On the use of GEA at the Dutch Ministry of Social Affairs and Employment[α]

Roel Wagter[*†], Henderik A. Proper[‡†] and Dirk Witte[§]

[*]Ordina, Nieuwegein, the Netherlands
[†]Radboud University Nijmegen, Nijmegen, the Netherlands
[‡]PRC Henri Tudor, Luxembourg
[§]Logica, Amstelveen, the Netherlands
E-mail: roel.wagter@ordina.nl, erik.proper@tudor.lu, dirk.witte@logica.com

Abstract—**This paper is concerned with an application of the GEA (General Enterprise Architecting) method at the Dutch Ministry of Social Affairs and Employment (SAE). It concerns the introduction of a new system for the digitization of the dossier flow within the Ministry. The introduction of this system was triggered by a decision from the Dutch government to largely automate such document flows by 2015. The specific business issues addressed in the case are: (1) What are the necessary change initiatives of the introduction of this new system? (2) What are the best choices in terms of solution direction and approach?**

Keywords-**enterprise architecture, enterprise coherence.**

I. INTRODUCTION

This paper is concerned with an application of the GEA (General Enterprise Architecting) method at the Dutch Ministry of Social Affairs and Employment (SAE). The actual case concerns the introduction of a new system for the creation of a digital document/dossier flow. The introduction of this system was a direct consequence of a government decision to automate these document processes by 2015. It was decided by the Ministry to re-use the system that was designed, and built, to support similar processes at another Ministry (the Ministry Internal Affairs and Kingdom Relationships). Therefore, the focus of the case is not so much the creation of a new solution, but rather on the impact on the existing organization when using an existing solution. The specific business issues addressed in the case are: (1) *What are the necessary change initiatives needed for the introduction of this new system? (2) What are the best choices in terms of solution direction and approach?*

A first, condensed version, of the SAE case study was used in [1], where the focus was also more on the introduction of relevant parts of the GEA method. In the current short paper, the SAE case itself is discussed in more detail. For more details of the GEA method and its iterative development, we refer the reader to [2], [3], [4].

The GEA method (in its current form) comprises three core ingredients [2]. Next to the Enterprise Coherence Assessment (ECA) [4] that allows organizations to assess their ability to govern coherence during enterprise transformation, it contains an Enterprise Coherence Framework (ECF) [3] and a (situational) Enterprise Coherence Governance (ECG) [2] approach. The latter includes the identification of specific deliverables/results to be produced, the processes needed to produce these deliverables/results, as well as an articulation of the responsibilities and competences of the people involved.

II. THE ENTERPRISE COHERENCE FRAMEWORK

The SAE case study centres around the use of the ECF part of the GEA method. We therefore provide a short overview of the ECF (for more details see [2]). The ECF defines a series of cohesive elements and cohesive relationships, which together define the playing field for an enterprise's coherence. By making the definition of these elements explicit in a specific enterprise, a *coherence dashboard* results in terms of which one can gain insight in the 'state of coherence' while also being able to assess the impact of potential/ongoing transformations. This then enables a deliberate governance of enterprise coherence during/driving transformations.

The ECF is defined in terms of two levels and their connections: the level of *purpose*, and the level of *design*. At the level of *purpose*, the following cohesive elements have been identified, which are based on commonly known concepts from strategy formulation [5], [6], [7]: *mission*, *vision*, *core values*, *goals* and *strategy*.

The cohesive elements at the *design* level are:

Perspective – an angle from which one wishes to govern/steer/influence enterprise transformations. Typical examples are culture, customer, products/services, business processes, information provision, finance, value chain, corporate governance, etc.

Core concept – a concept, within a perspective, that plays a key role in governing the organization from that perspective. Examples of core concepts within the perspective Finance are, for instance, "Financing" and "Budgeting".

Guiding statement – an internally agreed and published statement, which directs desirable behaviour.

Core model – a high level view of a perspective, based on, and in line with, the guiding statements of the corresponding perspective.

Relevant relationship – a description of the connection between two guiding statements of different perspectives.

The presence of a well documented enterprise mission, vision, core values, goals and strategy are preconditions to be able to determine the content of the core factors on the design level of the organization and they are the essential resources for this determination.

Enterprises which have never used GEA before, as was the case at the Ministry of SAE, will have to set up their ECF based dashboard before proceeding the activities of the ECG part of the method. Once the dashboard has been created, it can be used over and over again, and updated based on major changes to the enterprise and/or experiences.

III. THE MINISTRY OF SAE's COHERENCE DASHBOARD

Since this was the first time for the Ministry of SAE to apply/use the GEA method, it was necessary to first develop an organization specific coherence dashboard. To this end, the case at the Ministry of SAE started in August 2010 with an intensive desk research activity, conducted by a small team of architects. This team studied relevant policy documents from the Ministry of SAE, resulting in the first version of the coherence dashboard for the Ministry, in terms of a list of the cohesive elements and their definitions, covering both the purpose and the design level. Starting point for creating this list were the strategic documents of the organization such as the mission statement, vision notes, policy plans, business strategy, business plan, etc.

In a validation workshop, conducted in September 2010, this draft coherence dashboard was then validated with the major stakeholders and approved after some modifications. This validation workshop involved the executives of the Ministry, complemented with a number of (internal) opinion leaders and key stakeholders.

Perspective	Definition
Information provisioning	All processes, activities, people and resources for obtaining, processing and delivery of relevant information for SAE.
Collaboration	Collaboration needed to contribute to a common result on the team, entity or organization levels.
Processes	A coherent set of activities needed to deliver results of SAE.
Governance	The influencing of the SAE organization so that a desired goal is attained.
Employees	All persons who execute tasks or activities within the SAE organization.
Stakeholders	Legal entities or persons for whom the activities of SAE are important.
Culture	Explicit and implicit norms, values and behaviour within the SAE organization.
Services	All services that SAE within legal frameworks, or through agreed appointments with statutory authorities, establishes and delivers to customers.
Finance	The planning, acquisition, management and accountability of funds SAE.
Customers	Customers of a service of SAE
Law & regulations	All legal frameworks that form the basis for the task performance of SAE.
Communication	An active process in which information is exchanged between two or more parties or persons, regardless of how that is achieved.

Table I
DEFINITIONS OF PERSPECTIVES FOR THE MINISTRY OF SAE

In Table I, the perspectives that were selected by the Ministry of SAE are shown, while the core concepts of four of the perspectives are listed in Table II. This set of perspectives also illustrates the need to align more aspects of an enterprise rather than just business and IT. Several of the perspectives may put *requirements* towards IT support, *information provisioning* followed by *communication* being the dominant ones in this sense. However, the chosen set of perspectives shows that when it comes to *alignment*, the stakeholders do not think in terms of Business/IT alignment, but rather in a more refined web of aspects that need alignment.

Information provision	Processes	Governance	Stakeholders
Digitization	Time and place	Policy cores	Labour market
Integrality	independent	Programs	Municipalities
Security	Selection policy	Scaling up	Labour force
Standardization	Efficiency	Collectivity	Employers
Facilities	Actor	Mission/vision assessment	Unions
Information	Effectiveness	Employership	Employee Unions
Maintenance	Predictability	Themes and tasks	Funds
Systems	Planned	Functioning	Other Ministries
Ownership	Procedures	Organization	Independent administrative bodies
Storage			Society
Architecture			Social and Economic Council
			Research agencies

Table II
CORE CONCEPTS FOR THE MINISTRY OF SAE

During the desk research phase 219 guiding statements were derived from the aforementioned policy documents. Needless to say that presenting all 219 guiding statements goes beyond the purpose of this paper. Therefore, Table III only shows those guiding statements that turned out to be relevant to the *processes* perspective.

Processes
A dual situation in which paper and digital systems or more systems are used in parallel, should where possible be avoided.
SAE is based on the tenet that the entire work of staff and processflow of documents goes digital.
The concept of flexible working means customization (instead of one size fits all).
Existing paper-based processes of SAE are as much as possible adjusted to the features of the automated document management system.
Integral approach: It is important to think about sustainability already at the "front" of the information chain.
Selection policy must play a fully involved role at the beginning of the "information creation".
The coming years it is expected that firm pressure will be on the business operations and IT to operate cost-efficiently.
Working smarter with fewer people.
We aim to ensure the government can operate decisively, transparently and fast.
We involve at the front of the process the external actors in the issues and developments we are working on.
We must have more attention to the process.
In 2012, our work is supported by a modern work environment and we as professionals SAE are equipped to let this environment operate as optimal as possible for us.
We want better performing processes, more efficient and effective.
We want more predictability in our processes.
It must be clear how processes flow through the organization and who has which responsibilities.

Table III
GUIDING STATEMENTS RELEVANT TO THE *processes* PERSPECTIVE

IV. THE PROCESS FOLLOWED IN THE CASE STUDY

With the dashboard in place, the next step was to organize a workshop with the key stakeholders. In this workshop, the business issue at hand (*the introduction of a new system for the digitization of the flow of dossiers*) was positioned in relation to the coherence dashboard of the Ministry of SAE, and analysed in terms of the two questions: (1) *What are the necessary change initiatives needed for the introduction of this new system?* and (2) *What are the best choices in terms of solution direction and approach?*

During the workshop, each of the twelve perspectives of Table I was represented by one or two participants who had (delegated) ownership of that perspective, including the other associated cohesive elements (in the real organization, i.e. not just the documentation). At the start of the workshop, the owner of the business issue gave a thorough introduction of the issue in terms of causes, degree of urgency, degree of interest, implications, risks, etc. See Table IV (these lists were also handed out to the participants, before the workshop took place). This introduction gave the representatives of the perspectives a deeper insight into the associated aspects of this business issue, enabling them to make a translation of the issue to their own perspective. This enabled the representatives of the different perspectives jointly determine, which change initiatives were required to solve the business issue at hand. The business issue: "*impact of the implementation of a digitization solution*" was then addressed in terms of two tasks: (1) *Determine the necessary change initiatives based on the analysis of the business issue* and (2) *Determine the necessary change initiatives based on the solution space dictated by the guiding statements of the coherence dashboard of the Ministry* (such as for example shown in Table III).

Group	Clusters				Guiding statement
1	Information provision				65
2	Culture	Employees	Communication	Collaboration	54
3	Governance	Finance	Law & regulations		41
4	Services	Processes	Customer	Stakeholders	59
				Total	219

Table V
GROUP SETUP OF WORKSHOP

Prior to this workshop, all 22 representatives of the perspectives received a copy of: an overview of all the perspectives and core concepts (see Table II) and their definitions, an overview of the 219 guiding statements including the perspectives they are connected to, a list of guiding statements on each one perspective (see example Table III), and a summary of the business issue at hand (see Table IV). In addition, two input forms were issued for the two of the tasks that would need to be performed during the workshop (see Table VI and Table VII). After the introduction of the business issue by the problem owners, the group of 22 persons was split into four subgroups balanced in proportion to the number of guiding statements and the grouping of perspectives with a strong mutual relevant resemblance (see Table V). The groups were located in different project rooms and asked to give a plenary wrap up by discussing their three major change initiatives after carrying out the three following tasks as described below.

1: Change initiatives based on the business issue analysis

This task involved the completion of (a digital version of) the form as shown in Table VI. The group was asked to use the causes, implications and risks as identified in Table IV, to list the necessary change initiatives in their perspective. The participants had to list the change initiatives in the column '*Necessary change initiatives*', while indicating in the column '*Business issue aspect*' the type and number of aspect (cause, implication or risk) that formed the basis for this change initiative. Furthermore, they were requested to list the numbers of the guiding statements which underpin this change initiative in the column '*Supporting guiding statements*'. As it was also possible that existing guiding statements prohibited a certain change initiative, the participants had the option of providing a modified guiding statement, that would indeed support this change initiative, in the '*Remarks*' field.

2: Change initiatives based on the guiding statements

This task involved the completion of (a digital version of) the form as shown in Table VII. The participants were asked to, from the guiding statements point of view, list those change initiatives that could/would have to be carried out in order to solve/mitigate aspects of the business issue. From this angle, the participants were asked to explore the space of solutions provided by the guiding statements. Given the fact that the guiding statements are embedded in the enterprise's coherence dashboard, the change initiatives formulated from this perspective should have a positive effect on the enterprise's coherence.

Causes to adopt a digitization solution
1 Government conducts restrictive policy for ICT investments
2 Government wants rapidly resolve many issues in the field of archives, digital information and cultural heritage:
  a No view on growth, size and cost of archiving.
  b Issues are already playing for three decades.
  c Government Decision: digital document management in the core departments by 2015.
3 Interdepartmental cooperation
4 In the field of archiving:
  a Many copies and versions.
  b Many documents are missing.
  c Rules and compliance are inadequate in the field of digitization.
  d Digitization is focused on storage and not to reuse.
5 In the field of processing (dossier flow):
  a Not timely delivery (including emergency notes, pieces of Ministers)
  b Many errors in submission, registration and also in the content.
  c Ambiguous differentiation of dossiers (Name, Address, City)
  d The author of a document is difficult to reach (especially with emergency items
  e Errors far too late in the process discovered.
  f Lack of adequate information and proper use.
  g Lack of good management information (where, who, when, how long).

Implications of the digitization solution
1 The employee gets a central position.
2 Incoming physical mail digitized and only processed digitally.
3 Office Documents in digitizing system created and to use by colleagues.
4 Other media (e-mail, sound, photographs, video) are stored.
5 Never (older) texts lost.
6 One organization-wide environment for the dossier flow.
7 All documents in dossiers accessible to everyone, unless ...
8 Managers will be active users by digitally agreeing.
9 The entire process is visible to everyone.
10 The initials line will be standardized within the own organizational unit.
11 There shall be no "co initials" anymore.
12 Employees will carry out all work with documents by using the digitization system (except Inspection and Legislation).

Risks by implementing the digitization solution
1 Low acceptance of the user, because too much from the ICT is argued.
2 No conscious guidance on quantitative benefits, because the business case does not give this insight.
3 Subjective assessment of the results by no clear purpose.
4 Errors by improper use.
5 Errors due to complex procedures (due to many exception rules).
6 Not a good government of the dossier flow by confusion of responsibilities and no control.
7 Not learning from mistakes by taking over behavior.
8 Not learning from mistakes by failing want to be addressed.
9 Final results of the dossier flow are not achieved due to the gap between directors and senior staff.
10 Employees do not indicate errors to each other due to lack of management support.
11 Suboptimal solution by limited (financial) resources.
12 Additional customization because specific management steps do not fit together.
13 No broad accessibility and standardization by different solutions for the same functionalities.
14 Low commitment and support due to poor communication to stakeholders.
15 Project failure due to lack of management attention.

Table IV
PART OF THE ANALYSIS OF THE BUSINESS ISSUE IN TERMS OF CAUSES, IMPLICATIONS AND RISKS

3: Prepare for plenary wrap-up

After performing both tasks, each group was asked to identify the three major change initiatives, and prepare a presentation of these initiatives as input to the next plenary part of the workshop.

Change initiatives based on the analysis of the business issue					
Business issue aspect		Number	Necessary change initiatives	Supporting GS's Nr. (max. 3)	Remarks
Aspect type	Number				
		1			
		2			
		3			
		…			

Table VI

FORM '*Change initiatives based on the analysis of the business issue*'

Change initiatives based on the guiding statements						
Initiating GS's	Nr.	Necessary initiatives	Relationship to business issue (max. 3)			Remarks
			Cause	Implication	Risk	
	1					
	2					
	3					
	…					

Table VII

FORM '*Change initiatives based on the guiding statements*'

As a whole, the workshop resulted in 98 change initiatives of which 15 were prioritized as most important ones. In the last plenary part of the workshop these major change initiatives were presented and all the attendees were offered the opportunity to comment on these. In Table VIII the four most important ones are presented. The workshop results were presented as an advisory report to the management of SAE, to decide on the proposed solution and approach.

V. EXPERIENCIES AND INSIGHTS FOR IMPROVING GEA

In the evaluation of the case, the participants in the workshop shared the following observations:

1) The participants of the workshops already knew the key principles of this case, but especially the confrontation of these principles with the intended objective of the change program, and the discussions about this were regarded as useful. This provided support, management awareness as well as a more complete picture.

2) An acceleration of the decision-making process and the creation of support at the board level.

3) A much more holistic approach to the issue compared to the current IT-driven approach. This led to the recognition that much more needed to be changed in the organization than previously assumed.

4) A shorter lead time for obtaining the perspectives and core concepts as a result of the strategy used to first derive guiding statements from policy documents.

5) Saving a lot of processing time regarding the elaboration of the workshop results due to the use of digital forms. This was also experienced as a pleasant way of working by the representatives of the perspectives.

Management commitment determines the success
Organize a specific communication strategy in which managers as a specific target group get attention next to ministers, secretaries, et cetera.
Make also clear the benefit to those groups ("what's in it for me?")
Besides advantages for the own organization also the interests of the larger whole should be communicated, in particular the chain parties.
Consideration is that the communication should include a consistent series of messages that must be properly timed. All statements, both planned (through newsletters, house institutions, bulletins, banners, websites, etc.) as well as informal, unplanned communication by all program participants should be consistent.
Formulate management strategy. (For example, quality and support is more important than time and money)
Start a decision making programme for digitally initializing the entire process up to and including board members SAE.
Celebrate success.
Promote an active and visible role of management and board members and include this role in the management assessment.
Promote an active role for the employees themselves to give toward management the proper digital example.
Prevent adverse affects of digitization as impoverishment of social awareness at peer contact.
Involve managers directly in the Steering Committee.
Management Philosophy is theme driven: New Way of Working, initials and discipline
Formulate explicitly and communicate the management philosophy underlying the digitally new way of working within SAE. This philosophy is very important for the transformation SAE has to go through. Give special attention to aspects as core values, orientation on results, level of disciplined work, leadership and management style.
The management philosophy should characterize the transformation in terms of the current philosophy and the philosophy required. The current management philosophy is partly based on initialing and states: "All stakeholders have a say about a dossier to done, it is a mortal sin if one is forgotten." In the today's management philosophy the unity of government is the board. The new, desired management philosophy remains to be determined.
Collaboration requires accessibility of documents. This refers to a classification of documents that indicates the confi- dentiality of a document. Prudence is advised. Applying the principle "transparency; unless" within another organization resulted into protection of 50% of the documents under the term "confidential". Clear guidelines are necessary to determine if a dossier belongs to the category "unless" and also the management and compliance of these guidelines. Finally the organization will find a way into what is feasible within the limits.
Employees must understand the profit concerning information provision by actively participating
Establish a user panel before, during and after the introduction of the new digitization system.
In this panel all major stakeholders involved in the digitization are represented. The panel members have the necessary mandate and authority to take decisions.
Check out at the front the needs of users. Set pilot / model offices collect the reactions of users.
Research the possibilities to operate the new digitization system as a knowledge system in which for example knowledge of policy processes is included. This makes the organization less dependent on implicit knowledge in the heads of a (limited) number of employees.
Reliability (current ICT is unsuitable)
More attention to ICT will be needed. Think of backup and recovery.
Extra attention is needed for availability, reliability and performance including network speed due to trans-porting large volumes of data (sounds, images). In addition, even safety regulations can provide for delay in transport.
Try the vulnerability of the IT infrastructure, think of uptime, mean time between failure (MTBF) and amenities such as emergency generators to solve this problem.
The adoption of the new digitization system introduces a new IT supplier dependence. SAE must decide how to manage this dependency. Think of service level agreements.

Table VIII

ELABORATION ON THE FOUR MOST IMPORTANT CHANGE INITIATIVES

6) The turnaround time of developing the outline of a solution direction, and the choice of the approach to be taken, was reduced to one day using the coherence dashboard. Note: preparing the coherence dashboard based on the policy documents, took a team of two people a total 4 weeks.

7) Only a limited number of SAE-employees, for a limited amount of time, (3 hours validation session and 6 hours workshop analyses) were needed in applying the GEA method.

8) The experience of having 22 representatives of the perspectives meet in a workshop requires timely planning and a convincing modus operandi from the project team, based on a clear problem solving vision and arguments based on added value.

9) The business issue at hand should be positioned at the right management and priority level. This may sound trivial, but especially in the case of business issues that initially 'disguise' themselves as IT-only issues, this is of the utmost importance.

The case study also resulted in the following general insights on the application of GEA:

1) The initial investment by making the enterprise coher-

ence explicit in terms of the ECF and the coherence dashboard, is repaid well in terms of a better understanding of the environment. Furthermore it stimulated further innovation/improvements within, and even beyond, the organisation. It also enabled an improvement of the collaboration of all parties involved in the different perspectives.

2) The underlying causality driven way of thinking on coherence, is easily and naturally adopted by all attendees giving room to an enormous quality improvement to both the image and opinion formation phases of the decision making process.

3) The active participation of the representatives of all perspectives results in an acceleration in the decision-making process and the creation of management support.

4) The use of a full and current set of guiding statements imposed on all perspectives, enlarged the resolving power of the organization, leading to achievable and high quality solutions.

5) The key players of the organization, the representatives of the perspectives in this case, gained a better insight into and understanding of each other's domains.

6) The process of bringing and keeping the key players together in the workshop sessions makes a strong demand on the competencies of the facilitators (enterprise architects).

7) The quality in which the business issue, in all its facets in terms of causes, implications and risks is introduced, determines the quality of the change initiatives.

8) A major business issue, like introducing a new system to automate business critical processes, can perturb the enterprise coherence in all its facets at the moment an organization decides to respond on it. As a result, all the preserved, newly added, eliminated and modified cohesive elements must be established in a new actual state of the enterprise coherence at the moment the decision to adopt an integral solution is made. This way, the organization is ready to develop an integral solution for a next business issue.

9) There are several ways to create the coherence dashboard. In this case it is almost entirely done by two external consultants where after the representatives of the perspectives only needed to validate and approve the coherence dashboard in a workshop session. In another case the representatives of the perspectives developed the coherence dashboard mainly themselves. The latter method requires more processing time but has the advantage that the coherence dashboard becomes more "lived through" by everyone. The first approach allows for a faster start of an impact analysis of a business issue and thus allows faster tangible results.

VI. CONCLUSION

In this paper, we discussed a real world case study in Business/IT alignment at the strategic level. The specific business issues addressed in the case were: (1) What are the necessary change initiatives of the introduction of this new system? (2) What are the best choices in terms of solution direction and approach? The *coherence dashboard* as configured for the Ministry of SAE, illustrated that Business/IT alignment is not only a matter of aligning "the business" and "the IT" aspects of an enterprise. The SAE case indicates that a more refined perspective is called for, in which multiple aspects need to be aligned with the goal of achieving more coherence.

Case such as discussed in this paper are used to continuously further improve the GEA method. The lessons learned as listed in the previous Section, have already lead to further improvements of the GEA method. In our further research we will, continue to conduct real life case studies, and based on the findings, further elaborate and improve GEA.

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