# UNDERSTANDING THE ROLE OF SUBCULTURES IN THE ENTERPRISE ARCHITECTURE PROCESS

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## Abstract

*Enterprise Architecture (EA) is positioned as an instrument for coordinating enterprise transformation. However, existing EA approaches pay less attention to soft factors that may have an impact on enterprise transformations. The existence of different organisational subcultures is not taken into account although it is considered as significant in the context of change. The social alignment of business and IT groups plays, for instance, a major role in transformations and in EA. This paper presents the first step of a larger study addressing the question how differences between organisational subcultures contribute to struggles/failure of EA-guided transformations. We use a series of qualitative, unstructured expert interviews to explore to what extent and how cultural differences can trigger struggles in EA-guided transformations from an architect's perspective. Based on these interviews, an initial conceptual model is developed. This model suggests that communication breakdowns act as an intermediary factor between differences in organisational subculture and transformation struggles. A second round of expert interviews is used for the assessment and elaboration of the initial model focusing on communication breakdowns. The analysis of these interviews supports the intermediary role of communication breakdowns and refines the concepts of the model.*

*Keywords: Enterprise architecture, organisational subcultures, communication, exploratory research, explanatory theory*

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# 1 Introduction

Enterprise transformations are fundamental changes regarding technologies, objectives, business processes, or value propositions (Rouse, 2005; Wagter, Proper and Witte, 2011). To be successful such transformations need to be coordinated. Enterprise architecture (EA) is positioned as an instrument for steering enterprise transformation (Op't Land et al., 2009). It is considered as a holistic view on an enterprise that aims at supporting the design, communication and implementation of necessary or desired changes, such as the introduction of a new IT system.

However, current EA approaches, such as the Zachman framework (Sowa and Zachman, 1992), Archimate (Lankhorst, et al., 2004) or TOGAF (The Open Group, 2009), pay less attention to the soft aspects, e.g. culture or politics, that may have an impact on enterprise transformations. Recent work in the field of EA, e.g. Lange (2012), van Steenbergen (2011) or Aier (2012), emphasises the importance of organisational culture for EA. However, one of the less considered but nevertheless important topics within EA is the existence of different organisational subcultures. Organisational subculture can be understood as the sum of values, norms, and attitudes adopted consciously or unconsciously by the members of an organisational subgroup (Hofstede, Hofstede and Minkov, 2010; Kraus, Becker-Kolle and Fischer, 2006). Organisational subcultures can for example differ regarding their motivation, their orientation to work, tasks and co-workers or their preferences concerning the intensity of control (Detert, Schroeder and Mauriel, 2000; Hofstede, Hofstede and Minkov, 2010). In the context of enterprise transformation organisational subculture is acknowledged as a factor of significant impact, e.g. regarding the change capability of different subcultures (Detert, Schroeder and Mauriel, 2000; Rouse and Baba, 2006). Given that EA is used to steer enterprise transformations, it seems reasonable to also consider organisational subculture in the context of EA. An indication for that is given by literature on social business-IT alignment, which points out that in order to align business and IT the culture gap between these two groups has to be taken into account (Reich and Benbasat, 2000; Taylor-Cummings, 1998). This statement can be transferred to the field of EA, since EA also links IT and business (Hoogervorst, 2004). However, we argue that in EA one should not solely concentrate on the two groups business and IT but also consider other subcultures. In so doing, we account for the possibility that different organisations may contain different cultural subgroups. Yet, it is not clear what the role of subcultures in EA looks like.

In general, cultural diversity can have a positive and a negative impact (Detert, Schroeder and Mauriel, 2000). Literature points out that not taking into account stakeholder diversity leads to dissatisfaction and ineffectiveness in the context of IS and EA (e.g. Avison et al., 1999; van der Raadt et al., 2010). Therefore, we are conducting a research project focusing on the negative impact of cultural diversity on the effectiveness of the EA function in enterprise transformations. The EA function includes both *"the architects who create and maintain the EA, [and] the stakeholders involved in ratifying the architectural decisions and implementing organizational changes in conformance to the EA"* (van der Raadt et al., 2010). In EA-guided enterprise transformations the effectiveness of the EA function is related to the successful coordination of the transformation (van der Raadt et al., 2010). Therefore, we started our research project by addressing the following question: *how do the differences between organisational subcultures contribute to the struggling/failure of EA-guided enterprise transformations?*

This paper constitutes *the first step of our project* aiming at the development of an explanatory theory regarding the contribution of cultural diversity to the struggling/failure of EA-guided enterprise transformations. To develop such a theory we use the grounded theory developed by Glaser and Strauss (1967) along with qualitative research methods without aiming at statistical generalisation. The research presented in this paper comprises two phases: an exploratory phase and an assessment phase. Based on the outcomes of the exploratory phase, we decided to *focus on the role of communication breakdowns as an important intermediary factor* between cultural diversity and struggling/failure of EA-guided enterprise transformations in the assessment phase. Our main contribution is the identification of different types and subtypes of communication breakdowns that lead to struggles or to the fail-

ure of EA-guided enterprise transformations. In addition, we briefly elaborate on *how* cultural differences may cause communication breakdowns. For instance, different subcultures have different frames of reference, which may lead to misunderstandings.

The remainder of this paper is structured as follows: section two presents a literature review on EA approaches leading to our research question. Section three describes the overall research design of our study. In section four we outline the design and the outcomes of the exploratory phase of our research. Those outcomes are elaborated in section five, which presents the second phase of our research. The paper ends with a conclusion section.

## 2 Why organisational subcultures should be considered in EA

In the field of EA, several frameworks exist to describe and design an appropriate EA. Regarding transformations most of them take an *engineering oriented approach*. To achieve change, they develop a to-be EA. They assume that change will be achieved by defining the aim and the necessary steps to get there (Wagter, Proper and Witte, 2011). The Architecture Development Method of The Open Group (The Open Group, 2009) is one example of such an approach. While providing guidance on how to develop an EA it does not consider any variation in the development method due to cultural aspects. Other examples are the Zachman framework (Sowa and Zachman, 1992), CIMOSA (Computer Integrated Manufacturing Open System Architecture) (Kosanke, 1995), ARIS (Architecture of Integrated Information Systems) (Scheer and Schneider, 2006), TEAF (Treasury Enterprise Architecture Framework) (Department of the Treasury (US) and Chief Information Officer Council, 2000) or FEAF (Federal Enterprise Architecture Framework) (US Government, 2012). All of these frameworks assume that by defining the to-be EA and the path to get there change will be achieved implicitly (Wagter, Proper and Witte, 2011). They do not consider the influence of organisational subcultures.

However, the body of knowledge has recently been extended by more *stakeholder oriented EA approaches*. For example, the on-going research program General Enterprise Architecture (GEA) focuses on the influence of enterprise coherence on the success of enterprise transformations (Wagter, Proper and Witte, 2011). GEA distinguishes several perspectives to govern a transformation, so as to improve the enterprise coherence (Ordina, 2012). One of these perspectives is organisational culture. In addition, Lange (2012) shows the importance of culture. He discusses enterprise architecture management (EAM) culture, which is defined as the values and norms that are preferable when using EAM (Lange, 2012). As one result of his study, which looks for factors that influence the success of EAM, he concludes that cultural aspects have a direct impact on the use of EAM and an indirect impact on the realisation of EAM benefits. Thus, Wagter, Proper and Witte (2011) as well as Lange (2012) strengthen the importance of cultural aspects in the context of EA. However, they consider culture as just one of multiple factors. As a result, they do not go into detail regarding the question how organisational culture influences EA.

In contrast, van Steenbergen (2011) links specific cultural values to specific patterns of EA techniques, e.g. 'developing just enough architecture' or 'embedding EA in the organisation'. She shows that the use of particular EA techniques depends on three culture dimensions: (1) the degree of autonomy in an organisation, (2) the attitude towards collaboration and (3) whether an organisation works process or result oriented. For example, architects use different techniques to gain acceptance from division managers depending on the attitude towards collaboration. In collaborative organisations they would use the technique 'aligning the EA format to the client perspective' while in less collaborative organisations they would use the technique 'making explicit the added value' (van Steenbergen, 2011). Aier (2012) analyses the role of organisational culture for the mechanisms of EA principles (EAP), namely EAP grounding, EAP management, EAP guidance and EAP effectiveness, and their effects on EA success. He concludes that organisational culture is a moderating factor for the relations between EAP mechanisms, their effects and EA success. Based on his empirical study he gives recommendations on how to best introduce and develop EA principles in a given cultural environment. Van Steenbergen (2011) and Aier (2012) investigate the influence of organisational culture in a concrete manner. How-

ever, similarly to Wagter, Proper and Witte (2011) and Lange (2012) they focus on the organisational level of culture and do not study the impact of cultural diversity within an organisation.

Yet, change management literature shows that subcultures can have a considerable impact on transformation processes. Rouse and Baba (2006) argue that in enterprise transformations, next to the technical dimension, "*the nature of human work groups*" (Rouse and Baba, 2006) needs to be considered to be successful. In that, the authors define 'nature' as the way "*how people are organized to accomplish work, how they interact with one another and with technology, and how they conceptualize work and understand the meaning of their actions*" (Rouse and Baba, 2006). Considering our definition of organisational subculture given in the introduction, we reason that these aspects can be understood as the culture of a work group. It can be argued that the *conceptualisation of the work* and the *understanding of the actions' meaning* are related to the values of a subculture that determine for example which tasks are perceived as more important than others. Furthermore, the *interaction with co-workers* is based on a culture's attitudes and has been mentioned earlier as one culture dimension. Finally, the *way people are organised* can be traced back to their norms regarding hierarchy and cooperation. Thus, we argue that by emphasising the role of "*the nature of human work groups*" Rouse and Baba (2006) hint at the importance of subcultures in enterprise transformations.

In addition, Detert, Schroeder and Mauriel (2000) state that in the context of Total-Quality-Management (TQM) initiatives "*the importance of subcultures also should receive more research in the future*" and that "*particular emphasis is needed on the interplay between enhancing subcultures [...] and countercultures*". This is particularly interesting in the context of EA because, analogous to most EA approaches, TQM initiatives look at the enterprise as a whole instead of making local optimisations (Cua, McKone and Schroeder, 2001).

Given that (1) the differences between subcultures have an impact on enterprise transformations and that (2) EA is used to steer enterprise transformations, we expect that cultural diversity also influences the effectiveness of the EA function when steering enterprise transformations. Literature points out that not taking into account stakeholder diversity leads to dissatisfaction and ineffectiveness in the context of IS and EA (e.g. Avison et al., 1999; van der Raadt et al., 2010). Therefore, we are conducting a research project on the negative influence of cultural diversity on the effectiveness of the EA function in enterprise transformations. The effectiveness of the EA function is indicated by the degree in which the EA objectives are achieved (van der Raadt et al., 2010). In the context of enterprise transformations the main objective of EA is to improve the coordination of the transformation. If EA-guided transformations struggle or even fail this goal has not been (fully) achieved. Therefore, we started our research project by addressing the question:

> *How do the differences between organisational subcultures contribute to the struggle or failure of EA-guided enterprise transformations?*

## 3   Research design

The research presented in this paper is the first step of a larger research project, which aims at understanding how the differences between organisational subcultures influence the effectiveness of the EA function in enterprise transformations. The goal of this project is to develop an explanatory theory as described by Gregor (2006), i.e. a theory that "*provides an explanation of how, why, and when things happened, relying on varying views of causality and methods for argumentation*". To develop this theory, we use *grounded theory* as research methodology. This methodology was developed by Glaser and Strauss (1967) and aims at building a theory from empirical data. It fits our purposes since organisational subcultures have not yet been studied in the context of EA.

Following Glaser and Strauss (1967) we address our main research question in multiple iterations, the first two of which are presented in this paper. The goal of those phases is to gain a first understanding

of our research problem. We decided to use the method of qualitative interviews. This approach was chosen because qualitative interviews allow for exploration of a research problem across multiple organisations. This matched our goal of getting a broad view on our research problem. Furthermore, qualitative interviews provide in-depth insights into complex phenomena (Ghauri and Gronhaug, 2010). Thus, they are particularly suitable for gaining a first understanding of the contribution of cultural differences to the struggling/failure in EA-guided enterprise transformations.

The first phase is of exploratory nature. We conducted ten unstructured interviews to get feedback on our theory. We decided to focus on the architects' perspective. In so doing, we ensured to limit our study to *EA-guided* transformations. Based on these interviews we developed an initial conceptual model. The findings are presented in section 4.

In the second phase, we assessed and elaborated the initial model. In that, we focused on communication breakdowns as an intermediary factor between cultural differences and struggling/failing EA-guided transformations since this was the main result from the exploratory phase. To this end, we conducted qualitative, semi-structured expert interviews. This approach was particularly suitable because it allows for both assessing an existing model and further exploration of the field (Runeson and Höst, 2009). The interview design and the interview outcomes are described in detail in section 5.

## 4 Exploratory phase: initial conceptual model from unstructured expert interviews

To analyse whether and how differences between organisational subcultures lead to struggling transformations, we started our empirical research with a series of unstructured interviews. These interviews aimed at gaining a first insight into the role of cultural diversity in the context of EA from the perspective of an enterprise architect. To recruit the interviewees we used our personal network. We interviewed ten senior enterprise architects from varying backgrounds: eight worked as external architects, i.e. for a consultancy firm, and two as internal architects. The architects had experience in the sectors banking, insurance, health care and the public sector. Nine experts were pure practitioners, while one architect was also active in academia. Following Runeson and Höst (2009), at the beginning of each interview, we explained our concern, i.e. the theory that we have presented in section 2. Afterwards, we let the architects respond to this explanation and asked them for examples from practice. This approach is particularly suitable to exploring a new field of research. The interviews were of anecdotal character, which matched with our purpose to get a first understanding of whether and how organisational subculture may contribute to struggle/failure in EA-guided transformations. As with these interviews we aimed at getting a first rough idea of the relevance of our research idea for practice, no recording and transcription was done. However, notes were taken during the interviews. A more structured approach was used in the assessment phase that will be presented in section 5.

The notes taken during the exploratory interviews were analysed by using open coding, meaning that the codes were developed from the data (Flick, 2009). Based on the codes and our literature review presented in section 2, we developed an initial conceptual model (Figure 1) and backed it up with literature again. In general, the architects supported the idea that transformation struggles could be traced back to cultural differences. However, their answers indicated that these two concepts were not related directly: concerning the *organisational subcultures* within an enterprise the experts distinguished between business and IT. The importance of these two groups is also mentioned in literature on social business-IT alignment. Reich and Benbasat (2000) as well as Taylor-Cummings (1998) point out that in order to align business and IT the culture gap between these two groups has to be taken into account. Our interviewees specified the impact such cultural differences could have. They outlined that the different ways of working and thinking of business and IT could lead to *communication breakdowns*, which would in turn lead to struggling or even failing transformations. Communication breakdowns would consist in choosing the wrong communication style when talking to a certain subculture or in a lack of communication between business and IT. Based on the experts' answers, we extended

our theory by adding communication breakdowns as an *intermediary variable* between cultural differences and transformation struggles.

Literature in the fields of EA and business-IT alignment also points at the importance of communication. Reich and Benbasat (2000) name communication as one factor that can influence the alignment of business and IT. Furthermore, Op't Land et al. (2009) present 'good communication skills' as one of the most relevant competencies an enterprise architect should have. They state that architects should be able to adapt their vocabulary to the audience. This is in line with the experts' statement that an architect should adapt his/her communication style to the respective subculture.
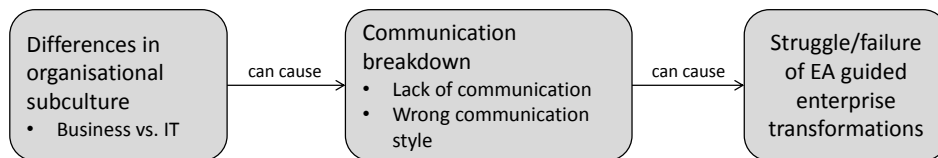


*Figure 1.        Initial conceptual model.*

According to the interviewees, besides differences between organisational subcultures, politics are an additional factor that could cause communication breakdowns in the process of coordinating transformations with EA. However, due to scoping reasons we did not consider that aspect in this paper.

# 5    Assessment phase: semi-structured expert interviews

## 5.1    Interview design and analysis methodology

Based on our initial conceptual model and with the purpose of assessing and elaborating it, we conducted a second round of interviews. The main goal of the interviews was to receive feedback from experts regarding the intermediary role of communication breakdowns. To this end, we developed an interview guide. However, we did not want to limit our questions to the insights we gained in the exploratory phase. Thus, we chose the method of semi-structured interviews, which "*allow for improvisation and exploration*" (Runeson and Höst, 2009). The openness of this approach is especially suitable to explore a new field of research (Flick, 2009), such as the role of cultural differences in EA-guided enterprise transformations.

We used an accidental sampling strategy, namely the snowball sampling technique. According to Miles and Huberman (1994) snowball sampling is useful to identify experts that have a lot of experience concerning the phenomenon studied. Our sample was limited to three sectors, namely banking, insurance and the public sector. We think that this is due to the fact that EA is a relatively new field and its use is limited to a few sectors. Our interviewees came mainly from the Netherlands where we started the snowball sampling process. Two experts came from the US and one came from France, but worked in an organisation located in Luxembourg. Eleven of the twelve interviewees were enterprise architects. One expert did not work as an enterprise architect as such, but had worked closely together with architects. The size of our sample was determined by theoretical saturation. That is, we stopped collecting data when we did not gain any new insights into our research phenomenon (Gavard-Perret et al., 2008), namely communication breakdowns in EA-guided enterprise transformations. Theoretical saturation was reached with the twelfth interview.

The interview guide was structured following Flick (2009) moving from open to theory-driven questions. We adopted this funnel approach on two levels: first, regarding the topics and second, regarding the questions within each topic. Our interview comprised four large topics: (1) the architect's role in a transformation, (2) key factors of success or failure in EA-guided transformations, (3) the role of communication in EA-guided transformations and (4) the role of subcultures in EA-guided transformations. The first two topics are very open, whereas the last two topics are more specific and directly

linked to our initial conceptual model. This approach was chosen to further explore the field before addressing our theory. The open questions in part two, for instance, aimed at checking whether communication would spontaneously come to the experts' minds as a reason for struggling transformations and which other reasons were considered as important. However, the focus of the interviews was on the third topic. The funnel approach was not only applied to the overall structure of the interview, but also to the questions within each of the four topics to influence the answers as little as possible.

To ensure construct validity (Runeson and Höst, 2009) of 'organisational subculture' and 'EA-guided enterprise transformation' during the interviews, we defined the two terms before using them in the questions. After the introduction we clarified that all the remaining questions referred to EA-guided enterprise transformations. Furthermore, we defined enterprise transformations as strategic changes that had an impact on the company level and explicitly excluded minor changes from this definition. Regarding 'organisational subculture' we used two procedures: if the interviewee mentioned the term before we introduced it, we asked for his definition. And if it deviated substantially from our understanding, we stated our definition. If the interviewee did not introduce the concept of organisational subculture, we defined it when posing the first question regarding this topic. By doing so, we made sure that all the interviewees had the same understanding of the mentioned constructs as we did (Runeson and Höst, 2009).

Each interview lasted between 60 and 90 minutes. All the interviews were recorded and transcribed. The transcription's level of detail was adapted to our purposes (Kvale, 2007): as we did not aim at a linguistic interview analysis, no attention was given to filling words, overlaps and pauses. Repetitions were, however, taken into account since they might express the interviewee's strong opinion on a topic. In order to avoid a literal understanding of the experts' answers, strong expressions of emotion were considered too.

For the interview analysis we used coding. This means that we labelled the text segments with one or two keywords and achieved, thereby, a categorisation of the different statements. We started with open coding (Flick, 2009). Thus, the first codes were linked closely to the analysed texts. Once we had these specific codes, we started combining them in order to achieve a higher level of abstraction (Flick, 2009). At the same time, we introduced sub codes where suitable, e.g. for distinguishing different types of communication means. This procedure aimed at having more flexibility in the analysis, i.e. being able to look at general as well as at very specific aspects. The coding was an *iterative process* as each interview had to be looked at again once a new code was introduced. By combining the open coding with the more focused coding we gained an in-depth understanding of the content and the meaning of the different text segments (Flick, 2009).

## 5.2 Elaborating the initial findings

The coded interviews were used to assess and elaborate our initial conceptual model (Figure 1). In this section we discuss respectively the relation of communication breakdowns and transformation struggles (section 5.2.1) and the relation of differences in organisational subcultures and communication breakdowns (section 5.2.2).

### 5.2.1 The relation of communication breakdowns and transformation struggle/failure

Our initial conceptual model suggests that transformation struggles can be traced back to communication breakdowns. In general, the interviewees supported this idea. They identified successful communication as a necessary condition for successful transformations, meaning that if communication breaks down, transformations fail. However, the experts indicated that it was not a sufficient condition since there were additional reasons why transformations could struggle. Examples for such reasons are external circumstances, the underestimation of the scope or the complexity of the transformation and problems with technology. However, in this paper we focus on the role and types of communication breakdowns. Thus, we do not elaborate on the other reasons for transformation struggles.

The *communication breakdowns* illustrated by the interviewees can be categorised in *three groups*: (1) lack of communication, (2) inappropriate communication and (3) over-communication.

**Lack of communication.** A lack of communication refers to both not talking and not listening. It can manifest itself in six different ways (Table 1): not stating all requirements, not engaging stakeholders, not stating scope constraints, not listening to each other, not assigning responsibilities and not checking if people are in line with the goals. In the following, we will zoom into two of these possibilities as we cannot elaborate on all aspects due to space limitations. If an architect does *not check continuously if all the stakeholders are in line with the goals* of the transformation, inconsistencies in the solution are discovered late. This extends the overall duration of the transformation, because the inconsistencies have to be eliminated. Moreover, such inconsistencies can lead to conflicts among the stakeholders, because they blame each other for the struggles. Another example for lacking communication is *not listening to each other*. Our interviewees described situations where senior management did not listen to the architects and thus did not understand the architecture. They also referred to meetings with different stakeholders that did not listen to each other. Those stakeholders did not understand their respective concerns and did not achieve agreement.

**Inappropriate communication.** Even when communication takes place, it can break down in the sense that it is inappropriate. This category also includes six communication breakdowns (Table 1): inappropriate means of communication, an inappropriate communication style, having no shared frame of reference, communication against the transformation, not aligning implicit and explicit communication and dishonest communication. Three of these breakdowns are described in more detail hereafter. The *style of communication has to be adapted to the audience*. One architect illustrated the difference in terms of communication style between architects and management. When presenting something to architects he would always try to include a mistake, because architects liked the competition of finding it. However, when addressing management he would be as factually accurate as possible. Otherwise management would become uncertain and would question his expertise.

In addition, different stakeholders can also speak *different languages*. By language we do not refer to natural languages, but to the frame of reference. The frame of reference comprises the vocabulary and the understanding of the used terminology. Thus, two groups can use the same words, but mean different things. Likewise, they can refer to the same thing, but use different words and thus do not understand each other: "*it's really incredible: people disputing basically because they agree*" (quote from our interviews). One of the interviewees illustrated a situation where a shared frame of reference was missing. In a meeting with business and IT people all of the participants had the same mother tongue. Nevertheless, the two groups did not have a shared frame of reference: while the IT people's terminology was very technical, the business people used purely business terms. As a result, the two groups did not understand each other and left the meeting without having moved any further. This example also illustrates that differences in the frame of reference are linked to cultural differences, which will be further discussed in section 5.2.2.

Communication is also understood as inappropriate if *the implicit and the explicit communication are not aligned*. Explicit communication refers to explicit statements, e.g. 'we want to increase the quality of our services'. Implicit communication refers to what is communicated by actions, buildings, status symbols, etc. Key performance indicators (KPI) can, for example, be a way of communicating implicitly. If senior management states that they want to increase the quality of the company's services and at the same time introduce cost reduction as a KPI, according to our interviews, employees become cynical and do not show commitment anymore.

**Over-communication.** Over-communication comprises giving too much information and over-coordinating a transformation. The interviewees indicated that it was advisable *not to communicate too much at a time*. Stakeholders would not consider the communicated content as important if they were told too many things in one meeting. This would lead to a lack of commitment. If, on the contrary, communication was focused on one or a few topics, these would be perceived as significant and would be taken serious. Another type of over-communication mentioned is *too much coordination*. If a trans-

formation is over-governed by management and/or architects, employees are likely to not internalize it and to thus not commit to it.

Table 1 provides an overview of all the communication breakdowns and their respective consequences that were mentioned by the experts.

| Type of communication breakdown | Specific communication breakdowns | Consequences of communication breakdowns |
|---|---|---|
| Lack of communication | not stating all requirements | solution does not meet the actual requirements |
| | not engaging stakeholders | no commitment |
| | not stating scope constraints | no commitment (transformation not taken serious) |
| | not listening to each other | no shared understanding; no agreement |
| | not assigning responsibilities | the same tasks are performed twice |
| | not checking if people are in line with the goals | inconsistencies are discovered late; conflicts between stakeholders |
| Inappropriate communication | inappropriate means of communication | no shared understanding |
| | inappropriate communication style | misunderstandings; uncertainty |
| | no shared frame of reference | misunderstandings; no shared understanding; no agreement |
| | communication against the transformation | demotivation of stakeholders |
| | implicit and explicit communication not aligned | no commitment; stakeholders get cynical; uncertainty |
| | dishonest communication | no commitment; stakeholders get cynical |
| Over-communication | communicate too much at a time | stakeholders do not consider the content as important |
| | too much coordination | transformation not internalized; no commitment |

*Table 1.        Different types of communication breakdowns and their consequences.*

**Revisiting the conceptual model.** Compared to our initial conceptual model (Figure 1) a new category was added: over-communication (Figure 2). Moreover, the former category 'wrong communication style' is now part of the more general type 'inappropriate communication'.

## 5.2.2   The relation of cultural differences and communication breakdowns

Apart from assessing the relation between communication breakdowns and the struggling of EA-guided transformations, our interviews aimed at getting a first understanding of *the impact of organisational subcultures on the communication*. Regarding the subcultures in an organisation, the experts showed that differences between business and IT exist and can be crucial. However, they also illustrated cultural differences within the business group and within the IT group. As such, they opposed for example marketing and finance, finance and HR or architects and management.

Furthermore, the interviewees pointed out that cultural differences among the stakeholders can but do not necessarily have to result in communication breakdowns. They indicated that the *desired amount of communication depended on the subculture*. More engineering oriented groups would usually

communicate less than rather human oriented groups. If the amount of communication is not adapted to the respective subcultures, these will perceive a lack of communication or over-communication. Furthermore, the interviews show that *organisational subcultures differ concerning their preferred communication means and communication style*. One expert illustrated that IT people preferred computer based communication like email or social platforms, whereas business people preferred face-to-face communication. Also, our interviewees indicated that the beliefs and values regarding the importance of topics influence how pictures and texts are interpreted. This means that *different subcultures have different frames of reference*. This has already been illustrated in section 5.2.1 where we have explained how different frames of reference can lead to misunderstandings. Moreover, our analysis shows that a subculture's *way of working impacts the communication*. On the one hand, the desired communication style is influenced by the way of working. For example, according to one interviewee, finance people usually want more detail and precision than people from marketing. On the other hand, differences in the way of working can lead to subcultures stereotyping each other and thus not listening to each other.

According to our interviewees, it depends highly on the architect's communication skills if cultural differences lead to communication breakdowns or not. They indicated that architects act as translators or mediators between the different subcultures. Also, when communicating with just one subculture an architect should adapt his communication to that particular culture. This finding matches Op't Land et al. (2009) who mention that an architect should "*use appropriate technical or business vocabulary to be able to express thoughts and feelings in a concise way and to respond adequately to others*".
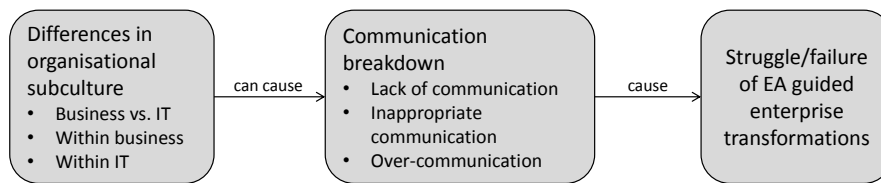


*Figure 2.          Elaborated conceptual model.*

**Revisiting the conceptual model.** Based on the semi-structured interviews we elaborated our initial conceptual model (Figure 2). It shows that communication breakdowns cause transformation struggles. The three types of communication breakdowns mentioned in the interviews are lack of communication, inappropriate communication and over-communication. Such breakdowns can be caused by cultural differences that exist between business and IT, but also within the business and within IT.

# 6  Conclusions

In this paper we presented the first two phases of our exploratory study concerning the question how cultural diversity in an enterprise contributes to the struggling/failure of EA-guided enterprise transformations. We started addressing this question by conducting two rounds of qualitative interviews. Our data suggest that differences between organisational subcultures contribute to the struggling/failure of EA-guided enterprise transformations. However, an important finding is that the relation between those two constructs is not direct but indirect, with communication as an important intermediary variable.

From our semi-structured interviews we gained more insight into how communication could break down. We identified *three categories of communication breakdowns*, namely 'lack of communication', 'inappropriate communication' and 'over-communication'. Within each category we specified how communication could go wrong and which consequences were related to these breakdowns. Moreover, we obtained a first indication on how cultural differences can cause communication breakdowns. We showed that different subcultures preferred different communication means and styles.

Furthermore, we illustrated that the way of working influences the preferences subcultures have regarding the communication style and the amount of communication.

**Limitations.** In the semi-structured interviews, our interviewees supported the relation between cultural differences and communication breakdowns. However, we did not gain further details on which cultural differences may lead to what type of communication breakdown. This is due to the fact that the main focus of the semi-structured interviews was on communication breakdowns and not on cultural diversity. This limitation will be addressed in our future work.

Furthermore, our model and the different types of communication breakdowns are not sufficiently linked to the EA function yet. By exclusively interviewing enterprise architects we ensured to limit our study to EA-guided enterprise transformations. However, it is not yet clear how the identified communication breakdowns cause the struggling/failure of EA-guided transformations. This limitation is due to the fact that Figure 2 and Table 1 just represent the first step of our on-going research.

Another limitation is the fact that our research solely covers the perspective of enterprise architects, which is just one of multiple perspectives in the EA function (van der Raadt and van Vliet, 2008). We chose this approach to get a broad view across multiple organisations while keeping the comparability among the interviewees. We are aware of the fact that the architect's cultural background has an impact on his way of communicating and his perception regarding factors of success and failure.

Finally, our findings are mainly based on empirical data. That is, they are not yet grounded in the existing body of knowledge.

**Future research.** Future research should address the mentioned limitations. In line with our research methodology, i.e. grounded theory, our next step will be the theoretical grounding of our findings. To gain a better understanding of which differences between organisational subcultures could lead to which communication breakdowns we are planning to conduct an in-depth case study where we will use a culture framework. In this case study we will interview not only enterprise architects but also other key stakeholders. Furthermore, that study will aim at better linking our results on communication breakdowns to the struggling/failure of enterprise transformations. Future research should also look at the influence of the enterprise architect. We have pointed out that the architect's communication skills are important, since he acts as a translator or mediator. Furthermore, we showed that the architect's cultural background influences the communication. More research should be done to explore this influence in detail. In addition, the impact of politics on the effectiveness of the EA function should be investigated, as politics was mentioned as another important influencing factor during our unstructured interviews.

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