests (dotted lines). Vertical arrows indicate decisions and information exchanges.

The social security network has the following main participants since 2001 (see also Figure 2) (source: Ministry of Social Affairs):

- Centre for Work and Income (CWI). A total of 131 CWI-branches across the country are the first stops for job-seekers and employers. Employers can contact CWI for placement services and information on the labour market. CWI can help job-seekers find work or to apply for unemployment or supplementary benefits. The centre also issues dismissal and employment permits and provides information relating to labour law. The CWI organization started in 2002 as the umbrella organization for all municipal employment agencies in the Netherlands.

- UWV, also known as the Social Security Agency. The UWV is responsible for administering the employee insurance schemes provided for by the Unemployment Benefits Act and the Disability Benefits Act. UWV was the result of a merger of five social security agencies in 2002. The UWV assesses claims for benefits and takes care of paying benefits. The agency contracts out reintegration to private sector reintegration service providers on behalf of disabled and unemployed clients.

- Municipal governments. In implementing the Work and Social Assistance Act, the municipalities, among other things, are responsible for guiding clients (back) to the
labour market. Together with CWI, they perform a vital task for people who would stand little chance on the labour market without extra support. Local authorities remain responsible for the reintegration of people on welfare and they are now also responsible for the reintegration of non-beneficiaries and those on a survivor’s pension (ANW).

- Change Control Board (CCB). The organizations in the network have established a CCB to supervise the implementation of SUWI, the roles of the organizations in the network and the network processes.

The CWI, UWV and local authorities want to approach the client as one united front. To further enhance their close cooperation they work together to define joint performance indicators, a united approach to reintegration, the formation of communal offices, joint fraud prevention, and exchange of information and to coordinate ICT investments.

4.2 SUWI IT Applications and Infrastructure

The CCB has analyzed the network processes and distinguishes between the ‘income related process’ (leading to social benefits payments) and the ‘work related process’ (leading to new employments). Table 2 shows the steps in each process, and the 16 most important interactions (as determined by the CCB), the yearly interaction quantities between network partners (in 2005), and the 16 IT applications needed to support each step. Five out these 16 applications were ready and implemented per January 2006, and six other applications were ready but not yet used by the majority of network partners.

The SUWI IT architecture consists of the following four main IT applications:

- **SUWINET-BROWSE**: BROWSE is the instrument for employees of CWI, UWV, and Municipalities to get direct access to client information. Parts of BROWSE were implemented in 2002 and 22,000 users accessed BROWSE in 2005 for 6.7 million requests. In 2006, the BROWSE implementation is not yet finished (Table 2 lists the missing functionalities). Users have doubts on the quality of information in the system, miss the employment-related information, complain on limited availability and poor performance of the system, and limited embedding in the business processes of CWI, UWV, and municipalities.

- **SUWINET-REPORT**: the REPORT application is intended to generate reports to be exchanged between business processes of the network participants. In 2005, REPORT created 350,000 messages that were exchanged between the IT applications in CWI, UWV, and municipality organizations. CCB has decided to use REPORT for automating 15 key interactions in the network. Up to 2006, the REPORT application has not yet resulted in a substantial improvement of linkages between network processes. Messages from REPORT only represent a limited percentage of the total volume and are not automatically processed in the internal applications of the network partners. Most files and information exchanges are still paper based. Per January 2006, six REPORT sub-applications were ready for use, but not actually used by the network partners.

- **SUWINET-MAIL**: Because exchanging client information by ordinary email is illegal, SUWI has developed its proprietary email application MAIL, using a closed network. In 2005, approximately 240,000 emails were exchanged in the network.

- **SUWINET-CHECK**: The CHECK application was implemented in June 2005 and executes each month an automatic check of the clients of each municipal organization. CHECK combines for each individual client the information the information that is available in the national tax system, the national study allowance system, and the social security system. In 2005, CHECK automatically reported on 500,000 possible abuses of multiple benefits. CHECK helps municipal organizations to increase the efficiency of social security control processes (less effort is needed to
create reports from multiple national systems). The impact of CHECK on effectiveness of the control processes is still unclear (has CHECK resulted in less abuse?) and control remains a feedback mechanism. CHECK cannot (yet) be used to prevent abuse.

Table 2: Sixteen key interactions between actors in the social security network (interactions 1-12 relate to unemployment benefits process and 13-16 to the reintegration process)

<table>
<thead>
<tr>
<th>Interactions</th>
<th>Actors</th>
<th>Volume/ yr</th>
<th>Support</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Inspection of information of other SUWI parties</td>
<td>All</td>
<td>Variable</td>
<td>✓</td>
<td>BROWSE CHECK</td>
</tr>
<tr>
<td>2. Request for unemployment benefit with abridgement to application for fast procedure</td>
<td>CWI → UWV</td>
<td>± 400.000</td>
<td>✗</td>
<td>REPORT</td>
</tr>
<tr>
<td>3. Announcement of the Unemployment Insurance</td>
<td>CWI → UWV</td>
<td>± 400.000</td>
<td>✓</td>
<td>REPORT</td>
</tr>
<tr>
<td>4. Application of The Reformed Social Assistance, including abridgement application of The Reformed Social Assistance</td>
<td>CWI → GSD</td>
<td>± 100.000</td>
<td>✗</td>
<td>REPORT</td>
</tr>
<tr>
<td>5. Application of the Old Age Unemployment Insurance</td>
<td>CWI → GSD</td>
<td>&lt;15.000</td>
<td>✗</td>
<td>REPORT</td>
</tr>
<tr>
<td>6. Termination of the Reformed Social Assistance including reason</td>
<td>GSD → CWI</td>
<td>± 100.000</td>
<td>✗</td>
<td>REPORT</td>
</tr>
<tr>
<td>7. Termination of Old Age Unemployment Insurance + reason</td>
<td>GSD → CWI</td>
<td>&lt;15.000</td>
<td>✗</td>
<td>REPORT</td>
</tr>
<tr>
<td>8. Termination of Unemployment Insurance including reason</td>
<td>UWV → CWI</td>
<td>± 400.000</td>
<td>✗</td>
<td>REPORT</td>
</tr>
<tr>
<td>9. Announcement of reproachful behavior</td>
<td>CWI → UWV</td>
<td>Variable</td>
<td>✓</td>
<td>REPORT</td>
</tr>
<tr>
<td>10. Announcement of reproachful behavior</td>
<td>CWI → GSD</td>
<td>Variable</td>
<td>✗</td>
<td>REPORT</td>
</tr>
<tr>
<td>11. Announcement of reproachful behavior</td>
<td>GSD → CWI</td>
<td>Variable</td>
<td>✗</td>
<td>REPORT</td>
</tr>
<tr>
<td>12. Report of the results of claim judgment</td>
<td>GSD → CWI</td>
<td>± 100.000</td>
<td>✗</td>
<td>REPORT</td>
</tr>
<tr>
<td>13. Inspection of information of other SUWI parties</td>
<td>All</td>
<td>Variable</td>
<td>✓</td>
<td>BROWSE</td>
</tr>
<tr>
<td>14. Advice for reintegration</td>
<td>CWI → GSD</td>
<td>± 25.000</td>
<td>✗</td>
<td>REPORT</td>
</tr>
<tr>
<td>15. Advice for reintegration</td>
<td>CWI → UWV</td>
<td>± 80.000</td>
<td>✓</td>
<td>REPORT</td>
</tr>
<tr>
<td>16. Application of the reintegration advice</td>
<td>UWV → CWI</td>
<td>± 25.000</td>
<td>✗</td>
<td>REPORT</td>
</tr>
</tbody>
</table>

4.3 Plans for IT Applications and Infrastructure after 2006

The Change Control Board has defined seven key actions to improve co-operation in the network. With respect to information processing the following IT objectives were chosen:

- **Digital Client Files.** CWI was ordered to develop a digital client file, together with other SUWI parties. The digital client file forms a common file of all client information available at CWI, UWV, and the municipalities. Digital Client Files can be considered as successor of Suwinet-BROWSE.

- **Suwinet-REPORT.** The implementation of the open Suwinet-REPORT application proceeded in 2006. Successful implementation and linkages to the internal systems of the organizations in the network is now a decentralized responsibility.
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- **Infrastructure Blueprint.** Many organizations in the network still have three different technical infrastructures for telephony, IT-network and office automation. Based on pilots in 2005, a new infrastructure blueprint (IBP) has been designed and national wide implementation will take place in 2006.

- **Centralized network control.** The Change Control Board has decided to strengthen the network steering mechanisms and to transform the CCB into a daily board responsible for chain management. The CCB will now meet four times per year chaired by the Ministry of Social Affairs, thereby indicating the Ministerial responsibilities in the Social Security Network.

5 Case Analysis

Section 4 has summarized the main business and IT issues in the SUWI social security network. We analyzed extended strategic alignment and performance of the network between 2002 and 2006. We found six alignment sequences (from driver to levers to impacts) and performance effects in the network organization, as given in the following sections. Table 3 summarizes our findings.

5.1 Alignment sequence 1: Changing architectures

In this alignment sequence business strategy drives changes in business processes and ultimately drives changes in IT. Driver is the external (from outside the network) government, decision regarding the reorganization of the social security system (the SUWI act decision in March 2000) and the decision to create the Change Control Board (CCB). Lever1 is the shared service concept in the form of a SUWI grand design, adopted by the CCB and the management of CWI and UWV. Lever2 is the design of the operational processes in the CWI and UWV organizations, and subsequently, the organization architectures, the business process architectures, and budget allocation systems for human resources and IT in CWI and UWV.

Impact1 of this alignment sequence is the changing application architecture and the IT processes. Priorities were given to IT projects that would enhance network wide SUWI processes, such as an automated Intake application (for enrollment of jobseekers in CWI offices), a nation wide Vacancy Database and Job Seekers Database, the nation wide SUWI infrastructure for data communication, and the implementation of BOWSE an CHECK applications in 40 operational CWI offices. Impact2 is the design and development of the shared IT infrastructure and applications across the entire network.

This alignment sequence has resulted in the SUWI architecture of 2006 and a transparent process for client reintegration that might provide a sound basis for improved services (faster processes, less mistakes) to the clients in the coming years. However, per 2006 only poor process performance improvement was found on the network level and table 2 shows that only five out of 16 key interactions were supported per January 2006.

On the organizational levels, CWI has realized 31.6 million ‘user sessions’ per year and CWI has implemented a web-based application for client requests for jobs and unemployment benefits, significantly speeding up the front-office processes in 7 out of 131 CWI offices (TNO report, 2006).

5.2 Alignment sequence 2: Improving data quality

In this alignment sequence business strategy drives information strategy, ultimately influencing IT processes. Driver is the business strategy of CWI to improve timeliness, completeness and reliability of information across the entire social security network, including the reintegration of clients and decisions on benefit payments. Lever1 is the introduction of performance indicators for timeliness, completeness, and reliability of information provided by CWI to UWV and municipalities. Lever2 is the introduction of
Service Level Agreements for performance levels of information delivery between network partners.

The impact of this alignment sequence is the IT projects and processes that have to realize the objectives specified in service levels. This alignment sequence has resulted in some performance improvement on the network level (some improved timeliness and completeness of data). Per January 2006, only a limited percentage of the total numbers of messages were automated. Automated messages were not automatically processed in the internal applications of the network partners. Most files and information exchanges are still paper based. Also, six REPORT sub-applications were ready for use, but not actually used by the network partners. On the organizational levels, timeliness and completeness of data have improved in CWI and UWV (TNO report, 2006).

Table 3. Overview of six alignment sequences found in the social security network. (see text for explanations. Per organization (CWI, UWV, Municipality) is listed whether driver, lever, impact was on the level of BS (business strategy), BP (business process), ITS (IT strategy), or ITP (IT process)).

<table>
<thead>
<tr>
<th>Alignment sequence</th>
<th>Driver(s)</th>
<th>Lever(s)</th>
<th>Impact(s)</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>CWI BS</td>
<td>L1: CWI BP L2: CWI+UWV+Muni: BP</td>
<td>I1: CWI+UWV+Muni: ITP</td>
<td>Poor process performance improvement on network level. Poor information processing performance on network and organizational levels. Poor use of IT applications on organizational levels.</td>
</tr>
<tr>
<td>5</td>
<td>CWI+UWV + Muni: BS</td>
<td>L1, L2 &amp; L3: CWI+UWV+Muni: BS</td>
<td>I1: CWI: ITP UWV: ITP Muni: ITP</td>
<td>Successful implementation of IT applications on organizational levels.</td>
</tr>
</tbody>
</table>
5.3 Alignment sequence 3: Changing Coordination

In this alignment sequence management control objectives drive business strategy and organizational infrastructure and processes, ultimately influencing IT infrastructure and processes. Driver of this alignment sequence is the disappearance of the SUWI project organization per January 2002 (which can be regarded as an internal driver), leaving the coordination of the social security network to the Ministry of Social Affairs. Lever1 is the installation of the Change Control Board (CCB) consisting of CWI, UWV and municipality representatives, chaired by the Ministry, focusing on the organizational development of the SUWI network. Lever2 is the installation of a new IT control platform (BKWI) per January 2002, responsible for management of IT and the design and development of the shared IT infrastructure and applications across the entire network (coordination of BKWI resides at the CCB). BKWI also facilitates the development of network standards for data communication between partners. Lever3 is a network-wide program that started per 2003, focusing at ‘improving cooperative planning and process monitoring between network partners’.

Impact of this alignment sequence is the concrete agenda for developing and improving IT applications and business processes in the network. This alignment sequence has resulted in improved coordination processes in the SUWI network and possibly in good performance after 2006. The alignment sequence has resulted in a SUWI CCB that can decide on concrete steps to improve the Infrastructure Blueprint process to streamline the complex technical infrastructures for telephony, IT-network and office automation. Based on pilots in 2005, a new infrastructure blue print (IBP) has been designed and nation wide implementation project was started in 2006.

5.4 Alignment sequence 4: New Functionalities

In this alignment sequence business strategy drives organizational infrastructure and processes, ultimately influencing IS infrastructure and processes. Driver is the set of objectives and performance indicators for network processes and IT agreed upon in the network-wide program that started per 2003. Lever1 is the agreement between network partners to improve organizational infrastructure and processes and IS infrastructure and processes in 2003 and 2004. Lever2 is the realization of of a shared reference architecture for SUWI network processes and IT architecture. Lever3 is the realization of a number of specific SUWI network interfaces for (i) client intakes for social benefit schemes, (ii) reintegration processes, (iii) announcement of end of benefits payments, and (iv) announcement of misbehavior. Most interfaces consist of detailed interfaces for the BROWSE, CHECK, MAIL, and REPORT applications.

We found three impacts. Impact1 is the implementation of some of these network interfaces in operational processes in the individual CWI, UWV, and municipal organizations (known as the SONAR IT project that supports network wide data management using Internet). Impact2 is the development and implementation of one portal for the SUWI network for message handling and routing, including the interfacing with internal software packages used by municipal social security offices. Interfacing includes the linkages with operational business processes in municipality organizations. Impact3 is the development and implementation of interfaces to enable data exchanges between network systems and individual systems in multiple organizations of UWV, CWI, and municipalities. These interfaces imply also changes to the internal applications and business processes in all organizations.

Performance of this alignment sequence varies. Impact1 and impact 2 are quite successful: in 2005 about 500,000 messages were exchanged on the network level and 95% of all municipalities use the SUWI portal. Fifty individual organizations of CWI had successfully implemented SONAR by the end of 2004, and the implementation of the total SONAR project for the network is planned per April 2007. Performance improvement on the network level (from impact 3) is limited: per January 2006, only one
out of 16 interfaces had been implemented (being the so-called ‘announcement of social security benefit scheme’). The other 15 data exchanges are still paper based per January 2006 and linkages between organizational processes on the network level are still scarce and, if present at all, mainly paper based. The digital client files are intended to improve this performance, but have not been implemented.

5.5 Alignment sequence 5: Client satisfaction

In this alignment sequence business strategy drives organizational infrastructure and processes, ultimately influencing IS infrastructure and processes. Driver is the CCB decision in 2005 to improve client focus and client satisfaction by improving the cooperation between all partners in the network. Lever1 was the reorganization of the CCB: the Ministry handed chairmanship and secretariat of the board over to the network partners themselves. Lever2 was the explicit formulation of five areas of improvement. Lever three was the institution of a tripartite monitoring group to supervise the cooperation at the regional level.

The impact of these efforts was considerable: Implementation of the vital network applications (‘Sectorloket’, ‘UWV Policy registration’, and ‘National Tax Office Income registration’) were completed leading to a major improvement in chain automation in 2006. These applications support the use of authentic databases and the message handling and routing in the network. Implementation of these applications will improve the reliability of information provided in the network.

5.6 Alignment sequence 6: Central Client Files

This can be seen as a service level alignment instance: information strategy influences IT infrastructure and processes, ultimately influencing organizational infrastructure and processes.

Driver is the decision in the 2006 strategic program of CCB to focus on network wide ICT development. The lever in this case is the decision taken in May 2006 to develop a system for central client files. The impact of the implementation of this system is that social security clients have to supply their personal data only once. After that the central files can be used by all parties in the network. Effects of the system cannot be measured yet, but it is expected that the central client files will lead to faster data exchanges. In February 2007 a pilot took place.

6 Conclusions

The aim of this research was to determine how extended strategic alignment occurs in a business network and how it affects the performance of individual organizations as well as total network performance. We defined the extended alignment model and used it to analyze extended alignment and performance improvement in an e-government network. We found six alignment instances of which four are driven by business strategy, one by IT strategy, and one by management control. The fact that business strategy is the main driver is not very surprising because the case is a government case where central government and parliament had decided to streamline the total social security system. This central decision in 2001 can be seen as the main driver that has triggered many changes.

In these six alignment sequences we see three main levers: (i) the business strategic decision to reconstruct the network of many small organizations into a new network of three dominant organizations (CWI, UWV, and local governments), (ii) the IT strategy decision to support the business processes that run through the network by a set of new IT applications, and (iii) the management control to follow the development in the network execution and to keep de collaboration in the network.
No common pattern can be detected in the alignment sequences. In some sequences the driver changes the business strategy or business structure which changes IT applications at a later stage. In other sequences the driver leads to changes in IT strategy, IT structure and processes that lead to changes in business processes at the network and organizational levels. Another sequence is that dissatisfaction with the initial results of the change process led to a set of process management indicators that link the performance of the individual organizations in the network to the performance of the network processes as a whole.

We conclude that IT might become a key enabler of streamlined cooperation between the parties in the network, but that five years after the introduction of the Act on Structure for Work and Income, (i) only a limited part of the transactions between the parties in the network have been digitized, (ii) very limited automated interaction takes place between inter-organizational transactions and internal IT systems, and (iii) only very limited performance improvements have been established after 5 years.

From a theoretical perspective it is remarkable that ‘driver’ and ‘lever’ depend on the level of analysis: ‘levers’ from a central government point of view can be seen as ‘drivers’ from perspective of the network and the individual organizations. We propose to further determine how IT can lead to better performance of a business network, and how alignment processes can be made more effective on the organizational and the network levels.

References


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