

## MASTER

### Process improvement through improved collaboration between departments within Atos DTC BTN

van Dooremalen, Olivier H.J.

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Department of Industrial Engineering and Innovation Sciences  
Innovation, Technology Entrepreneurship and Marketing Research Group

# Process improvement through improved collaboration between departments within Atos DTC BTN

*Master thesis*

O.H.J. (Olivier) van Dooremalen  
0918363

## **Supervisors:**

prof. dr. ir. M.L.A.M. Bogers, TU/e (ITEM)  
dr. S.A.M. Dolmans, TU/e (ITEM)  
S. Veenma, Atos  
Msc. R. Nelisse, Atos  
ir. H. Kwaspen, Atos

# Preface

This master thesis was written as partial complement of the master Innovation Management at Eindhoven University of Technology. Within this preface, I would like to take the opportunity to thank the people without whom I would not have been able to accomplish this feat. As it often is, and probably should be, this final work was the hardest thing I had to do throughout my academic career, and I could not have done it alone.

First and foremost, I would like to thank Marcel Bogers and Sharon Dolmans. You both have had the role of Mentor during my Masters, and both of you have always given me the freedom to fill this in as I saw fit. However, whenever I felt I needed guidance or feedback regarding my studies, both of you always were readily available to be sparring partners. Especially during the last phase of this master thesis project, I felt really supported and motivated because of the talks and discussions we had during our meetings. So again, thank you for that.

I would also like to express my gratitude to my colleagues at Atos. From the moment I started my graduation internship at the Atos DTC BTN department, I received nothing but positive and helpful responses when approaching colleagues for help or participation regarding my research project. In particular, I would like to thank my company supervisors at Atos, Hans Kwaspen, Steven Veenma and Rik Nelisse. For always taking the time to brainstorm on ideas regarding the project, and providing me with constructive feedback on both the project and the graduation process.

Finally, I would like to thank my family and friends. My friends, for always being in for a good time, of which we have had plenty over the past years. But more importantly for always being there when things are not moving forward that easily. I feel really lucky to have people in my life who are always willing to help. The same goes for my family, where I want to thank my parents in particular for always being there. I should say it more often, but I am very grateful for your unending support.

Olivier van Dooremalen

# Management Summary

## 0.1 Research Structure & Methods

This research is aimed at finding ways to improve the process of collaboration between departments. In order to get a view of how departments work together in practice, a case study research was conducted at departments within Atos Digital Transformation Consulting (DTC) Benelux & the Nordics (BTN). A case study is a methodology useful when developing involvements and theories (Baxter et al., 2008). Furthermore, according to Yin (2009), a single case study is the best choice when the subject of research is a single-framed group. In this case Atos DTC BTN and the subsequent departments it encompasses was the scope for the case study.

To get valid and rigid information out of case study conducted at Atos DTC BTN, the methodology by Gioia et al. (2013) is used. After the conducting of a literature review on the subject of interdepartmental collaboration and factors of importance regarding these processes, and the conversing with stakeholders within the process, an interview schedule was set up. Through the qualitative data analysis of interviews held with 13 stakeholders from different positions within Atos DTC BTN, underlying themes and concepts influencing the collaboration between teams and departments within Atos DTC BTN were derived. From the gap analysis between these themes and concepts following from the qualitative data analysis, and the current scientific literature, several workings were derived.

## 0.2 Results

Enabling by management was a factor of importance brought up by several interviewees, and was found to be an important and positive influence on the amount and effectiveness of the sharing of knowledge between stakeholders within organizations (Connelly & Kelloway, 2003; Srivastava et al., 2006). Furthermore, the knowledge of a department's projects and competencies is important as this is a prerequisite for successful collaboration between different disciplines or departments (Munasinghe, 2001). This was acknowledged by interviewed stakeholders, who declared that this was a point of attention within Atos DTC BTN, as initiatives such as bi-weekly portfolio sessions aimed at sharing this knowledge between departments are

currently being held.

Goal-setting within Atos DTC BTN seems to be an obstacle towards improved collaboration, according to several interviewees. This is an important factor in the effectiveness of collaboration between departments, as it is shown interdepartmental goals that are perceived to be cooperative tend to ensure that employees are more open-minded towards collaborating (De Dreu et al., 2001). Competing goals can result in competition between departments or teams, which can be a barrier to achieving better collaboration between departments (Schepers & Van Den Berg, 2007; Bordeianu & Lubas, 2013). However, interviewees acknowledge that changes made in targets set by management regarding the productivity of the departments can have negative consequences that come along with the possible improvement in interdepartmental collaboration. Furthermore, trust between departments is present according to interviewees, which can mitigate the impact of the possible barriers present due to competition (Willem & Scarbrough, 2006). An often-used channel for collaboration and knowledge sharing within Atos DTC BTN is the professional networks of individuals. Literature review showed that this was an effective way of collaboration (Reeves et al., 2018; Dow et al., 2017). Moreover, the importance of making use of proactive, knowledgeable employees within Atos DTC BTN in the process of collaboration and knowledge sharing was not only stressed by multiple interviewees but found in literature as well (Fjeldstad et al., 2012).

### 0.3 Scientific & Managerial Implications

No applicable literature was found on the missing of opportunities for new projects because of the lack of knowledge on competencies and projects of other departments. The qualitative data analysis conducted within the case study at Atos DTC BTN showed that the stakeholders that were interviewed felt that more opportunities for projects at customers could be brought into the firm when knowledge on competencies and projects of departments other than their own was present. This study showed that the increase in individuals' knowledge of company competencies and projects is perceived as an area of great opportunity within consultancy. Future research should be done to see what further benefits this could bring organizations such as the one that was studied within this research.

Much of the literary findings were found to be applicable to the setting Atos DTC BTN is in. Although much of the literature was written on organizations in the public sector, and the large degree of applicability of this literature on an organization within the consultancy domain is an interesting find. Srivastava et al. (2006) and Connelly & Kelloway (2003) found that knowledge sharing among teams and members could be enabled through empowering leadership. Besides managerial support, the support of coworkers can increase the perceived

knowledge-sharing usefulness (Cabrera & Cabrera, 2002; Kulkarni et al., 2006). Another factor of importance in overcoming barriers and increasing collaboration departments found within the literature review is the professional networks of employees as a channel for collaboration (Reeves et al., 2018; Dow et al., 2017). This was also found to be a positive influence on the amount of collaboration and knowledge sharing between departments within a consultancy firm such as Atos. The literature review also showed the importance of exploiting the knowledge held by individual employees, and enabling of these individuals in the endeavour of sharing this knowledge (Fjeldstad et al., 2012). This was also stressed as a factor of high importance in process of collaboration and knowledge sharing within Atos DTC BTN. The generalizability of these findings beyond this case study towards the consultancy industry is something that should be a topic of further research

Collaboration between departments is something that is partly contradictory to the current target-setting within Atos DTC BTN. Employees seem to be intrinsically motivated to collaborate with different departments with different competencies when they see this as useful for either Atos DTC BTN or their respective customers, where usefulness for these two parties often even goes hand in hand. This motivation should be nurtured by management, and ways of motivating employees to continue seeking this out for themselves should be a point of continuous attention. A possibility for future research on this subject is the influence of changes in target-setting on the balance between profitability and value addition for Atos DTC BTN and their customers.

Management should enable knowledgeable and pro-active employees by proactively motivating and enabling them in their efforts of bringing together people and their competencies so that they do not lose their intrinsic motivation to promote the collaboration of different departments within Atos DTC BTN. This is coincided within literature, where the exploiting of knowledge that is held by individual employees and enabling this knowledge to be shared throughout the organization is one of the ways for organizations to improve knowledge sharing between departments (Fjeldstad et al., 2012). Another factor that should be paid attention to is the increased sense of importance among employees regarding why knowledge sharing of own competencies and projects, as well as the importance of having knowledge on these subjects from different departments, matters. Management within Atos DTC BTN should continue with current projects that enable collaboration and knowledge sharing such as the bi-weekly portfolio sessions, as these are perceived as useful tools for gaining insight into competencies within Atos DTC by all interviewees. This enabling and support from management is positively associated with employee willingness to participate, as found by Connelly & Kelloway (2003).

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# List of Abbreviations

<b>IDC</b>	Inter-departmental collaboration
<b>KS</b>	Knowledge sharing
<b>DTC</b>	Digital Transformation Consultancy
<b>KPI</b>	Key Performance Indicator
<b>RQ</b>	Research question
<b>BTN</b>	Benelux and The Nordics
<b>DPAE</b>	Digital Process Automation Excellence
<b>PLM</b>	Product Lifecycle Management
<b>MES</b>	Manufacturing Execution Systems
<b>DSIE</b>	Digital Strategy Insights and Experience
<b>DTSI</b>	Digital Technology Strategy and Innovation

# Chapter 1

## Introduction

### 1.1 Background Information

Atos is an IT service and consulting company, assisting its clients in a wide variety of subjects concerning information technology. Several units within the company aim to aid their clients in different fields, such as Business Intelligence (BI), Artificial Intelligence (AI), and Industry 4.0. These departments each have a scope of problems they help their clients with. The Business Intelligence unit for instance helps clients to effectively acquire, store and use large amounts of data to enhance their operations.

These and more departments fall within the DTC department. Each of these units has a specific area of expertise and aims to help their customers in a somewhat ad hoc fashion in order to solve their problems or improve on their current way of working. Often in this situation, employees or teams within these departments of Atos find that information or knowledge regarding process methodology needed for the solving of a specific assignment is not necessarily present within their department. Rather, this could better be obtained by collaboration with colleagues from within a different unit or department.

Collaboration between departments is up to par according to managers from different departments within Atos. When problems arise or additional knowledge or experience is needed within a specific team to solve a customer's problem, team members look for this knowledge by contacting colleagues from different departments within their network. Nowadays this is a point of increasing importance. Companies are finding it more difficult to stay competitive because of the increasingly applied new technologies, and combined fields of knowledge can be key in overcoming these issues.

Although top-management claims to see the need for higher degrees of departments working, oftentimes not a lot changes in the interaction between departments. An interesting idea is to gain more understanding into to what extent the increase in collaboration can lead to improvements in the value Atos can deliver to their customers. More specifically, could a way of working be derived where multiple departments can combine their knowledge and work

styles so that propositions for customers can more easily be defined and used to help them.

Another factor that does not seem to be communicated well enough within Atos is the information on which Atos employees are currently on what projects at which companies. The possibility to offer sales in a more coordinated manner is therefore often lost. Since selling solutions on a project basis is more lucrative for Atos than having employees work at clients on a secondment basis, this coordinated approach could be an interesting way for Atos to improve sales numbers.

In summary, Atos could benefit from increased collaboration between departments within DTC on multiple levels. More insight on what employee capabilities can be found in departments within DTC, as well as what projects and secondments are ongoing in different firms, can help Atos to offer proposals and quotations to their customers in a more coordinated and possibly profitable manner.

## 1.2 Literary Background

A common occurrence in organizations, especially larger ones, is the forming of organizational silos (Schütz & Bloch, 2006). Organizational silos refer to largely independently operating departments, divisions or units within an organization. Between these silos knowledge is scarcely shared, some times even because of system limitations (Bundred, 2006). According to Cilliers & Greyvenstein (2012) organizational silos also refer to an unconscious mentality, beside the conscious structures they often represent. Overcoming this mentality can therefore be the key to overcoming organizational or departmental silos, when no conscious structure is in place. Inter-departmental collaboration can help companies overcome barriers that have formed between departments. The creation of an organizational culture and environment that enables cooperation and collaboration, as well as the striving for a corresponding manner of communication within and between departments, has for instance proven to increase inter-departmental collaboration between departments of American libraries (Bordeianu & Lubas, 2013). Furthermore, organizational knowledge is found to be useful as a basis for competitive advantage, and is therefore should be a point of attention among managers (Cabrera & Cabrera, 2002). Some of the big challenges that are closely linked to the knowledge present within large firms, more specifically, the development and using of this knowledge present within individual employees, and the sharing of this knowledge throughout the organization (Fjeldstad et al., 2012).

### 1.3 Research Approach & Scope

In order to get a view of how departments work together in practice, this phenomenon at departments within Atos Digital Transformation Consulting (DTC) Benelux & the Nordics (BTN) is looked at. More specifically, the process of collaboration and coordination between these departments with regard to employee capabilities is looked at. Besides this, the influence of this knowledge on the coordinated offering of project proposals to customers is looked at. The result of this research should enable Atos and the respective units to provide better-coordinated offers to their customers.

Within this research, the empirical research within Atos DTC BTN will be a case study. A case study is a methodology useful when developing involvements and theories (Baxter et al., 2008). Furthermore, according to Yin (2009), a single case study is the best choice when the subject of research is a single-framed group. In this case, not Atos as a whole or Atos DTC worldwide is looked at, but Atos DTC BTN, and the subsequent departments it encompasses.

Eisenhardt & Graebner (2007) state the usefulness of case study research as a way of building theory from rich qualitative data. They argue that case study research is one of the best bridges between deductive research and rich qualitative data, and that theory built from case studies is often interesting, accurate and testable. Although generally the advantages of multiple case studies over single case studies are commended, single-case studies are given the upper hand when it comes to the amount of detail that can be derived regarding the subject of the research (Eisenhardt & Graebner, 2007). This increase in attention to detail can result in more complicated theories being created. Single case studies can therefore be used to develop theories on newly made distinctions. It can be used to generate a better view of a subject, and give better explanations that multiple case studies may not (Tsoukas, 2009). It can result in a deeper understanding of complex social behaviours and phenomena out of contextualized findings from rich data (Ridder et al., 2009).

### 1.4 Research Questions

From the problem statement discussed in Section 1.3 the following main research question is formulated:

*How to facilitate improved collaboration between departments within Atos DTC BTN?*

To answer the main research question, several sub-questions to the main research question have been formulated. These sub-questions will be answered through literature research

on working together in organizations, and inductive research following interviews held with stakeholders.

To get to the core of the problem, identify the current gap in knowledge, and towards providing a solution for Atos, the current way of working regarding the collaboration between DTC departments will be analyzed. This will be done through conducting interviews with managers of the department and sub-departments and looking into available documentation on the process of bringing together employees and their knowledge for project proposals.

- RQ1: What is stated in academic literature with regards to departments working together in organizations?
- RQ2: How does Atos currently facilitate collaboration between DTC departments?
- RQ3: What are the key challenges for Atos in terms of facilitating collaboration within DTC?
- RQ4: How can Atos DTC make improvements on the current way of working according to the literature review and the empirical research?
- RQ5: What literature gap is filled through this research?

# Chapter 2

## Research Method

In order to get insight into the state of collaboration between departments within Atos DTC BTN, two factors need to be looked at: the current consensus within academic literature and the current way of working within Atos DTC. In this Chapter 2, the outline of this step in the research is presented. Firstly, in Section 2.2 the two methods of collecting the data are expanded on, more specifically the methodology of the literature review and the methodology of the semi-structured interviews with stakeholders at Atos DTC BTN. Section 2.3 contains a description of how the collected data is analyzed. As stated in Section 1.3, Atos DTC BTN was the subject of a case study on the workings of collaboration between departments within organizations. The data collection of this research was two-parted: In Section 2.1, the findings of the literature review on the topic of collaboration within organizations were elaborated on. The findings of this review can be found in Chapter 3. Section 2.2 shows the methodology for qualitative data collection within Atos DTC BTN.

### 2.1 Literature review

To derive what the current literature states on collaboration between departments, a literature review was conducted. This was done to derive a summary of the latest developments on the subject (Rowley & Slack, 2004). According to Snyder (2019), three main types of literature reviews can be distinguished: systematic literature review, semi-systematic literature review and integrative literature review. For this project, an integrative review was most appropriate, as this has as its main purpose to critique and assess literature, as well as the synthesizing of current literature into new perspectives or theoretical frameworks (Snyder, 2019).

Cooper & Ribble (1989) recommends the literature review to be guided by a formulated research problem. The definition of a research problem and the formulation of a fitting research question is the first step taken in ensuring that the scope of the integrative review is in line with the scope of the research as a whole. Beside this alignment, the reduction of the research scope itself is an important result of the derivation of the research problem (Broome et al., 2000). Central issues throughout existing literature that are related to the

defined research problem can be used to derive themes (Torraco, 2016), which subsequently can be used to answer RQ1.

Several criteria were set in order to get a grounded insight into the current scientific literature. Because the literature within this review was used to get an insight into the workings of collaboration between departments relevant to the case study at Atos DTC BTN, literature that was used to create insight into the current consensus had to adhere to some factors ensuring applicability. The scientific literature eligible for this research had to be:

- written in English.
- conducted in a similar research setting as the setting Atos DTC BTN is in, i.e. regarding organizations in Europe or the United States.
- relevant to the research questions.

Searching for relevant literature entailed taking into consideration the above-mentioned factors, but also the searching itself through the use of keywords in search queries regarding organizational departments working together. As found at dictionary.com, a synonym for working together is collaboration. The terms "collaboration between departments" and "interdepartmental collaboration" were used to find literature on the topic, in combination with the terms "in organizations" and "organizational". Citations in found articles furthermore were used to further develop the knowledge on the subject of collaboration between organizational departments. Summaries of the findings from these searches and the subsequent gathering of the theory are shown in Chapter 3. The culmination of these findings will be used to answer RQ1: "What is stated in academic literature with regards to departments working together in organizations?".

## 2.2 Data Collection

Qualitative data collection for the case study of this research consisted of a collection of semi-structured interviews held with stakeholders in the collaboration process within Atos DTC BTN. The first of these interviews were held with the following stakeholders:

- Head of Atos DTC BTN
- Head of Atos DTC BTN DSIE
- Head of Atos DTC BTN DPAAE - I4.0 domains PLM and MES

- Head of Atos DTC BTN DPAE

More interviews following this first round of interviews were held with people that were recommended by the interviewees. Figure 2.1 shows these interviewees, marked by their function to ensure anonymity. Furthermore, the numbers shown before the names of the interviewees show the order in which the interviews took place. In order to take a grounded approach to the interviews and in return retrieve usable input from the interviewees, an interview schedule was set up (Bearman, 2019). This schedule was derived to keep the interview in line with the research questions, and to give provide guidelines during the interview. This is aimed at keeping the conversation focused on the predetermined themes that were to be discussed. As the goal of these interviews and the subsequent analysis is to retrieve data from the views and experiences of participants, behaviours and events within Atos DTC are deemed significant. As stated by Schultze & Avital (2011): "Rich, thick data is experiential data".

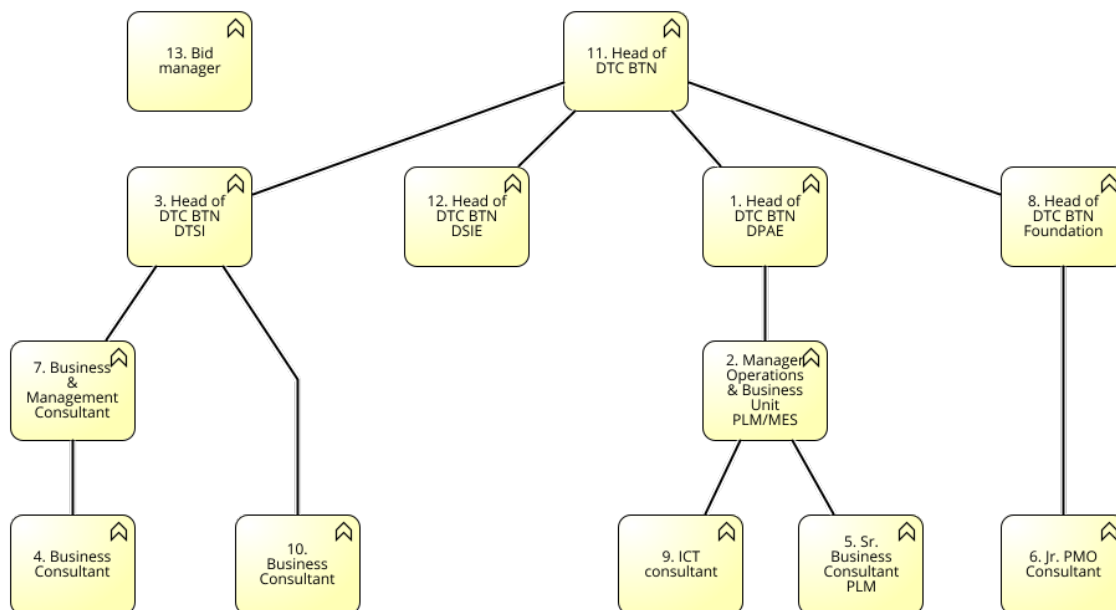


Figure 2.1: Atos DTC organizational chart.

According to Kvale (2012), an interview should be seen for what it is, an exchange of views. Whilst the setting up of an interview schedule is an important step in the process of keeping the interview in line with the aim of the research, it is unavoidable that different participants have different views on the topic at hand, with regard to what factors they deem important or meaningful. This means that although the interviews should be conducted in line with the interview schedule, different interviews could have somewhat different lines of follow-up



questioning to cater to the characteristics of the interviewees, such as their place in the organization and the amount of knowledge they have on a subject.

Such an interview schedule is imperative in ensuring the elicitation of rich data from the interviews (Bearman, 2019). The factors that are of importance here are:

- Derive questions from literature, but not too many. Keep questions few and to the point.
- Make sure the order of the questions is logical. Themes and subjects should be covered in such an order that the flow of the conversation is somewhat linear and does not breed confusion.
- Know and keep to the schedule. As interviews within this research were mostly conducted within the Microsoft Teams environment, the schedule was open and therefore on hand during the interviews.
- Derive "prompts" to steer the interviewee back towards the subject of discussion, but only when necessary (Berg & Lune, 2007).

Besides these factors of importance, some guidelines for how to conduct during the interview were established. During the interview, the intention was to start off light, in order to easily flow into the interview/conversation itself. Also, the interviewee was reminded of the purpose and the context of the interview. The structure of the interview and the reasoning behind why this method was chosen were shared with the interviewee, as well as how the interview would be used to derive data needed for answering the research questions of this research.

During the duration of the interview, if an interviewee was not elaborating to the degree that was deemed wishful to gain insight into the subject of the question asked, prompts were used to encourage further elaboration. If the interviewee talked too much about a certain topic or drifted off into other topics that were not interesting for the context at hand, the conversation was subtly steered back in the direction of the discussion at hand. During the interviews one of the aims was also to keep away from leading questions, and to try to get the purest information from the interviewee. This was done because the most generative responses are often the result of asking open-ended questions (Patton, 2002).

Table 2.1: Interview Schedule

<b>Schedule</b>	<b>Rationale</b>
Check consent and start recording.	Make sure the interviewee is aware of and has agreed to the fact that the meeting is recorded for later analysis
Thank the interviewee for their cooperation. Provide them with background information, and give a short summation of the research and the subjects that will be discussed.	The interviewee is reminded why the interview takes place, as well as of the subject of the research and the interview.
Bring up the first subject of the discussion: lack of knowledge of competencies of other departments, and ask how the interviewee looks at this subject.	One of the factors in IDC and KS where Atos DTC seems to struggle is this subject, this question is aimed to gain insight into how the interviewee views this problem.
Bring up the second subject of the discussion: lack of knowledge on ongoing projects from different departments/units within Atos DTC, and ask how the interviewee looks at this subject.	This was deemed important in the exploratory conversations within Atos DTC, this question is aimed to gain insight into how the interviewee views this problem.
Ask the interviewee about previous and current projects and initiatives within Atos DTC that are aimed at the facilitation and possibly improvement of IDC and KS within Atos DTC.	This is asked to get insight into current processes, and thereby is directly aimed at answering sub-research question 2.
Ask the interviewee what they think are the key challenges that have to be overcome in order to improve IDC and KS within Atos DTC.	This is asked to get the interviewees' view on what the biggest challenges are with regards to IDC and KS within Atos DTC, and thereby is directly aimed at answering sub-research question 3.
Ask the interviewee if they feel there are topics of importance regarding the scope of the research that has not yet been covered in the interview.	This question is aimed at deriving certain subjects or topics of importance with regard to the research that has not yet been established in the literature review, exploratory talks or previous interviews.
Give the interviewee a summation of who has been and is going to be interviewed, and ask if they feel other stakeholders are useful additions to this list.	Asking this will provide names of stakeholders with whom further interviews can be held.
Thank the interviewee for their time.	

After covering the topics that were determined beforehand during the interview, the penultimate question asked of the interviewees was if they could think of relevant and interesting topics related to the subject of IDC and KS within Atos DTC that had not been covered yet within the conversation. These subjects were then elaborated on within the conversation with more freedom (Pathak & Intratat, 2012), as these subjects likely would lead partly away from the predetermined topics of the interview. This provided valuable input on what subjects should be further investigated, both in the following interviews with stakeholders within Atos DTC and in the scientific literature on this new subject.

Finally, the interviewees were provided with a list of Atos DTC stakeholders that already had been interviewed and who were going to be interviewed. After having received this list of names, the interviewees were asked who they felt would be able to give valuable input on the subjects within the scope of the research. Table 2.2 shows the interviewees in their sequential order. The Table furthermore shows the duration of interviews, and who the interviewee was referred by regarding the interviews. The request was made to all interviewees for the scheduling of an interview with duration of 1 hour, however, not all interviewees could fit this within their schedule due to the logical presence of regular tasks and meetings. All interviewees were presented with a list of Atos DTC BTN stakeholders that had already been interviewed and were scheduled to be interviewed, with the subsequent question if they felt other stakeholders were good subjects for a future interview. Although all proposed future interviewees were acknowledged by the interviewees that were asked the question, only the first referral was added to this Table.

The interview was concluded by thanking the interviewee for their time and insights. The interviewees were also invited to join in the final presentation of the project at Atos, so that they would be able to see the result of the research and what their contribution to the results was. The initial interview schedule containing these steps is shown in Table 2.1.

This initial interview schedule was used as the guideline for the first interview held with the head of the DTC BTN DPAE department. During this interview, new subjects and concepts were brought up by the interviewee. Within Section 2.3, the extraction of information and knowledge on these subjects is elaborated on.

Table 2.2: Interview Information

<b>Interviewee</b>	<b>Interview Duration</b>	<b>Suggested by</b>
1. Head of DTC BTN DPAAE	00:54:22	-
2. Manager Operations & Business Unit PLM/MES	00:45:55	-
3. Head of DTC BTN DTSE	00:36:17	-
4. Business Consultant	00:26:34	3
5. Sr. Business Consultant PLM	00:47:20	1
6. Jr. PMO Consultant	00:36:33	5
7. Business & Management Consultant	00:37:38	3
8. Head of DTC BTN Foundation	00:32:19	1
9. ICT consultant	00:48:33	2
10. Business Consultant	00:37:59	3
11. Head of DTC BTN	00:45:30	-
12. Head of DTC BTN DSIE	00:28:58	1
13. Bid manager	00:23:13	1

## 2.3 Qualitative Data Analysis

To get valid and rigid information out of the qualitative data analysis, the methodology by Gioia et al. (2013) is used. Based on the research question and literature found during the literature review, relevant interview questions are derived. These interviews, with the consent of the interviewees, will be recorded and transcribed. The responses of the interviewees will be analyzed firstly through open coding, to derive key activities, team and inter-departmental dynamics, and overall company processes. The process of coding these interviews will be iterative, as new information from subsequent interviews can change the way certain information can be interpreted. This information is used to refine a set of manageable 1st order concepts, which is around 25 to 30 according to Gioia et al. (2013). These concepts are used to revisit the literature on the subject, as relevant literature might be readily available on the derived concepts. These concepts are clustered to form larger, 2nd order themes, and in turn in 2nd order aggregate dimensions. The representation using the full set of 1st order concepts, 2nd order themes, and 2nd order aggregate dimensions will depict the steps taken in deriving themes and terms out of the raw data coming from the interviews.

The key question in qualitative data analysis is how one can derive useful information from the rich data source which is semi-structured interviews. More uncertainty exists within

qualitative data analysis due to the fact that there are fewer guidelines, rules and standardized practices. However, this also leaves more room for open interpretation of the data derived from the interviews in a creative manner. Coding within this research is mainly inductive, meaning that codes are derived from themes found in the interviews, instead of scouring the rich data with predetermined codes. However, some codes will be in line with themes from the literature review, as these topics will come up during the interviews. Coding in this manner enabled the search for insider perspectives by making use of the organizational knowledge of the interviewees. Hereby explanations and concepts, and the relationships between these, could be uncovered.

Codes can be seen as labels that are assigned to chunks of text, in order to assign meaning to information found in the interviews (Miles & Huberman, 1994). Another way the coding of pieces of text is seen is as putting pieces of data into buckets (Locke et al., 2022). The process of coding was iterative, meaning that a single interview or segments of text within that interview was coded multiple times. Initial coding was an iteration on the placing of meaning behind the answers given by interviewees, however, codes were fine-tuned after new information arose from later interviews. Codes were assigned to parts of the rich data when answers from the interviewee were related to the research question or when the interviewee indicated that that specific piece of information was important when looking at the scope of the research. Furthermore, when certain subjects or phenomena were mentioned often, a code was assigned to this as well. When the interviewee talked about a phenomenon that brought up the memory of a subject found in literature, this was coded as well. For this part of the research, the 2020 release of the qualitative data analysis software of NVivo was used.

A total of 13 interviews were conducted, with the complete Atos DTC BTN management team and several stakeholders from different departments throughout Atos DTC BTN. These interviewees have been treated as "knowledgeable agents" (Gioia et al., 2013), as they are working and living in the organizational reality within Atos DTC BTN. This means that a lot of emphasis is laid on the insights given by employees and aiming to seek deeper things at play, and not just compare their input to known phenomena literally. Figure 2.1 shows the stakeholders that were interviewed, in the form of an organizational chart made with the use of Signavio software. The description found within each business role of the organizational chart shows the function title of the interviewee. The numbers found in the figure represents the sequentiality with which the interviews took place.

# Chapter 3

## Literature Review

This chapter will contain literary findings on interdepartmental collaboration and knowledge sharing and their coherence.

### 3.1 Interdepartmental Collaboration

A common occurrence in organizations, especially larger ones, is the forming of organizational silos (Schütz & Bloch, 2006). Organizational silos refer to largely independently operating departments, divisions or units within an organization. These departments, divisions or units often contain teams with professionals, specialized in a specific subject. Between these silos, knowledge is sometimes scarcely shared, even because of system limitations (Bundred, 2006). According to Cilliers & Greyvenstein (2012) organizational silos also refer to an unconscious mentality, besides the conscious structures they often represent. Overcoming this mentality can therefore be the key to overcoming organizational or departmental silos when no conscious structure is in place.

Inter-departmental collaboration can help companies overcome barriers that have formed between departments. The creation of an organizational culture and environment that enables cooperation and collaboration, as well as the striving for a corresponding manner of communication within and between departments, has for instance proven to increase inter-departmental collaboration between departments of American libraries (Bordeianu & Lubas, 2013). Hansen & Nohria (2004) acknowledge this point, by stating that knowledge sharing can become less efficient because of the differences in context and culture between departments. Because departments can have their own ways of working on specific tasks and problems, and their own ways of communicating about these tasks and problems at hand, oftentimes more time is needed to get messages clearly communicated to individuals or teams from different departments. Moreover, in the earlier phases of the implementing of or engaging in inter-departmental collaboration, it can even be disadvantageous for companies due to the increased work that follows from misunderstandings or conflicts (Hansen & Nohria, 2004). When departments have their own ways of working, and moreover own ways of communication about these ways

of working and processes, communication between departments can provide difficulties due to miscommunications.

There can be positive and negative sides to an increase in inter-departmental collaboration (Lee, 2020). Collaboration between departments enables departments to tackle arising problems in a more innovative way than when working in solitude. Apart from this, productivity can be increased on both sides through knowledge that departments as a whole gain by collaborating with other departments. A possible downside to an increase in collaboration between departments, especially when these differ significantly from one another, is the increase in conflicts between groups (Kretschmer & Puranam, 2008). When groups, teams or departments have different cultures or ways of working with one another, the bridging of these differences is a necessary step to take in order to ensure successful collaboration. However, a study by Ma et al. (2022) also shows that inter-departmental collaboration can help large firms work past bureaucracy, rigidity and the negative effects of departmental segregation. An important point to note is that the work by Lee (2020) and Bordeianu & Lubas (2013) looks at companies located in the public sector. As public organizations are controlled mainly by the political forces within their environment and private organizations are mainly controlled by economical forces, they can differ from each other quite significantly in certain areas (Boyne, 2002).

One of the ways to overcome boundaries between people working within different departments is the connection of individuals through networking. The importance of building and using one's own network in the collaboration between departments and fields of knowledge should not be underestimated by companies looking to increase their success in interdepartmental collaboration. Studies that have been conducted on this subject show that networking is an integral part of inter-professional teamwork (Reeves et al., 2018; Dow et al., 2017).

Successful departmental collaboration can also result in the improvement of organizational performance (Sanders, 2007; Simonovich, 2006). Through the combining of knowledge from different departments, new knowledge is created. This has value for organizations, as well as for their customers and partners, as they have more knowledge to offer. One of the underlying workings of this collaboration is the sharing of tangible and intangible resources, between different stakeholders within organizations (Wipulanusat et al., 2021).

Interdepartmental collaboration furthermore facilitates performance in innovation, when resources and infrastructure are provided by management (Cuijpers et al., 2011). The role of management is vital in changes that are to be made regarding interdepartmental collaboration (Csáki, 2008; Cuijpers et al., 2011). Best practices should be shared between departments, and management is the stakeholder in the interdepartmental collaboration process that should enable this. Furthermore, shared meeting spaces for meetings with different departments should enable

people from different departments to have more frequent encounters. These encounters in turn will ensure an increase in the amount of information that is exchanged (Allen, 2006). A point to consider is that the increase in interdepartmental collaboration could result in unwanted effects, such as the delay or termination of projects (Cuijpers et al., 2011).

## 3.2 Knowledge Sharing

Knowledge sharing is found to be one of the major workings with which barriers between departments can be overcome. Knowledge present within organizations is one of the biggest strengths, but only if this can be brought to effective use. One of the major challenges that have to be overcome when it comes to using and developing integral knowledge within firms, is the exploiting of knowledge that is held by individual employees and enabling this knowledge to be shared throughout the organization (Fjeldstad et al., 2012). According to Cummings (2004), the term knowledge sharing entails the sharing of task information and experience, in order to collaborate with others to develop subject knowledge, implement procedures and policies and develop new ideas and knowledge.

Firstly, an area of importance is organizational context. The organizational climate and culture can be of influence the process of knowledge sharing Wang & Noe (2010). Competition amongst different individuals or departments could be a hurdle towards the sharing of knowledge between organizational stakeholders, where collaboration and cooperation can generate trust, which is a necessary factor in knowledge sharing (Schepers & Van Den Berg, 2007; Willem & Scarbrough, 2006). Furthermore, the managerial outlook on knowledge sharing, its suitability with current processes and its advantages are essential when it comes to the encouragement of knowledge sharing (Lin, 2007). In line with this are the findings that knowledge sharing support and enabling from management are associated positively with employee willingness to participate in knowledge sharing (Connelly & Kelloway, 2003). Srivastava et al. (2006) also found that knowledge sharing among teams and members could be enabled through empowering leadership. Besides managerial support, the support of coworkers can increase the perceived knowledge sharing usefulness (Cabrera & Cabrera, 2002; Kulkarni et al., 2006). Another hurdle towards knowledge sharing is the absence of incentives such as recognition (Nelson et al., 2006).

Organizational structure is another influencing factor on the presence and effectiveness of knowledge sharing activities. Organizations that are segmented in ways of working and processes are inhibited in their knowledge sharing, and less centralized organizations are likely to be facilitating knowledge sharing more effectively (Tagliaventi & Mattarelli, 2006).



Communications between departments in an informal manner, through informal meetings or off-work interactions, could also result in the creation of opportunities for knowledge sharing between departments and individuals. Moreover, the quality of information shared and received could be of higher quality when embedded in individuals' social networks and organizational networks (Cross & Cummings, 2004). The personality trait openness among company employees was furthermore found to have a positive relationship with self-reported knowledge exchange between individuals. Another study acknowledging this fact found a factor to be positively related to knowledge exchange between individuals, at least when it comes to one's self-reported knowledge exchange qualities and engagement, was openness to experience (Cabrera et al., 2006).

Another place where knowledge sharing could be set within organizations is in networks that exist within organizations. An example of such a network that could exist within organisations is communities of practice (Cross & Cummings, 2004). Within such networks, and with the coexistence of the social facets of such networks, knowledge transferring and the quality of this transferred knowledge can be enhanced. Yuan et al. (2020) moreover state that trust is an important factor in the enabling and thriving of cultures where interdepartmental knowledge-sharing is an often sought-out practice. This trust and communication are important, as communication gaps are more likely to be present between different departments, creating barriers to knowledge sharing. This is more the case for interdepartmental knowledge sharing than for intra-departmental knowledge sharing, as barriers here are less present or proficient (Suckley et al., 2013).

A factor that is of great importance in the continuous exercising and improving interdepartmental knowledge sharing is also social interaction (Noorderhaven & Harzing, 2009). These social interactions between employees of different departments enable the flow of information and knowledge and can help overcome the aforementioned barriers (Jasimuddin & Zhang, 2014). An aforementioned factor of importance here is trust between employees. Trust between stakeholders, within or between departments, has an influence on how effective social interactions and their accessory knowledge sharing is (Willem & Buelens, 2007). This is especially true in environments where work settings are dynamic, such as on tasks regarding collaboration between departments and therefore competencies or areas of expertise (Rousseau et al., 1998). This is shown in several studies, where levels of trust in collaboration are seen to determine the quality and effectiveness of knowledge sharing (Willem & Scarbrough, 2006; Willem & Buelens, 2007).

# Chapter 4

## Results

### 4.1 Interview results

Coding commenced with the transcribed text of the first interview, which was held with the head of the DTC BTN DPAE department. The interviewee elaborated on the several clusters and their activities. Several interesting topics were brought up, among which the fact that the codes that were generated in the coding of the first interview can be found in Table 4.1. Already from this first round of coding, some emerging themes can be distinguished. For instance, the codes "knowledge of competencies" and "knowledge of projects" can be grouped into a bigger theme of knowledge management. Furthermore, the codes "Collaboration within department", "Collaboration within cluster" and "Collaboration between clusters" can be grouped under the theme of Interdepartmental Collaboration. The codes "Utilisation across DTC" and "Utilisation specific departments" are both within the bigger theme of target-setting, and the codes "short-term thinking" and "long-term thinking" can both be placed under the theme of term-thinking.

Some points of interest that were brought up by the interviewee were that target-setting regarding utilization rates of employees could hinder the collaboration between departments on projects and that the balance between short-term and long-term mindset of people within DTC BTN was of importance here. Furthermore, the interviewee mentioned that engagement in collaboration is a difficult endeavour when specific employees, departments or in fact DTC as a whole do not see and prioritize the importance of collaboration. Interviewee 1 also gave names of stakeholders that in their opinion would have valid and rich input on the topic. Resulting from this, interviewees 5, 8, 12 and 13 were contacted.

The codes resulting from interview 1 formed the starting grounds for the coding of interview 2. Within this interview a lot of existing codes were useful in the capturing of knowledge and opinions from the interviewee, however, new codes were added to more accurately capture information. For instance, the code "opportunity" was added, to record when an interviewee spoke of a subject as an opportunity for Atos DTC.

Table 4.1: Codes first interview

Name	Description
DTSI	Code for cluster DTSI
DPAE	Code for cluster DPAE
DSIE	Code for cluster DSIE
Foundation	Code for the Foundation
Attitude/opinion	Code to record how the interviewee feels about a subject
- Mixed	Interviewee has a mixed feeling regarding the subject
- Negative	Interviewee has a negative feeling regarding the subject
- Neutral	Interviewee has a neutral feeling regarding the subject
- Positive	Interviewee has a positive feeling regarding the subject
Knowledge of competencies	Interviewee speaks about the knowledge of competencies of different units/clusters
Knowledge of projects	Interviewee speaks about the knowledge of projects of different units/clusters
Collaboration within department	Interviewee speaks about the collaboration within own department
Collaboration within cluster	Interviewee speaks about the collaboration within own cluster
Collaboration between clusters	Interviewee speaks about the collaboration between clusters
Portfolio session DTC	Interviewee mentions an open 2-weekly portfolio session within Atos
Portfolio session with management	Interviewee mentions a 2-weekly portfolio session with the management team
Cluster leads	Head of one of the clusters
Line-managers	Managers responsible for a branch of a cluster
Team leads	Managers responsible for a team within a cluster
Utilisation across DTC	Interviewee mentions combined utilisation of all departments within DTC
Utilisation specific department	Interviewee mentions utilisation of single departments within DTC
Management team	Interviewee mentions the management team of Atos DTC, containing all cluster leads and the head of DTC
Short term	Interviewee indicates that a certain topic is looked at on short term
Long term	Interviewee indicates that a certain topic is looked at on long term
Motivation for seeking collaboration	Interviewee mentions motivation for seeking collaboration as challenge
Priority on collaboration	Interviewee mentions priority on seeking collaboration as challenge
Added value for customers	Interviewee mentions value addition for customers as a result of certain actions

Furthermore, codes "added value for Atos DTC" and "added value for individual Atos

employees” were added, which together with the code ”added value for customer” were grouped under the bigger theme ”Value creation”. Also, the codes ”positive”, ”negative”, ”neutral” and ”mixed” were added. These were grouped with the more content-related codes to capture the interviewees’ opinions on or attitudes towards a certain topic. Interviewee 2 acknowledged the usefulness of interviewing the stakeholders mentioned by interviewee 1 and gave the name of Interviewee 9 as well as a recommendation to look for someone who only recently joined Atos DTC, and would therefore most likely have a different view on the topics than employees who had been at Atos DTC for a long time.

A point of interest mentioned in interview 3, was the difference between Atos DTC employees working on a secondment basis for customers or working on a larger, more likely multi-competence project. More specifically, the usefulness of collaboration can mostly, if not solely, be found within the second type of work. These two options were both coded, as this in hindsight was also mentioned in interview 1. Interviewee 3 also mentioned company culture as a factor of importance when it comes to collaboration and knowledge sharing between different departments. This observation by interviewee 3 corresponds with the results from the literature review, where it was found that the managerial outlook on collaboration and knowledge sharing, its suitability with current processes and its advantages are important when it comes to the encouragement of knowledge sharing (Lin, 2007). Furthermore, the interviewee mentioned two challenges in the facilitation of collaboration and knowledge sharing between departments. Firstly, the enabling and steering by management. If management does not prioritize collaboration and does not enable their teams to be able to collaborate, it is never going to happen. This too is in correspondence with results from the literature review, where it was found that knowledge sharing support and enabling from management is associated positively with employee willingness to participate in knowledge sharing (Connelly & Kelloway, 2003). Srivastava et al. (2006) also found that knowledge sharing among teams and members could be enabled through empowering leadership. Secondly, the personal traits of employees are important in interviewee 3’s opinion. Interviewee 3 also provided the names for later conducted interviews 4, 7 and 10.

In interview 4, ”speed dates” between consultants of different departments were mentioned as a way of increasing knowledge of competencies existing within other departments, as well as insight into past and present projects within different departments. According to the interviewee, proactively seeking out collaboration between departments is a challenge on the road towards increased collaboration between departments, however, this was also one of the bigger opportunities.

The interviewee in interview 5 mentioned organizational structure as a hindrance in Atos DTC employees having insight into competencies and knowledge present in departments

other than their own. What was also mentioned as a challenge was the fact that not every department gets as much spotlight within the organization regarding successful past and present projects. Furthermore, the knowledge on this in and of itself is important, as this helps DTC BTN stakeholders to provide more useful information on their projects when asked. This is recognised within current literature, where Munasinghe (2001) stated that knowledge of one's area is a prerequisite for successful collaboration between different disciplines or departments. Special emphasis was placed on the fact that knowledge of the limitations one has in this scenario (Munasinghe, 2001). Once again, the interviewee mentioned personal traits as a subject of importance in this matter. Interviewee 5 furthermore gave mentioned interviewee 6 as the younger, recently joined employee following the recommendation made by interviewee 2.

Interviewee 6 mentioned with emphasis the importance of building and using one's own network in the collaboration between departments and fields of knowledge. This is emphasized by Reeves et al. (2018); Dow et al. (2017), who emphasize that networking is an integral part of inter-professional teamwork. A possible product of increased collaboration and knowledge sharing that interviewees mentioned anecdotally according to their own experience, was the increase in personal development and competency through working on projects together. Also, the new initiative "thought leadership" was brought up as a way of knowledge sharing within Atos DTC. The aforementioned challenges in increasing collaboration and knowledge sharing were corroborated, as well as the challenge of getting and keeping people involved and in line with initiatives.

In interview 7, the interviewee stressed that the thought behind seeking out collaboration between departments and their competencies should be a substantiated one. Collaborating because of the aim of more collaboration is nonsensical and needlessly time-consuming. They felt that leadership was an important factor in enabling teams or individuals to engage in collaboration with other departments.

Within interview 8, a current way of seeking the collaborative power of multiple competencies on projects is the "bench calls", where the management team comes together weekly to assess how incoming requests from customers can best be catered to. Furthermore, a point of interest brought up by the interviewee was the missing of opportunities for new work, either being projects or secondment, because of the lack of knowledge on competencies and projects of other departments. The interviewee mentioned that the insight into what other departments than one's own can offer clients would mean that opportunities for Atos to help their customers can be spotted. In a previous interview, the process of collaborating with consultants of another department on a customer project was mentioned as a way to increase both individual employee competence as well as the increasing of knowledge of competence and project of other

departments. Interviewee 8 mentioned a similar process to improve collaboration, however not "in the field" during a project conducted for and at a customer, but rather through conducting employee training together with consultants of different departments. A challenge found by the interviewee with regard to interdepartmental collaboration was the facilitating and enabling of opportunities and resources for collaboration from management.

Interviewee 9 stressed the importance of personal traits of employees in the seeking out of collaboration and the sharing of knowledge. Specifically, enabling and making optimal use of certain individuals that were the "driving force" in the collaboration between departments. Individuals that proactively seek out colleagues for their knowledge, and thereby keep initiatives rolling. As found in the literature review, the personality trait openness within company employees was furthermore found to have a positive relationship with self-reported knowledge exchange between individuals. Another study acknowledging this fact found a factor to be positively related to knowledge exchange between individuals, at least when it comes to one's self-reported knowledge exchange qualities and engagement, was openness to experience (Cabrera et al., 2006). Interviewee 10 acknowledged this, as well as the point that setting targets by management, so that collaboration and knowledge sharing is not only facilitated but stimulated. They stated that, specifically for project work, the added value for customers would increase greatly if the project team was well-put together from the start of the project.

Interviewee 11 stated that from their point of perspective on the organization, the missing of collaboration opportunities due to a skewed setting of utilization targets was not a big risk. A factor of importance however on the subject of interdepartmental collaboration and knowledge sharing was that through the increase of online contact between employees, the emotional side of communication was lessened. This decrease in offline meetings and get-togethers has a negative influence on the amount of knowledge sharing and networking in interviewee 11's opinion, as people would network less through for instance less small talk conducted with this lack of offline communication. A study by Militello (2021) found that after Covid, networking practices in business within Hong Kong had changed profoundly. Interactions through technology had increased greatly due to restrictions on social gatherings, and people within the study perceived this to result in a reduced number of new interactions, as well as a reduced quality of interactions. Both of these factors resulted in fewer new contacts within their domain.

Within interview 12 no new points of interest were mentioned that did not already have an existing code within an existing theme. This showed that the information and codes already derived from the previous interviews showed a certain degree of saturation, at least concerning the subject-specific knowledge of the interviewee.

Finally, a point of interest mentioned by interviewee 13 is the use of lessons learned in previous

and ongoing projects as sales points towards existing and new customers. If certain problems arose in projects which were successfully overcome, this knowledge can be used by Atos DTC to show customers their capabilities on a certain topic or process. This was also found in the literature review, where the importance of retaining and sharing of best practices was found to increase the quality of collaboration (Allen, 2006). A side note interviewee talked about regarding this topic is the fact that this requires the permission of customers with whom the project was conducted to share information about the process of solving their problem. This will not always be possible, as companies might prefer not to share information on a project that could give other companies insight into their way of working.

## 4.2 Data Analysis Results

From the data analysis, several interesting findings emerged. From preliminary talks with stakeholders, the problem statement from 1.3 was derived. Here it was mentioned that the need for more collaboration was felt but not always acted on and that the process of bringing together employees from different departments for projects needing multiple competencies was done in a possible sub-optimal manner. Although this was corroborated by almost all interviewed stakeholders, the way through which this assembling of competencies is done seems to be done through the right channels in most interviewees' opinion. Namely, employees with insight into where competencies and capabilities could be found, as well as the knowledge on whether or not these employees were available for a project, are often directly in the position to act on this. Should this not be the case on a certain occasion the employee who indeed can provide this information, often someone from lower management, could be consulted for this.

Throughout the interviews, the facilitating and enabling of collaboration and knowledge sharing by management was mentioned often by interviewees, both as a challenge and an opportunity. This is in correspondence with literary findings, where it was found that the managerial outlook on collaboration and knowledge sharing, its suitability with current processes and its advantages are important when it comes to the encouragement of knowledge sharing (Lin, 2007). Furthermore, the interviewees mentioned two challenges in the facilitation of collaboration and knowledge sharing between departments. Firstly, the enabling and steering by management. If management does not prioritize collaboration, and moreover does not enable their teams to be able to collaborate, it is never going to happen. This too is in correspondence with results from the literature review, where it was found that knowledge sharing support and enabling from management is associated positively with employee willingness to participate in knowledge sharing (Connelly & Kelloway, 2003). Srivastava

et al. (2006) also found that knowledge sharing among teams and members could be enabled through empowering leadership.

Enabling and making optimal use of certain individuals that were the "driving force" in the collaboration between departments was also a regularly mentioned phenomenon throughout the interviews. Individuals that proactively seek out colleagues for their knowledge, and thereby keep initiatives rolling, were seen as a strength of Atos DTC BTN. As found in the literature review, the personality trait openness within company employees was found to have a positive relationship with self-reported knowledge exchange between individuals. Another study acknowledging this fact found a factor to be positively related to knowledge exchange between individuals, at least when it comes to one's self-reported knowledge exchange qualities and engagement, was openness to experience (Cabrera et al., 2006).

Following this was another subject that was often mentioned: the importance of building and using one's own network in the collaboration between departments and fields of knowledge. This is emphasized by Reeves et al. (2018); Dow et al. (2017), who emphasize that networking is an integral part of inter-professional teamwork. Something mentioned by one of the interviewees was that the decrease in offline meetings and get-togethers has a negative influence on the amount of knowledge sharing and networking. In this interviewee's opinion, as people would network less through for instance less small talk conducted with this lack of offline communication. A study conducted on business people in Hong Kong found that the increase in online meetings had a perceived negative effect on both the amount and quality of interactions with colleagues (Militello, 2021). Although this setting is different to the one employees working at Atos DTC BTN are found in, one could assume that to some extent, the negative effects of less face-to-face contact between employees are also true for employees working within Atos DTC BTN.

Findings from the analysis of the interviews, through coding and sense-making, were used to uncover trends present throughout the interviews. Interviewees often talked about the knowledge of completed or ongoing projects at different departments or clusters within Atos DTC, with differing enthusiasm. The same was true for knowledge of competencies in different departments. Together with the opportunity identification through these factors, the 2nd order theme "knowledge gap with different departments" was derived. Interviewees also mentioned the increase in this knowledge through collaboration with colleagues from different departments, both on projects and during employee training sessions. This was grouped together into "knowledge sharing effort". The overarching dimension these themes were placed in was Knowledge sharing process. The concepts and themes that formed the basis of this aggregate dimension mostly were also found within the scientific literature, such as the importance of knowledge on projects and competencies (Munasinghe, 2001). Some



Table 4.2: Interviewee quotes illustrating derived themes.

Concept/Theme	Source	Quote
Knowledge gap with different departments	Int. 1	"You see within our organization that consultants sometimes have a narrow outlook on organizations with regards to their work, for instance very data-driven or very process-driven."
	Int. 2	"My first thought to increase insight is to take the time to really delve into the other's field of expertise."
	Int. 7	"When a possible project opportunity presents itself and you can't place it, you obviously disregard it sooner."
Knowledge sharing effort	Int. 3	"I feel we are not where we could be when it comes to the sharing of projects and specialist knowledge."
	Int. 5	"The knowledge that individuals get from participating in a training can be shared through the collaboration with different departments on projects."
interdepartmental collaboration effort	Int. 4	"Nowadays our aim is set more towards project work, and for that we work together in teams with consultants from different departments."
	Int. 2	"Employees are participating in for instance Lean training together. Through this process, they get to know each other and learn about each other's work."
Target-setting challenge	Int. 10	"What we are doing at the moment is selling larger projects and programs, and very rarely still hours on a secondment basis. In this scenario it is vital you provide a well-working team at the customer, to actually provide value for the customers. However, here the target one is required to meet should enable this."
	Int. 1	"When you are judged mostly on how your department or team delivers, you are put in a management dilemma between collective and individual targets."
	Int. 2	"The short term often gets priority over the long term"
Managerial steering	Int. 6	"Often times initially people are really involved with new initiatives, but if there is no support base it won't always be a success."
	Int. 4	"I feel success in areas such as the sharing of specific knowledge between teams is something that occurs more often when backing by management is felt."

Table 4.3: Interviewee quotes illustrating derived themes, continued.

Concept/Theme	Source	Quote
Employee strength appliance	Int. 10	"At the moment, we really depend on people with a network. When these people are not present, for instance on holiday, that knowledge is not available for use."
	Int. 6	"These initiatives are mainly kept rolling because some specific enthusiastic people are trying hard to make it work."
	Int. 7	"It depends on the quality and broadness of someone's network as well. Some people just see opportunities with more ease than others."
Organizational willingness culture	Int. 3	"I feel it also comes down to culture. Within our organization I see employees feel the option to ask someone for help or expertise is there for them."
	Int. 9	"People within our organization almost always are willing to go along with initiatives when they deem these as useful for the organization."

concepts did not coincide with what was found during the literature review or later literary searches. This is elaborated on in Section 4.3.

The from interviews derived concepts project and competence knowledge increased through the portfolio sessions formed the 2nd order concept "interdepartmental collaboration effort". "Collaboration channels" was formed from the different interdepartmental collaboration channels that employees often mentioned, namely the management bench call, own personal network or colleagues' personal network, or through in-person meetings. The aforementioned concepts and themes were used to derive the aggregate dimension of Knowledge sharing process. The concurrence of these concepts and themes forming this aggregate dimension, as well as the possible gap in between consensus in the literature and the workings within the case study at Atos DTC BTN, is also elaborated on in Section 4.3.

"Target-setting as a challenge" for engaging in IDC and KS was also a frequent point of conversation. Something that also was coded often throughout the interviews was the role of "managerial steering" in the IDC and KS enterprises. More specifically, the facilitating of knowledge sharing and retention, the following up on initiatives and the motivating of teams and individuals in this endeavour by management were mentioned often. Another point of interest was "employee strength appliance", where interviewees pointed at strengths present within Atos DTC. Finally, the culture of willingness within Atos DTC was a common

conversation topic, where interviewees mentioned the willingness within Atos DTC to help each other and share information with each other as an often-seen phenomenon. The culmination of these concepts and themes is the aggregate dimension Organizational influences on IDC and KS. A display of this data structure from 1st order concepts, to 2nd order themes, to the aggregate dimensions, can be found in Figure 4.1. Furthermore, within Tables 4.2 and 4.3 quotes illustrating the themes found through the data analysis are shown. Though the interviews with stakeholders were conducted in Dutch, these have been translated into English for the purpose of this research.

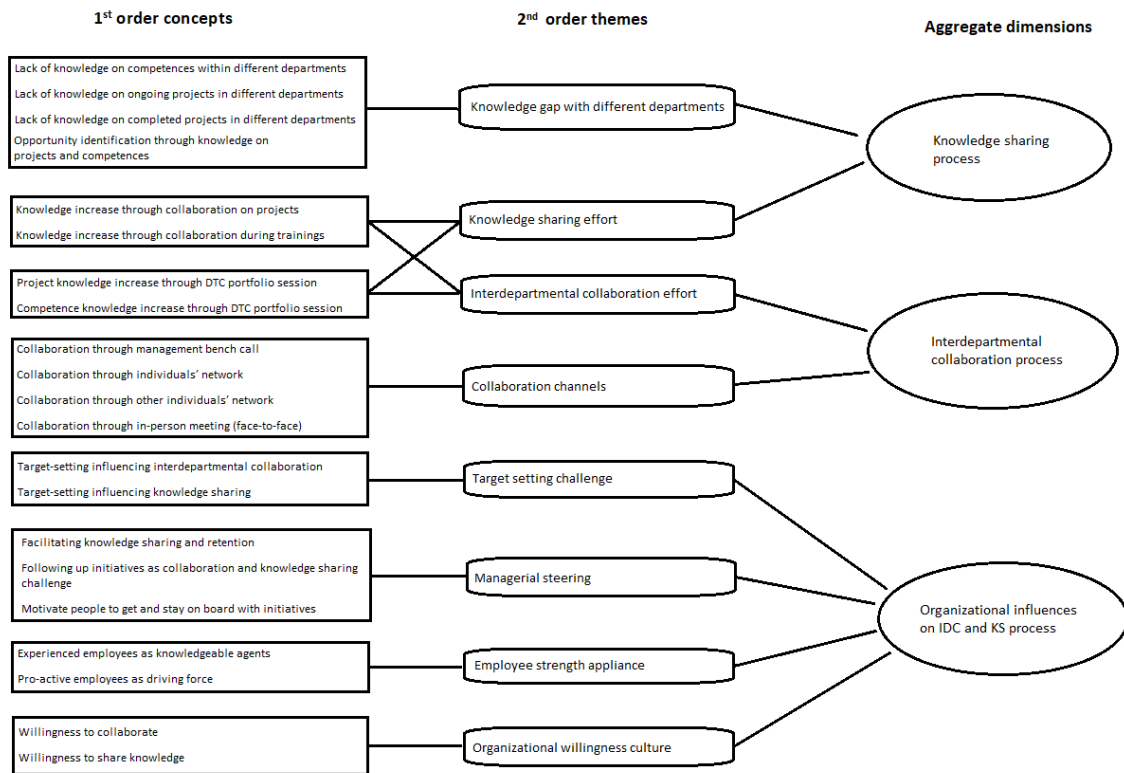


Figure 4.1: Data structure following Gioia et al. (2013).

### 4.3 Gap Analysis

An overarching theme found throughout all interviews is the motivation to collaborate and the enabling of this by management. It is shown interdepartmental goals that are perceived to be cooperative tend to ensure that employees are more open-minded towards collaborating. They tend to integrate views with that of employees of other departments in order to work at problems in a more productive and constructive manner (De Dreu et al., 2001). This

shows that goal setting is an important factor in the effectiveness of collaboration between departments. This is something that is found within this study as well, as the perceived goals are not all directly aimed at enabling this collaboration through target-setting by higher management. As the need for collaboration is indeed communicated by management, these two messages show some contradiction. Within this case study it is found that, when these two goals are in contradiction, the financial targets set seem to be held in higher esteem than the goal of collaboration on projects that are communicated by higher management.

Furthermore, the knowledge of a department's projects and competencies is important, as this helps DTC BTN stakeholders to provide more useful information on their projects when asked. This is recognised within current literature, where Munasinghe (2001) stated that knowledge of one's own area is a prerequisite for successful collaboration between different disciplines or departments. Special emphasis was placed on the fact that knowledge of an individual of departments' own limitations in this scenario (Munasinghe, 2001). This is something that did not come up during the held interviews. It may be the case that people realise this, but are more inclined to not talk about the shortcomings of their own departments.

Another point of interest brought up by multiple interviewees was the missing of opportunities for new work, either being projects or secondment, because of the lack of knowledge on competencies and projects of other departments. Interviewees mentioned the fact that a consultant's background is an important influence on how this individual looks at a company and its processes. This is something that did not follow from the literature review. Moreover, no definitive literature was found on the subject of the increase in opportunity recognition through increased knowledge.

Multiple interviewees mention the network of Atos DTC BTN consultants as an important channel through which collaboration and knowledge and information sharing take place. This finding from the case study is corroborated by the literature review, where multiple studies found the importance of connections between individuals from different departments as a way to overcome barriers and increase collaboration between departments (Reeves et al., 2018; Dow et al., 2017).

Within the case study, the importance of proactive, knowledgeable employees within Atos DTC BTN in the process of collaboration and knowledge sharing was stressed by multiple interviewees. This is known to be true, as Fjeldstad et al. (2012) found that the exploiting of knowledge that is held by individual employees and enabling this knowledge to be shared throughout the organization is one of the ways for organizations to improve knowledge sharing between departments. Literature suggests that openness to collaboration was positively related to self-reported engagement and quality of exchange in knowledge and information (Cabrera et al., 2006). This is something that is found to be present within Atos DTC BTN

and moreover used to create value within the organization.

Organizational culture was found to be important in the success of collaboration and knowledge sharing. Competition between departments is found to be a barrier to collaboration and cooperation (Schepers & Van Den Berg, 2007; Bordeianu & Lubas, 2013). Trust between departments is also a factor of importance in the process of knowledge sharing (Willem & Scarbrough, 2006). From the analysis of the interviews, the conclusion can be drawn that trust is present to a certain extent between departments. However, a form of competition between departments is instigated by the fact that departments are judged on individual targets such as team- or department utilization.

# Chapter 5

## Conclusion

This chapter contains the conclusions drawn within and from this master thesis. Firstly, in Section 5.1, the research questions from Section 1.4 are answered. In Section 5.2 the theoretical implications of the research are presented. Section 5.3 will give a summary of the managerial implications this research can provide for Atos DTC BTN. And finally, in Section 5.4 the limitations of this research will be listed, as well as areas for further research.

### 5.1 Research Conclusions

This research aimed to answer the main research question: *How to facilitate improved collaboration between departments within Atos DTC BTN?*. In the aim of answering this question, several sub-questions were formulated. Through the answering of these sub-questions, the main research question will be answered.

#### 5.1.1 Literary Findings

The first sub-question that was formulated was aimed at finding out what the consensus in the scientific literature was with regard to departments working together in organizations. Interdepartmental collaboration is an exercise that could benefit companies dealing with departmental barriers (Schütz & Bloch, 2006). Organizations could deal with divisions between departments, conscious or unconscious, but overcoming these barriers can have multiple benefits (Cilliers & Greyvenstein, 2012). Several factors are important when it comes to overcoming these boundaries and bridging the gap between departments. Organizational culture and environment can ensure a decrease in the efficiency of knowledge sharing between departments according to Hansen & Nohria (2004). The presence of an organizational culture that enables cooperation and collaboration on the other hand has proven to increase inter-departmental collaboration between departments (Bordeianu & Lubas, 2013). The bridging of cultural differences between departments is key according to Kretschmer & Puranam (2008). Interdepartmental collaboration can increase innovativeness in the way in which

organizations tackle arising problems (Lee, 2020). It can also help large firms past departmental segregation (Ma et al., 2022). A way of increasing interdepartmental collaboration is through an individuals' networks (Dow et al., 2017; Reeves et al., 2018). Furthermore, management should enable the sharing of best practices and should enable employees to have more encounters on the work floor in order to be placed in more instances where knowledge and information can be shared (Allen, 2006). A point to consider is that the increase in interdepartmental collaboration could result in unwanted effects, such as the delay or termination of projects (Cuijpers et al., 2011).

Knowledge sharing is one of the major workings with which barriers between departments can be overcome. According to Cummings (2004), the term knowledge sharing entails the sharing of task information and experience, in order to collaborate with others to develop subject knowledge, implement procedures and policies and develop new ideas and knowledge. The exploiting of knowledge that is held by individual employees and enabling this knowledge to be shared throughout the organization is one of the ways for organizations to improve in this (Fjeldstad et al., 2012). Competition amongst different individuals or departments could be a hurdle towards the sharing of knowledge between organizational stakeholders (Schepers & Van Den Berg, 2007; Willem & Scarbrough, 2006). Knowledge sharing support and enabling from management is associated positively with employee willingness to participate in knowledge sharing (Connelly & Kelloway, 2003). Srivastava et al. (2006) also found that knowledge sharing among teams and members could be enabled through empowering leadership. Besides managerial support, the support of coworkers can increase the perceived knowledge-sharing usefulness (Cabrera & Cabrera, 2002; Kulkarni et al., 2006). Informal communications between departments could also result in the creation of opportunities for knowledge sharing between departments and individuals (Cross & Cummings, 2004).

### 5.1.2 Findings Case Study: Atos DTC BTN

Within this case study conducted at Atos DTC BTN, the collaboration between departments was researched. More specifically, what is currently done to facilitate this, what key challenges are to overcome barriers towards improved collaboration, and what improvements can be made within Atos DTC BTN. From the interviews and the subsequent analysis, several workings were derived. Firstly, bi-weekly portfolio sessions are organized by management, so that the knowledge of competencies and projects from different departments can be shared with employees from every part of the organization. This enabling by management is found to be an important and positive influence on the amount and effectiveness of the sharing of knowledge between stakeholders within organizations (Connelly & Kelloway, 2003; Srivastava et al., 2006). Furthermore, the knowledge of a department's projects and competencies is

important as this is a prerequisite for successful collaboration between different disciplines or departments (Munasinghe, 2001). This knowledge on this in and of itself is important, as this helps DTC BTN stakeholders to provide more useful information on their projects when asked. This is recognised within current literature, where Munasinghe (2001) stated that knowledge of one's own area is a prerequisite for successful collaboration between different disciplines or departments. Special emphasis was placed on the fact that knowledge of the limitations one has in this scenario.

Goal-setting within Atos DTC BTN seems to be an obstacle towards improved collaboration, according to several interviewees. This is an important factor in the effectiveness of collaboration between departments, as it is shown interdepartmental goals that are perceived to be cooperative tend to ensure that employees are more open-minded towards collaborating (De Dreu et al., 2001). Something that is found within this study as well is that the perceived goals are not all directly aimed at enabling this collaboration through target-setting by higher management. Several of the employees mention that targets set by management such as utilization rates of consultants seem to contradict the message communicated by management that collaboration between departments is a priority. This could lead to a form be the basis of a form of competition between departments, where departments are looking to improve their own utilization rates before seeking out collaboration. This is found to be a barrier to collaboration and cooperation (Schepers & Van Den Berg, 2007; Bordeianu & Lubas, 2013). However, interviewees acknowledge that changes made in targets set by management regarding the productivity of the departments can have negative consequences that come along with the possible improvement in interdepartmental collaboration. Furthermore, trust between departments is present according to interviewees, which can mitigate the impact of the possible barriers present due to competition (Willem & Scarbrough, 2006).

An often-used channel for collaboration and knowledge sharing within Atos DTC BTN is the professional networks of individuals. Where this was originally thought to be a sub-optimal way of gathering knowledge and bringing together competencies, according to stakeholders interviewed during the problem statement period before the initiation of this project, the literature review showed that this was actually an effective way of collaboration (Reeves et al., 2018; Dow et al., 2017). Moreover, the importance of making use of proactive, knowledgeable employees within Atos DTC BTN in the process of collaboration and knowledge sharing was not only stressed by multiple interviewees but found in literature as well (Fjeldstad et al., 2012).



## 5.2 Scientific Implications

Within this section, the scientific implications of this research are elaborated on. More specifically research question 5, which was stated as *What literature gap is filled through this research?*, will be answered.

As stated in Section 4.3, no applicable literature was found on the missing of opportunities for new projects because of the lack of knowledge on competencies and projects of other departments. The qualitative data analysis conducted within the case study at Atos DTC BTN showed that the stakeholders that were interviewed felt that more opportunities for projects at customers could be brought into the firm when knowledge on competencies and projects of departments other than their own was present. This "looking through someone else's glasses", came down to taking someone else's outlook on organizational processes and problems, which could be beneficial for a consultancy company consisting of different departments with different competencies. This study showed that the increase in individuals' knowledge of company competencies and projects, more specifically knowledge on these subjects when it comes to departments where the individuals are not situated, is perceived as an area of great opportunity within consultancy. Future research should be done to see what further benefits this could bring organizations such as the one that was studied within this research.

Much of the literary findings from Chapter 3 however were found to be applicable to the setting Atos DTC BTN is in. Much of the literature was written on organizations in the public sector, and the large degree of applicability of this literature on an organization within the consultancy domain is an interesting find. Srivastava et al. (2006) and Connelly & Kelloway (2003) found that knowledge sharing among teams and members could be enabled through empowering leadership. Besides managerial support, the support of coworkers can increase the perceived knowledge-sharing usefulness (Cabrera & Cabrera, 2002; Kulkarni et al., 2006). At least within the setting of this case study, through this research, this was also found to be true within consultancy organizations. Another factor of importance in overcoming barriers and increasing collaboration departments found within the literature review is the professional networks of employees as a channel for collaboration (Reeves et al., 2018; Dow et al., 2017). This was also found to be a positive influence on the amount of collaboration and knowledge sharing between departments within a consultancy firm such as Atos. The literature review also showed the importance of exploiting the knowledge held by individual employees, and enabling of these individuals in the endeavour of sharing this knowledge (Fjeldstad et al., 2012). This was also stressed as a factor of high importance in process of collaboration and knowledge sharing within Atos DTC BTN. The generalizability of these findings beyond this

case study towards the consultancy industry is something that should be a topic of further research

### 5.3 Managerial Implications

Collaboration between departments is something that is partly contradictory to the current target-setting within Atos DTC BTN. Employees seem to be intrinsically motivated to collaborate with different departments with different competencies when they see this as useful for either Atos DTC BTN or their respective customers, where usefulness for these two parties often even goes hand in hand. This motivation should be nurtured by management, and ways of motivating employees to continue seeking this out for themselves should be a point of continuous attention. A possibility for future research on this subject is the influence of changes in target-setting on the balance between profitability and value addition for Atos DTC BTN and their customers.

Furthermore, research of literature on collaboration showed that the personality trait openness among company employees was found to have a positive relation with self-reported knowledge exchange between individuals. Another study acknowledging this fact found a factor to be positively related to knowledge exchange between individuals, at least when it comes to one's self-reported knowledge exchange qualities and engagement, was openness to experience (Cabrera et al., 2006). A factor that came forward often in the analysis of the qualitative data was that experienced employees were used within Atos DTC BTN as knowledgeable agents, and that pro-active employees were often the driving force in the initiation and keeping up of collaboration initiatives. This is coincided within literature, where the exploiting of knowledge that is held by individual employees and enabling this knowledge to be shared throughout the organization is one of the ways for organizations to improve knowledge sharing between departments (Fjeldstad et al., 2012). Management should enable these employees by proactively motivating and enabling them in their efforts of bringing together people and their competencies so that they do not lose their intrinsic motivation to promote the collaboration of different departments within Atos DTC BTN.

Another place where knowledge sharing could be set within organizations is in networks that exist within organizations, such as communities of practice (Cross & Cummings, 2004). Within such networks, and with the coexistence of the social facets of such networks, knowledge transferring and the quality of this transferred knowledge can be enhanced Yuan et al. (2020). This relates closely to the Thought Leadership initiative that has been set up in recent months. Communities such as these show to have great benefits, and management within Atos DTC BTN should invest in this initiative, and enable their employees to participate

in these initiatives, which can provide growth for individual employees as well as Atos DTC BTN as a collective.

Closely linked to this is the importance of social interactions between individuals as a way of increasing individuals' networks. As mentioned by interviewees, and found in a study on the effect on the amount and quality of interactions with colleagues (Militello, 2021), face-to-face contact can be of large importance in creating and sustaining social networks. Although this setting is different to the one employees working at Atos DTC BTN are found in, one could assume that to some extent, the negative effects of less face-to-face contact between employees are also true for them.

Another factor that should be paid attention to is the increased sense of importance among employees regarding why knowledge sharing of own competencies and projects, as well as the importance of having knowledge on these subjects from different departments, matters. Management within Atos DTC BTN should continue with current projects that enable collaboration and knowledge sharing such as the bi-weekly portfolio sessions, as these are perceived as useful tools for gaining insight into competencies within Atos DTC by all interviewees. This enabling and support from management is positively associated with employee willingness to participate, as found by Connelly & Kelloway (2003).

## 5.4 Limitations

As the interview phase of this research was planned to be largely conducted during the summer holiday period, and later interviews planned were dependent on the responses of the first interviews, the first 5 interviews were planned as soon as the research proposal was approved. This was done to mitigate the risk of getting in time trouble due to interviewees being out of office or being on summer holiday. This however meant that the timeline for literary research done in order to set up the interview schedule was on the short side. More literary research before the start of these interviews could have resulted in more insight into relevant topics, and therefore possibly retrieving richer data from the interviews.

Furthermore, more in-depth information could have been extracted from the interviews if coding and analyzing of the data had started sooner. Due to problems with the licensing of the qualitative data analysis tool NVivo, more interviews than planned were conducted before the qualitative data analysis commenced. This resulted in themes that were derived during the analysis not getting the attention they could have had during later interviews should these processes have been conducted in a more parallel manner.

Although within the research the aim was to consciously try to keep a neutral outlook on

the problem, the risk of adopting the views of the interviewees on the discussed subjects was always present. Even though throughout the interviews and the analysis of these interviews the attempt was made to continuously keep somewhat of a bird's eye view on the problem scope, for instance by "zooming out" every now and then to ensure the steps taken in the research process were in line with the research questions and methodology, it can not be said with certainty that the results from the analysis have not been influenced by this factor.

As stated in 1.3, according to Yin (2009), a single case study is the best choice when the subject of research is a single-framed group. Although generally the advantages of multiple case studies over single case studies are commended, single-case studies are given the upper hand when it comes to the amount of detail that can be derived regarding the subject of the research (Eisenhardt & Graebner, 2007). It can result in a deeper understanding of complex social behaviours and phenomena out of contextualized findings from rich data (Ridder et al., 2009). However, Yin (2009) also states that for analytical generalizability of results found from single-case studies, the appliance of derived theoretical constructs on similar situations where similar concepts possibly are relevant should be conducted. Therefore, in order to make the claim that findings from this case study at Atos DTC BTN are generalizable onto similar organizations within the IT consultancy industry, the applying of the found constructs on these similar organizations is something that should be conducted in future research.

A point for further research where this could be applied is the dynamics between different Atos DTC branches, and whether they are comparable with dynamics found within Atos DTC BTN. For this research, only the DTC department of the Benelux and the Nordics (BTN) was considered. However, during several of the interviews, problems with communication and collaboration with DTC departments in other parts of the world were mentioned. The dynamics between different DTC departments and improvements in these relationships could be interesting topics for further research.

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