MASTER'S THESIS

Facilitating Effective Co-Evolutionary IS-Alignment Interactions in the Operational Context of IT Projects in the Public Accounting Sector

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Facilitating Effective Co-Evolutionary IS-Alignment Interactions in the Operational Context of IT Projects in the Public Accounting Sector

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Abstract

While IT is becoming increasingly important to the public accounting sector, it proves to be challenging to apply IT in a timely and appropriate way. Many stakeholders must interact to align their needs and requirements in complex conditions such as rapid change, unpredictability, and strict regulations. Our research adopts the Co-Evolutionary IS-Alignment (COISA) approach (Walraven et al., 2019) to explore how effective COISA interactions can be facilitated in the operational context of IT projects in the public accounting sector. Adopting a qualitative single case study research design, we interviewed five stakeholders in the operational context of an IT project in a public accounting firm in the Netherlands. Our study shows that many facilitators found in other research settings apply to the public accounting sector. Effective COISA interactions can be facilitated by involving the right stakeholders. Stakeholders must be motivated and need appropriate time and tools. Documents can help structure the alignment process, but ultimately effective alignment is about effective communication between stakeholders. We conclude that COISA facilitators must be tailored based on the complexities that make alignment difficult. Future research should determine how facilitators can best be adapted to different contexts.

Key terms

Co-evolutionary IS-alignment, Operational Context, Public Accountancy

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1 Introduction

1.1 Background and motivation

New emerging and converging technologies have fundamentally changed the public accounting sector (Hina, 2016). Technology and data have become critical and in most areas standardization and automation have become the new standard. (Pankov & Kozhukhov, 2020). More traditionally, the public accountants only came in after the financial year to audit the financial statements based on paper documents, sample testing, and manual calculations. Nowadays, the public accountancy sector is shifting towards a new digital era of technology-enabled, artificial intelligence, robotics automation, smart, and near real-time audits (Cao et al., 2015; Chan & Vasarhelyi, 2011; Hina, 2016; Shore, 2020).

While the public accountancy sector is certainly not the only industry in a digital transformation, it does have several complexities. In recent years, regulators, investors, businesses, and society are expecting more and more from public accountants. For instance, the regulatory requirements for accountants have become stricter due to uncovered fraud scandals and audit failures (Shore, 2020). At the same time, the businesses that are audited by accountants are rapidly changing themselves and operating in more international, dynamic, and competitive environments which makes auditing them more difficult (Ningtyas & Dewantoro, 2020). Besides that, accountants are now also expected to look beyond the financials by performing audit procedures on topics such as sustainability and corporate responsibility (Kaspina & Samoilova, 2020). The public accounting sector struggles to meet these ever-growing expectations, which is also referred to as the audit expectation gap (Nwaobia et al., 2016).

Fortunately, digital solutions provide new opportunities to do accounting more effectively (Pankov & Kozhukhov, 2020). According to the Association of Chartered Certified Accountants (ACCA), the global body for accountants, IT is seen as the ultimate answer (ACCA, 2016). For instance, a recent ACCA survey identified the introduction of intelligent accounting systems as the largest expected impact on the sector (2016). Furthermore, robotics process automation (RPA) solutions are used to automate processes that "*are repetitive, prone to error, rules-based, time-critical and use digital data*". It is estimated that over 56% of the processes in accountancy can be automated (Mutlak, 2018, p. 3). RPA and other IT solutions, also known as generalized audit software (GAS) or computer-assisted audit tools (CAATs), are therefore widely embraced by the accounting sector (Pankov & Kozhukhov, 2020).

Despite that IT can have a positive impact, it proves to be challenging to successfully implement new IT. It requires knowledge and input from many stakeholders with both IT and business backgrounds. Stakeholders have different (sometimes opposing) needs and requirements from IT and must interact to align their needs. Literature has long recognized the importance of effective business-IT alignment (BITA), referring to the application of IT in a timely and appropriate way, in IT success (Luftman & Brier, 1999; Zhang et al., 2019). However, more recent studies suggest that in complex situations (e.g. rapid changes and unpredictability), the traditional BITA models tend to be less appropriate (Ghosh & Scott, 2014; Walraven et al., 2020). As illustrated, such complexity is present in the public accounting sector, in which a combination of rapid change, many stakeholders, and strict regulations make BITA complex.

A perhaps more suitable approach for BITA in the complex setting of the public accountancy sector is the co-evolutionary information systems-alignment (COISA) theory (Amarilli et al., 2017). COISA is a relatively new BITA theory originating from complex adaptive systems (CAS) literature (Amarilli et al., 2016; Walraven et al., 2018). In COISA theory, alignment is viewed more dynamically, recognizing that alignment is not a fixed state but a rather continuous process that can change over time (Fukuyama & Holland, 1996; Leonard, 2008). In academic literature, COSIA is defined as: *"Continuously exercised alignment processes, characterized by co-evolutionary interactions between different IS stakeholders, in pursuit of a common interpretation and implementation of what it means to apply IT in an*

appropriate and timely way, in harmony with business strategies, goals, and needs" (Walraven et al., 2020, p. 4). The COISA approach attempts to understand how stakeholders can effectively achieve and sustain alignment of business-IT needs and requirements in complex situations (Amarilli et al., 2017).

A recent study by Walraven et al. (2019) found COISA an appropriate lens to understand the alignment processes at complex Electronic Medical Record (EMR) implementations in 3 hospitals. In their earlier work, they had already identified five COISA processes: strategy formulation, strategy implementation (*strategic context*), IT implementation, IT usage (*operational context*), and enterprise architecture management (EAM) bridging both contexts (Walraven et al., 2018). Their work suggests that COISA enables a better understanding of IS-alignment in complex situations. More recently, Walraven et al. (2020) identified facilitator groups that can improve the effectiveness of COISA interactions: alignment motivation, stakeholder involvement, interconnections, and alignment decisions. The presence of such COISA facilitators seems to boost the effectiveness of COISA interactions (Walraven et al., 2020).

While the results of the COISA facilitators in hospitals are promising, we do not know if this also applies in the context of the public accountancy sector. Hospitals and accountancy are both complex sectors, but there are significant differences between them. Hospitals are in the public sector, while the public accounting sector (as opposed to its name) is a private sector. They have different cultures, activities, and goals (e.g. profitability vs healthcare quality) (Rus & Rusu, 2015). Therefore, we do not know if the COISA facilitators that are effective in hospitals are also applicable in the public accountancy context. Besides that, there can be other facilitators that have not been previously identified in the literature. The overall lack of research on COISA is limiting the conclusions that can be drawn upon it. This is why Walraven et al. (2020) call for further research to address COISA facilitation in other complex settings.

1.2 Research objective and question

The aim of this research is to understand how stakeholders can effectively align business-IT needs and requirements in IT projects in the public accountancy sector. Alignment is very important for the public accounting sector given the growing expectations and complexity of the sector. This combined with the need to rapidly digitalize to meet growing expectations make this an interesting sector to address COISA. To ensure feasibility, we will focus on the operational context of COISA, comprising of the IT implementation and IT-usage processes. This operational context is more complex as it involves more stakeholders and mechanisms, for which COISA is particularly suitable, and most previous studies have already focussed on BITA in the strategic context (Walraven et al., 2019). Focussing on the operational context of COISA therefore assures feasibility while still making a relevant contribution to the body of COISA knowledge. Moreover, this research is relevant to practitioners in public accounting who seek effective alignment in their IT projects. Accordingly, the following research question was formulated:

RQ: *How can effective co-evolutionary IS-alignment interactions be facilitated in the operational context of IT projects in the public accountancy sector?*

1.3 Main lines of approach

This chapter has established the relevance and objectives of this research. The rest of this paper has been structured as follows. In chapter 2, the theoretical framework is developed around theories on effective COISA facilitation in the context of the public accountancy sector. In chapter 3, the interview-based single case study methodology is discussed and presented. Chapter 4 presents the empirical results, and chapter 5 answers the research question and discusses the wider implications of the study.

2 Theoretical framework

2.1 Literature review approach

The objective of this research is to investigate how effective COISA interactions can be facilitated in the operational context of IT projects in the public accountancy sector. Accordingly, this chapter is organized around the literature on COISA theory and COISA facilitators in light of public accounting. A structured approach with 3 search methods was executed to find relevant articles. The following criteria were used to evaluate the appropriateness of articles. Only peer-reviewed work is considered to ensure sufficient quality. Primarily articles published in the past decade are considered, except for some older ground theories. The titles or abstracts must contain one or more keywords in the building block method (see table 2.1) and articles have to contribute towards answering the research question.

The structured literature review progressed as follows. At the start, backward snowballing was applied to find citations in a relevant article. This research aims to partly reconcile the findings of Walraven et al. (2020) to the public accounting context. Therefore, Walraven et al. (2020) was used to start the backward snowballing to enable some comparison and ensure conceptual consistency. Based on the above search criteria, 10 articles were selected in this article. The articles were accessed with the Open University library and thoroughly read to form the foundation of our theoretical framework. Secondly, forward snowballing was used to consider more recent publications that cite relevant articles. This did however not result in any new articles relevant to our study, probably due to the novelty of the topics.

Third, the building block method was used to find relevant articles using search queries. While the snowballing methods resulted in sufficient articles on COISA and BITA, specific articles on IS-alignment in the public accounting sector were missing. The search function in the Web of Science, which covers many scientific journals, was used to run our queries. The queries are based on keyword stems derived from the topics in our research question (see table 2.1) and search criteria (see above). Unfortunately, no articles were found related to both COISA or BITA and accountancy. Therefore, we broadened our search strategy to also consider articles on IT in accounting, but not necessarily on COISA or BITA. This resulted in 19 articles, out of which two were selected based on our relevant criterium. Subsequently, the backward snowballing method was used again to find four relevant articles through these articles. A complete overview of all the literature used in this theoretical framework is included in appendix 1.

COISA interactions	AND	**Effective facilitation**	AND	**IT projects**	AND	**Public Accounting**
Align*		Determin*		Software*		Audit*
Adapt*		Factor*		Computer*		Account*
Co-evol*	OR	Effective*	OR	CAAT*	OR	
Complex*		Success*		Digital*		
Adopt*		Facilitat*		Technolog*		

Table 2.1 Building block keyword stems

2.2 Results and conclusions

2.2.1 Co-evolutionary IS-alignment interactions

This research adopts COISA as a theoretical lens to understand the IS-alignment interactions between stakeholders in a complex environment. As previously explained, COISA originates from CAS-based IS literature which is focused on IS-alignment under complex conditions (Allen & Varga, 2006; Amarilli et al., 2016). The CAS literature is based on the complexity theory, in which organizational complexity is conceptualized by features as non-linearity, co-evolution, interdependence, self-organizing and multi-layered networks (Anderson, 1999; Onik et al., 2017). This conceptualization of complexity enables a deeper understanding of IS-alignment in complex conditions (Amarilli et al., 2016; Zhang et al., 2019).

In COISA literature, BITA is seen as an "*interpretation and implementation across stakeholders of what it means to apply IT in an appropriate and timely manner*" (Luftman & Brier, 1999, p. 109). Benbya & McKelvey (2006) first introduced a co-evolutionary view on BITA, in which IS-alignment is continuously evolving through two-way interactions across multiple stakeholders. Their model uses a multi-layered approach to explain alignment, by focusing on co-evolution on strategic, operational, and individual levels between business and IT (Benbya & McKelvey, 2006). While this model identifies COISA principles, it does not sufficiently address interactions and is therefore not appropriate for this study.

Amarilli et al. (2017) adopted this multi-layered co-evolutionary approach to identify mechanisms and enablers of IS-alignment. These mechanisms and enablers attempt to explain what preconditions are needed to align effectively. For instance, involving the right actors, having shared domain knowledge, a clear budget, project portfolio management, top management commitment, and effective reporting structures improve alignment (Amarilli et al., 2017). However, the mechanisms and enablers are based on traditional BITA literature and do not focus on co-evolutionary interactions in complex conditions.

While Benbya & McKelvey (2006) and Amarilli et al. (2017) both provide relevant insights into COISA, they do not explain how COISA interactions manifest. Therefore, building on both models, Walraven et al. (2018) developed the COISA model consisting of 5 processes in which COISA takes place: strategy formulation, strategy implementation, enterprise architecture management, IT implementation, and IT usage (see figure 2.1). This conceptualization of COISA gives a holistic and explicit understanding of how COISA manifests and is therefore considered a more suitable basis for our theoretical framework.

Walraven et al. (2020) define COISA as *"continuously exercised alignment processes, characterized by co-evolutionary interactions between different IS stakeholders, in pursuit of a common interpretation and implementation of what it means to apply IT in an appropriate and timely way, in harmony with business strategies, goals, and needs"* (p. 4). We are focused on the operational context of COISA, comprising IT implementation and IT usage. For consistency, we will also include the Walraven et al. (2019) definitions for these 2 processes: IT implementation is "*the process of embedding an IT solution within an organization*" and IT usage is "*the process of employing a system to perform a task*" (p. 9).

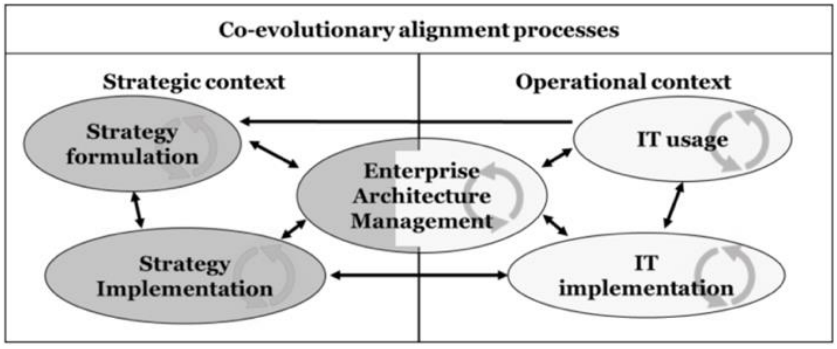

Figure 2.1 COISA processes (adopted from Walraven et al. (2018))

Various articles on COISA in IT projects already described how co-evolutionary interactions can occur within the operational context. For example, Wagner et al. (2010) describe how incremental changes were made based on user feedback after the IT implementation. Goh et al. (2011) studied COISA in a hospital IT implementation and identified three stages in which COISA interactions manifest in the operational context (refer to figure 2.2 below to see the relationships between the stages). In the pre-implementation stage, actors first *"form initial symbolic expressions about the new system and plan changes to existing routines".* Next, in the transition stage, actors *"focus on restoring essential functions of routines*". Third, in the refinement stage, actors "*explore and fine-tune new capabilities".* Stakeholders learn and interact in these 3 stages to co-evolve the IT over time (Goh et al., 2011, p 10).

The stages by Goh et al. (2011) are a relevant extension to the operational COISA context, as it explains how co-evolutionary interactions occur before, between and after the IT implementation and usage processes. The pre-implementation stage by Goh et al. (2011) starts before the IT-implementation phase of Walraven et. al (2018). Business and IT stakeholders on an operational level interact to plan for an aligned implementation (*pre-implementation*). Once the IT is embedded and during the usage, stakeholders continue to interact to resolve any issues or bugs they encounter (*transition*). Even after the IT-usage phase, involved stakeholders evaluate the project to identify opportunities to improve the IT over time (*refinement*). Our study will explore how the facilitators apply to the different stages.

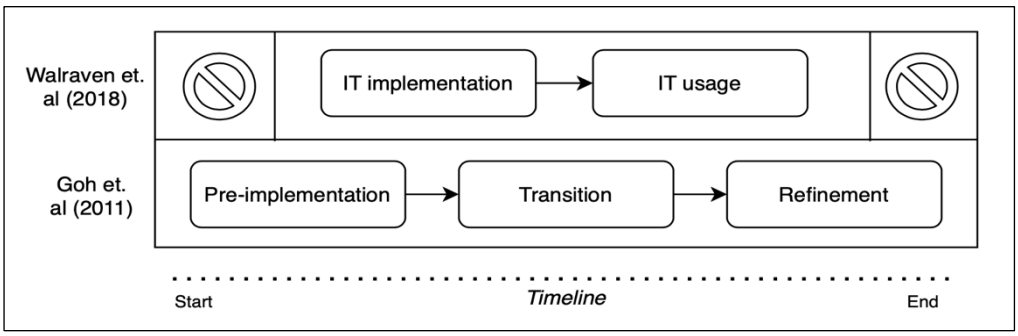

Figure 2.2 Connection phases Goh et. al (2011) and Walraven et. al (2018)

The COISA model distinguishes between 3 types of stakeholders: business-, IT- and external (Walraven et al., 2018). Stakeholders are *"individuals, groups, or organizations, who may affect, be affected by, or perceive to be affected by a decision, activity, or outcome of a project"* (Rose, 2013, p 30). While it varies per firm, and project, typical accounting IT project stakeholders are IT actors (e.g., developers and vendors) and business actors (e.g., audit teams, clients, specialists) (Rosli et al., 2013; Hancock et al., 2009). External actors (e.g., regulators and clients) are not directly involved in projects but can affect or be affected by project decisions (Curtis & Payne, 2008). External actors will not be covered in this study to remain focused on the operational context of COISA. It is important to mention that public accounting firms are hierarchical, in which high-level partners and directors are mainly involved in the strategic context and lower-leveled associates and managers in the operational context (Curtis & Payne, 2008). Ergo, our focus is on operational COISA interactions as illustrated below in figure 2.3.

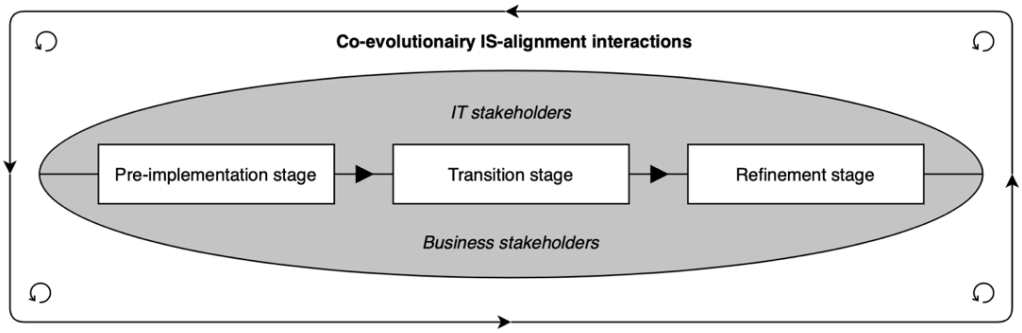

Figure 2.3: COISA interactions between direct stakeholders in the operational context

2.2.2 Facilitating effective COISA interactions in public accounting

Having conceptualized COISA interactions, we will now discuss literature on facilitating effective COISA interactions. Walraven et al. (2020) identified 4 facilitator groups for effective COISA interactions in public hospitals: alignment motivation, stakeholder involvement, interconnections, and alignment decisions. The COISA facilitators incorporate the COISA mechanisms by Amarilli et al. (2017) and CAS-based articles focused on effective decision making and alignment (Benbya & McKelvey, 2006; Zhang et al., 2019). The COISA facilitator groups will be discussed in the context of public accountancy below.

The first facilitator group, alignment motivation, relates to why stakeholders are motivated to engage in COISA interactions. Walraven et al. (2020) found *"accountability & mandate, planning & monitoring, intrinsic motivation of actors, perceived benefits, (prevention of) misalignments, and legal obligations"* across all COISA processes. They identified "*executive management support and leadership*" and "*compensating actors for involved time*" in the strategic context only and "*user-training*" in IT usage. Similar motivators are found in articles on IT adoption in accounting. Curtis & Payne (2008) studied contextual factors and individual characteristics affecting IT adoption decisions in auditing. Auditors are more likely to implement new technology when they are aware that partners encourage new IT implementations. These facilitators correspond to factors facilitating IT adoption in public accounting, such as IT understanding, perceived benefits, user training, and social factors (Curtis & Payne, 2008).

The second facilitator group, stakeholder involvement, relates to who is involved in COISA processes. Walraven et al. (2020) describe *"different perspectives represented (e.g., different disciplines), internal & external actors, champions/motivators 'translators', and actors with subject matter knowledge"* in all processes. Other facilitators are "*unofficial leaders*" and involving actors open to perspectives and with experience from related projects or systems. Pedrosa et al. (2020) describe similar facilitators in their research on determinants of CAATs adoption in auditing, such as the involvement of leadership and stakeholders with relevant experience from related projects. Furthermore, Curtis & Payne (2008) describe that leadership involvement can reduce time pressure which limits IT adoption in accounting.

The third facilitator group, interconnections, addresses how COISA interactions manifest. Walraven et al. (2020) identified "*formal governance, transparency, existing informal networks, and supporting tools*" as facilitators across all COISA processes. This involves knowing where knowledge is and having support available. Having a "*common language*" is also important to effectively align, especially with stakeholders of different backgrounds. Supporting tools also include means of communication, such as communication platforms, which can facilitate co-evolution. They also found physical spaces and creating informal networks (i.e., connecting actors that normally would not interact) as facilitators. An important consideration in accounting is the hierarchical nature, in which interactions usually take place on the same functional level. This could also affect co-evolutionary interactions in accounting, as individual decisions are heavily influenced by the known views of superiors (Curtis & Payne, 2008).

The last facilitator group described by Walraven et al. (2020), alignment decisions, relates to other decisions that enhance the effectiveness of COISA interactions. They identify "*common guidelines, central coordination, emergent decision-making, and having a technical infrastructure*" as facilitators. Common guidelines are rules that ensure that the IT implementation and usage are compliant with the policies. Central coordination refers to stakeholders that can reconcile the interests of individual stakeholders to the wider interest of the organization. Emergent decision-making refers to allowing decentralized decisions, trusting the stakeholder's ability to make the right decisions. Finally, the technical infrastructure must be able to support testing environments and technical requirements. Similar facilitators are found in the literature on IT adoption in accounting. Bierstaker et al. (2014) describe organizational and technical infrastructures and Siew et al. (2020) guidelines and central coordination. These IT adoption facilitators might also provide valuable insights for COISA facilitators.

2.3 The objective of the follow-up research

This theoretical framework has conceptualized COISA interactions and discussed facilitators of COISA interactions. Follow-up research must shed light on which facilitators are applicable to IT projects in the public accounting sector. Empirical evidence must be obtained to identify if facilitators facilitate COISA interactions and to explore if any new facilitators can be found. This will provide an answer to how COISA interactions can be facilitated in the operational context of IT projects in public accounting.

3 Methodology

3.1 Research design

This research adopts a qualitative and explorative research design. Explorative research *"is particularly useful to clarify understanding of an issue, problem or phenomenon, when you are unsure of its precise nature"* (Saunders et al., 2018, p 187). This applies to the COISA facilitation topic as few studies have addressed it and none in the accounting context. Qualitative research in turn suits explorative studies as it gives a deeper understanding and generates new ideas (Schaefer & Alvesson, 2020). Our research philosophy is a mix of positivism and interpretivism. On the one hand, COISA attempts to measure and observe facts (positivism) leading towards IS-alignment. However, COISA inherently means different things to different persons in different contexts making interpretivism suitable (Saunders et al., 2018). This research attempts to understand COISA facilitators while taking contextual factors into account.

Our approach is mainly deductive as concepts and reasoning are theory-driven. However, to provide a holistic answer to our research question, we will also examine if other facilitators can be induced in the data that are not described in the literature. The single case study research method is used, which is an *"in-depth inquiry into a topic or phenomenon within its real-life setting"* (Saunders et al., 2018, p 196). Case studies cannot generate generalizable knowledge but are valued for their rich empirical descriptions and the development of the theory (Yin, 2018). This suits our objective and design. The choice for a single case and a cross-sectional time horizon is for feasibility since multiple cases and longitudinal research would have enabled comparison to enhance validity. To mitigate this limitation, our findings are compared to Walraven et al. (2020) to identify and discuss similarities and differences.

3.2 Case description

Our unit of analysis is one IT project in the public accounting sector. The case organization is a leading public accountancy firm with operations in over 150 countries and over 275.000 employees. The case study is conducted in The Netherlands, in which the organization employs over 5.000 employees and offers audit, assurance, consulting, and tax services. Within its public accounting department, the case organization has recently started the Digital Centre (DC) project. The aim of this project is to develop and implement RPA solutions to automate business processes in the public accounting line of service.

The project involves extensive collaboration across stakeholders from both IT and business disciplines. Business stakeholders from the accounting department can propose new processes to be automated and are the end-users of RPA solutions. Business cases are assessed by the DC team and, if approved, assigned to the RPA developer team. RPA developers are IT stakeholders responsible for coding and implementing RPA solutions. Throughout RPA development and implementation, the business- and IT stakeholders must interact to align their needs and requirements. This case fits our research objective and can be classified as a typical IT project within public accounting, as is recommended by Yin (2018).

3.3 Technical design

Data will be systematically collected in semi-structured interviews. In semi-structured interviews, the interviewer asks questions based on pre-determined topics that guide the interview. Open interviews would lack structure since data must be collected about groups of facilitators deduced from literature. Alternatively, structured interviews lack the depth required in this explorative and qualitative study. The semi-structured interviews are most suitable as they allow for probing questions to gain a deeper understanding of the topic. No other methods were used due to limited time and resources available.

A total of 5 interviews (refer to table 3.1) were conducted with stakeholders that were selected using multiple criteria. To cover both IT and business perspectives sufficiently, two IT- and two business

stakeholders were selected. One RPA coordinator involved with both business and IT was interviewed to balance both perspectives and to get deeper insights into the interactions between both disciplines. Only stakeholders between associate and manager level were interviewed. As previously discussed, higher-ranked partners and directors are less involved in the operational context. Any lower-ranked stakeholders are less involved with decision-making and interdepartmental interactions. The above criteria enhance internal validity as most operational IS-alignment interactions manifest between these roles on this seniority level. The small sample size reduces external validity and reliability but is no issue given our qualitative nature and interpretative paradigm. It is recognized that small sample sizes in single case studies can be highly informative and meaningful in qualitative research (Boddy, 2016). The interviews averaged one hour and were conducted using Google Meet video chats. The interviewees signed written consent forms and gave their explicit permission to record the interviews.

#	Function	Discipline	Seniority	Operational involvement
1	*RPA developer*	*IT*	*Senior associate*	*IT-implementation*
2	*RPA developer*	*IT*	*Associate*	*IT-implementation*
3	*RPA coordinator*	*Business/IT*	*Senior associate*	*IT-implementation/IT-usage*
4	*Audit manager*	*Business*	*Manager*	*IT-usage*
5	*Audit support*	*Business*	*Senior associate*	*IT-usage*

Table 3.1: Interviews overview

Multiple measures were taken to enhance data quality, as recommended by Saunders et al. (2018). The interviews began with open and general themes related to the roles and project. As the interviews progressed, more in-depth (probing) questions were asked about interactions and decision-making, and how this contributed to effective IS-alignment. To enable some theoretical discussion and to guide the interviews a bit, several questions were asked around the facilitator groups found in the literature. However, explicit COISA definitions were avoided in questions as these are difficult to understand. The interview guide that was used to organize the interviews is found in appendix 2. Four interviews were conducted in Dutch and one interview in English to match the native language of the participants. To limit interviewer bias, questions were asked in a neutral tone. Furthermore, since the interviewer is directly involved in the case project, interviewees were asked to answer questions as if the interviewer was an outsider. Finally, the interviewees are aware of anonymity to avoid socially desirable answers.

3.4 Coding and analysis

The interview data has been analyzed using qualitative coding. First, the data was prepared for analysis by transcription, that is a *"reproduced verbatim as a word-processed account"* (Saunders et al., 2018, p. 644). Following suggestions by Saldaña (2016), meanings, recurring themes, and patterns were first identified to become familiar with the data. Secondly, codes were assigned to transcript excerpts to "*categorize data with similar meaning*" using an iterative and hybrid process (Saunders et al., 2018, p. 653). The codes were first assigned using a deductive approach by looking for facilitators found in the literature. This fits our positivistic approach which attempts to observe COISA facilitators. Finally, an inductive approach will be used to examine if new facilitators can be identified in the interview data. Besides analysing the COISA facilitators, their relationship to the operational context will be examined. A coding book with examples can be found in appendix 3 to support our results and chain of evidence.

4 Results

4.1 Alignment motivation

The first group of facilitators relates to why stakeholders engage in COISA interactions. The following facilitators were identified: (1) accountability and mandate, (2) planning and monitoring, (3) intrinsic motivation of actors, (4) perceived RPA benefits, (5) (prevention of) misalignments, (6) end-user training, (7) compliance policies and (8) time availability. Each facilitator is described in detail below.

Accountability and mandate relate to the fact that certain positions are responsible and accountable for certain processes and decisions. Within the case organization, certain roles have the authority to make decisions about business processes or applications and must be involved with the interactions to ensure that the needs of the organization are fulfilled. For example, one interviewee mentioned that several documents require signatures from certain stakeholders which forces them to be involved. Alternatively, sometimes the management team appoints people to be involved with the RPA project. Or as one interviewee stated: *"Management says: Here is the idea and you will do it."* According to that person, the involvement on mandate can sometimes have an adverse effect on the alignment interactions since that person may sometimes lack intrinsic motivation. If the other person does not intrinsically want to be involved, it can demotivate the other stakeholders and reduce the effectiveness of interactions. This is further described in the stakeholder involvement section (p. 12).

The ***intrinsic motivation of actors*** is mentioned by all interviewees as one of the most critical factors to facilitate IS-alignment interactions. People have "*fun*" working on RPA projects and it makes them feel that they are *"part of something bigger"*. Having the opportunity to learn new things and to interact with persons from different departments (e.g., business and IT) excites people to engage in the interactions. This is also deemed very important to deliver high-quality solutions, as people need to think beyond their own silos and collaborate with other people to get the best outcome. Be proactive and have a positive attitude, as one stakeholder mentioned: *"It's about showing that you go for it completely, that you are excited and want to fight to make it happen".* Higher intrinsic motivation can also boost the intrinsic motivation of other stakeholders. When people are motivated, it builds goodwill and respect so when you need something, others respect you and will interact with you. Vice versa, a lack of intrinsic motivation can have an adverse effect, as one interviewee stated: *"We thought its important and high priority for them. But if they don't give priority, why should we spend our time?"*

Another reason to engage in COISA interactions is to ***plan and monitor*** the RPA project status. People want to know where they are standing in terms of development and reaching deadlines. Especially whilst working from home it is important to have those meetings since there are fewer spontaneous meetings in which updates are given. The interactions also enable stakeholders to get everyone on the same page, by giving updates on the current project status. One interviewee noted that it is about answering *"Where are we standing, where are we going?".* Besides the project updates, monitoring on technical aspects is also mentioned in one of the interviews, as is further described below in the (prevention of) misalignments motivation facilitator. Having such update interactions on a scheduled or ad-hoc basis allows keeping track of the development and keeping everyone engaged and involved.

The ***perceived RPA benefits*** of solutions were also mentioned as a reason to engage in interactions. For example, one stakeholder mentioned that when they realize that they no longer must do the mundane *"boring work*" after the automation, they like to engage more. Another interviewee from the business side "*really felt the need to automate certain business processes for her own audit clients".* She did a process 10 times the same way and thought, can't this be easier. After proposing the solutions, she kept engaged with the interactions to remain in control of the development. Since she had to use the robot herself, she wanted to exert influence and remain involved with the robot.

Another interviewee stated: *"we both want a solution, and that solution must be satisfying for both parties".* The perceived benefits and need for an RPA solution can motivate IS-alignment interactions.

Besides that, the ***(prevention of) misalignments*** was identified in the interviews. The IT developers need to have a thorough understanding of how the process is conducted and must interact to clarify this. In several interviews, it was mentioned that there should be *"no room for interpretation"* when it comes to making decisions. While alignment documents (subsequently described in the alignment decisions section) can help prevent misalignments, COISA interactions are always needed to avoid misalignments. One interviewee mentioned that an *"intervention meeting"* was arranged with all of the stakeholders to give an update on an anticipated change in the workflow management system. This stakeholder deemed that this update was relevant for the RPA solution since the interaction with the system may change. Without this interaction, the robot would no longer work if the anticipated change was conducted. Stakeholders must also interact to understand the reasons behind a process: "*You can reconcile A with B, but if you do not explain why then they never align with what you need".*

The ***training of end-users*** was also mentioned in the interviews as an alignment motivator. While the robots are developed as a *"play button"* concept, in which the end-users do not need to know all technical aspects to use the robot, it remains important to have end-user interactions. This is because a robot needs very structured and precise input to work (i.e., there is no margin for interpretation). One developer mentioned that some of the end-users are sometimes involved *"a little bit against their will"*. Not everyone is excited about robotics and perhaps it may not always be socially accepted. The end-user training is not used to make subsequent changes to the IT due to the extensive compliance process. Once the robot is tested and approved no further changes can be made without new checks.

Policy compliance is closely related to the legal obligations motivator described by Walraven et al. (2020). IT and business stakeholders working in public accounting firms are subject to strict regulations that must be adhered to. However, due to the member firm structure and other requirements, other internal policies must be complied with that go beyond legal obligations. Several stakeholders are for example involved in interactions to review if fraud and other risks are mitigated. Furthermore, certain controls are in place that enforce the segregation of duties, meaning that certain tasks cannot be performed by the same person. This requires other stakeholders to be involved in the interactions, which is further elaborated on in the stakeholder involvement section. Small mistakes or compliance issues can be costly given that they work for large audit clients. One interviewee described that end-user accountants don't trust the IT: *"They never trust the system to do exactly what it's supposed to do"*. Stakeholders are therefore motivated to align to ensure that the robot is compliant with policies.

Another new facilitator discovered in the interviews is ***time availability***. While Walraven et al. (2020) describe *"compensate actors for involved time"* as motivator in one process, the topic of time pressure in accounting was noted in all interviews and touches on a different issue. Strict deadlines were noted as a reason why no further improvements could be made to a robot: *"the robot just had to be finished now".* Another interviewee stated: *"I have to accept it now because I need it right now"* as a reason that there was no real feedback given during the user acceptance test (refer to alignment decisions). Also, one IT interviewee described: *"Sometimes there is just no communication from the other side. They work from 8 o'clock in the morning until 10 o'clock at night, then it is logical that it is difficult to make time for IT".* Daily accounting work seems to get priority over alignment. Especially more senior stakeholders as managers are hard to track. Being flexible in time helps, but if there is no time then there is no interaction. Time is therefore an important facilitator for COISA interactions in accounting.

4.2 Stakeholder involvement

Stakeholder involvement relates to who must be involved in the COISA interactions. The following facilitators in this category have been identified: (1) allocation of roles, (2) champions and motivators, (3) process experts, (4) system experts, (5) unofficial leaders, (6) compliance and methodology experts, (7) stakeholders with prior IT experience and/or knowledge and (8) leadership involvement.

The first facilitator in the stakeholder involvement category is the ***allocation of roles***. All interviewees mentioned the importance of letting people do what they are best at. At the same time, avoid allocating roles to persons that dislike a certain aspect. As one interviewee noted: *"Don't ask coders to deal with the compliance part, that will only frustrate them".* The allocation of roles should be a joint effort from IT and business so that everyone knows what they can contribute. In one of the RPA projects, there was no clarity on who had to do what, and then the interviewee took the coordination by "*bringing the right people to the table".* Allocating the right roles is also important for compliance, as was already explained in the compliance with policies section in the alignment motivation section. While everyone stated that involving the right people is critical for effective IS-alignment interactions, one interviewee noted that having responsibilities on paper can also be a drawback. *"It could limit the dedicated team feeling as everyone's responsibilities are clearly mapped. In reality, you need people to look beyond that to make the best out of technology. It shouldn't just only be about the checkboxes".*

Secondly, the involvement of ***champions and motivators*** is also important. At the case organization, several business stakeholders have been appointed as *"digital accelerators"*. These digital accelerators are responsible for speeding up the digital transformation of the audit practice. They receive training and get time to work on digital solutions and are often involved on both strategic and operational levels of IT projects. One of the interviewees was a digital accelerator and explained how that function helped to *"bridge the gap between business and IT"*. The interviewees from the IT side also found that the involvement of digital champions enhances the effectiveness of interactions. Another interviewee from the IT discipline noted that they organize training for the digital accelerators in the business. It enhances the communication and as one interviewee described: "*then we have some people with one leg in the other field"*. Involving them enhances the communication and since they are trained to spot good use cases and can filter out the bad ones, they can be on the same page regarding IT effectively.

Another important type of stakeholder that must be involved in the RPA projects is the ***process experts***. These are people who know the process thoroughly by doing it on daily basis. In all interviews, it was noted that sometimes the manager or senior that is responsible for the tasks gets involved on the process level instead of the process expert. As one developer mentioned: *"When the manager proposes something, it is not always something that he does. It's always nice to see the work. So, I always find a gap because after we automate and deliver it, the managers, they don't have time to review it. Then the associate comes up with a lot of questions that we never expected and that were not explained for the project".* Another interviewee explained that this gap may be caused by the fact that managers always look at the outcome of the process rather than the process itself. Sometimes managers did the process themselves before when they were still executing the process, but often the process has changed over time. Therefore, it is important to always involve the person that currently does the task on an operational level, even though that person may not have a *"senior enough"* role.

Besides experts on the process, it is also important to involve stakeholders that are ***system experts***. Virtually all processes that get automated rely on one or more systems, and if the people that are responsible for these systems are involved in the alignment interactions it is easier to anticipate changes and to ensure compatibility. This makes alignment far more effective as many changes can be made to the systems. Before a change happens, the IT and business sides are informed so that the

RPA can be changed accordingly. This is important as some unexpected or unforeseen changes to the system can be critical for the functioning of the robots, therefore involving system experts is required.

Involving ***unofficial leaders*** in informal positions is also important. Some people in lower hierarchical positions can be invaluable for alignment. One of the interviewees said that *"rather than looking at someone's formal job title or seniority, you must also look at the person's attitude and knowledge".* The interviewed manager shared the following: *"If you look at the hierarchy, I am the manager, and they are the associates. But I do not look at it like that. I have the idea from business, and you are the expert on IT. How can we bring that together? I don't see you as an associate but as an expert".* While involving those informal positions is important, it is also important to take them seriously. Let them decide that they are capable of and look beyond seniority levels and egos, instead, look at someone's expertise and evidence-based arguments. Another interviewee shared an example of an ineffective meeting in which the manager, who was formally responsible, made a decision to push a deadline. However, this choice is realistic and hard to overrule for other stakeholders that should decide it. This makes it difficult to align as the right people need to make the decisions, irrespective of their seniority.

Compliance and methodology experts should also be involved to enhance the effectiveness of COISA interactions. This facilitator closely resonates with the policy compliance facilitator. At the case organization, the methodology experts were mentioned by all stakeholders. One of the stakeholders mentioned that sometimes they don't know the rules and regulations. The compliance and methodology experts will ensure that the process is compliant and is accepted. They check if there is no issue and gap with compliance with the robots. That's why they strictly enforce that all the necessary things are there. We go beyond our boundaries we need to get approval from the national office. This ensures that the process is aligned with the latest regulations that are frequently updated.

Another important aspect for stakeholders to involve in effective IS-alignment are ***stakeholders with prior IT experience and/or knowledge***. All the interviewees mentioned that it is easier to get on the same page with people that have affinity or experience with other (similar) IT projects. Especially for RPA projects, it is important to be able to think in exact steps that can be understood by the robots. The similarity in mindset was also mentioned by stakeholders, which closely resonates with IT affinity. As one stakeholder shared: *"It is easier to get on the same page when you look at the problem in a similar way"*. Besides that, the interviewees also mentioned that it motivates them to interact with people that have experience with and knowledge of IT. Or as another stakeholder explained: *"Look at it this way. When buying a new car, many people will say "I want a red car". But there are also people who will talk about specific specifications and then the salesperson will have a way nicer conversation".*

Finally, it is important to have ***leadership involvement***. One stakeholder mentioned the involvement of a *"sponsoring partner"*. Partners should be involved in the interactions to allocate time and resources for effective IS-alignment. Someone else mentioned that *"leadership should coordinate and facilitate everyone so that they can work effectively".* The sponsoring partner rises above stakeholders to make decisions. Furthermore, it was mentioned that leadership involvement can give room without resistance to interact. However, it was also mentioned that conflicting interests between partners could result in *"different silos"* that limit effective IS-alignment. When it is unclear which *"silo"* is responsible and paying for what then effective alignment becomes difficult. It is therefore important to clarify who the responsible leader is to transcend internal politics and for effective COISA alignment.

4.3 Interconnections

Interconnections relate to by which means the stakeholders interact to align. The following facilitators were identified: (1) supporting tools, (2) formal agreements, (3) existing informal networks, (4) reduced culture gap, (5) safe learning environment, (6) structured decision-making, and (7) visibility.

The first facilitator ***supporting tools*** was mentioned in all interviews. These are digital solutions that enable virtual interactions by which COISA can be achieved. Particularly in the current situation with the COVID-19 pandemic limiting physical interactions, the use of these tools has become essential. A stakeholder explained that video calls alone are not enough to get on the same page: *"You can see the facial expression on camera, but that doesn't always give you the full picture of their minds".* Also, traditional methods like emailing or using internal messaging applications are not sufficient. The use of platforms through which both business and IT stakeholders can interact facilitates alignment. If the stakeholders can directly demonstrate and illustrate with visuals what it is that they want, then it is easier to align. Another stakeholder mentioned the use of an *"interactive visual blackboard"* on which all stakeholders can draw, which enables everyone to understand it. As the stakeholder explained: *"When you show them something, they will have their own feedback. They want to add something. You can make changes. Then I say: oh, this is the way, and I can make a change. Then it can be aligned".*

A second facilitator in this category is ***formal agreements***. This relates to effectively managing and coordinating the COISA interactions. One stakeholder explained that *"A plan with agreements on how and when to interact benefits alignment".* It involves making a clear scope of the work and how the RPA solution must be made, on which all stakeholders must agree. Another stakeholder explained that stakeholders must agree on deadlines and moments to interact, which are part of the governance. Another aspect of the formal governance is having escalation procedures in place: *"If there is someone not responding, escalate it by including higher management in CC of emails"* to improve the alignment.

Furthermore, the importance of ***existing informal networks*** was stressed in all interviews. When stakeholders know whom to approach, they can easily start the interactions. Some of the developers that were interviewed have previously worked on the business side, which enabled them to build and maintain a network with colleagues from the other discipline. Using easy-to-learn software enables business stakeholders to transfer into IT-related roles which in turn benefits networking. People that want to work on RPA projects can also find each other. People found that they could reach the right people. One stakeholder said: *"I send out the vibe and other people can feel that that creates the interactions".* Another person explained: *"For some reason, I am always able to find the right person. If any problem occurs, we can directly interact with the colleague: We face this issue, can you have a look with us?".* Knowing who to reach enables conversations that can facilitate effective IS-alignment.

Several interviewees noted the importance of a ***reduced culture gap***. According to the stakeholders, developers and business stakeholders have different cultures. The general image is that developers are more introverted whereas business stakeholders are extroverted. 2 stakeholders mentioned that the business side has a *"discuss culture",* in which it can take 20 hours of discussions with 5 different people before a decision is made. Alternatively, the developers usually have a more direct approach in which they just try something. The need for discussion and rules can limit the effectiveness of digital people. If they are continuously disrupted, they cannot find the right focus to build good applications. Also, the way of thinking is quite different: *"Accountants think in terms of professional judgment, whereas coders think in terms of binary. Some accountants leave judgmental decisions with coders, but that is a mistake"*. It is therefore important to be aware of the cultural differences between the IT and business stakeholders and to reduce the gap, as this culture gap can reduce COISA effectiveness.

During the alignment interactions, it is important to have a ***safe learning environment.*** This facilitator was mentioned by several stakeholders and relates to being able to have a free discussion. People must be able to show vulnerability to reach effective alignment. *"If you see something that doesn't make sense, feel free to start the discussion".* Strict hierarchies, strong egos, or fear of retaliation can limit a person to speak up which is not good for alignment. All stakeholders must feel free to speak and contribute to the conversation. One interviewee explained: *"Sometimes it may not work out, but at least we learn from it. Don't be afraid to make mistakes. Dare to think different".* Being able to be critical helps to get to the core of a problem and therefore facilitates alignment. Another stakeholder said: *"a stupid question is the one you didn't ask".* The environment in which COISA interactions occur should support a safe learning environment in which everyone feels free to speak up. Besides that, it is also noted that it is important to ask for everyone's opinion, also those who are usually a bit quieter. Finally, being able to admit mistakes was stated as an important aspect of a safe learning environment.

Another facilitator that was identified in the data is ***structured decision-making***. Reaching alignment effectively ultimately also constitutes making decisions that everyone supports. When decisions are made based on evidence rather than emotional aspects, it becomes easier to get on the same page. A stakeholder stated that *"there needs to be grounded reasoning to make a change".* When evidence is required, it is easier to get the best outcome. It helps to overrule formal hierarchy when you can prove that another decision is better. Another stakeholder explained that for one IT problem, there were 2 possible IT solutions to automate a process. Because it is unknown which method is better, both solutions will be built and compared to learn from this and to enable comparison. *"To see which one is better".* This also helps to reach alignment faster in the future as learnings can be taken forward.

Finally, ***visibility*** is also important to reach alignment. While informal networks and ways often help to find the right people and information, it is not always sufficient. Several stakeholders noted that it is not always clear know where and how to find each other. Besides that, documents (see next page) that exist to facilitate the alignment process are not always found by stakeholders. One of the business stakeholders noted that a google form for new RPA solutions could boost alignment, while this already existed. Having clear communication on how to find relevant people and information can therefore improve the alignment processes. Another stakeholder also noted that awareness must be created regarding RPA solutions to ensure that the right people get involved and the guidelines are followed.

4.4 Alignment decisions

Alignment decisions are decisions that enhance the effectiveness of COISA interactions. The following facilitators were identified: (1) alignment documents, (2) testing capabilities, (3) user-acceptance test, (4) compliance policies, (5) reducing complexity, (6) change anticipation, and (7) use of generic codes.

The first facilitator in this category are ***alignment documents***, these documents are used to guide the RPA alignment. Documents are used to obtain the right information beforehand and to structure the alignment processes. Different documents are used at different phases of the projects. The Process Definition Document (PDD) is made at first. This document is drafted by all stakeholders and provides a written explanation of the AS-IS and the TO-BE process and must be signed by all stakeholders to ensure that everyone approves the solution. The PDD *"enforces a collaborative effort between IT and business stakeholders to make sure that everything is filled out correctly".* Once the robot is built, the stakeholders need to write and sign the robot briefing paper which states how risks are mitigated. However, as one interviewee explained: *"The documents are great for alignment but are useless if not used correctly"*. Another stakeholder stated: *"In theory, in an ideal world, you could align everything beforehand and don't require any subsequent communication. However, this is not realistic".* Increased bureaucracy should be avoided since this could create time pressure and distract from real innovation.

Secondly, having appropriate ***testing capabilities*** is key for effective alignment. This includes technical aspects like having a development environment with dummy data to test the robot without affecting the operational business environment. The right stakeholders must also have time to participate in the testing to ensure that the IT solution works right. One of the interviewees told that before, while working with start-ups, the process was more iterative: "*building, testing, tweaking, testing, building again"*. That was missing during the implementation of the RPA project. Another stakeholder stated that *"You need to look at the product so many times to ensure it is fully waterproof".* This stakeholder described it as the *"sandbox environment"*, referring to having the ability to play around with software before it is finalized. The developers stated the importance of appropriate testing with *"sessions to demonstrate what you made and how it works. Based on that feedback, continue building the robot".*

Third, the ***user acceptance test*** (UAT) has an important role in the alignment process. This is a specific process in which the end-users and developers conduct an in-depth test of the RPA solution. It requires a signed document in which the end-user verifies that the solution works according to expectation. During the UAT, a walkthrough is performed on the robot in which they go through the process. One of the business stakeholders mentioned that the user-acceptance test had to be signed before the robot could be assessed due to compliance issues: *"The audit had to be signed off next week and the results were needed. But only when I looked in detail to the output later, I noted that many things were wrong".* Another IT stakeholder explained that the goal of the UAT is that "*stakeholders test the robot as long until everyone is happy. If there is any feedback, we go back and forth until it works properly".*

The next COISA facilitator is ***compliance policies***. These policies safeguard that the (RPA) process is compliant with the internal and external regulations and requirements. One stakeholder explained: *"There are certain quality measures in the processes. If we digitalize a process, we cannot decide to leave out certain aspects due to compliance. So basically, as a start, the process must be digitalized according to the current process".* The policies give clarity on what is allowed and thereby enhance alignment. Each robot is also subject to a compliance test before it gets implemented to ensure policy compliance. The company maintains an up-to-date list with approvals on software and processes, to avoids misalignment. Rules also facilitate alignment by filtering out ideas that are not allowed upfront.

During the interviews, several decisions to ***reduce the complexity*** of RPA solutions were discussed that contributed towards effective COISA. From a process perspective, larger business processes were cut into smaller sub-processes to facilitate alignment. As one business stakeholder explained: *"Because it is an extensive process, we divided it into five phases which we tested every time. It is easier to give feedback and align this way".* Another stakeholder also noted that the usage of sub-processes *"made it easier to ask for and use feedback and give updates".* From the IT side, several decisions were used to reduce the RPA complexity. One developer noted the use of *"pseudocode",* which is the translation of coding into plain English to make it easier for business users to understand: "*once you start talking about coding, some people look like they see burning water. Avoid technical words and keep it simple".*

Finally, ***anticipating changes and using generic codes*** can enhance the effectiveness of IS-alignment. Subsequent changes are very undesirable due to the entire compliance process that must be done again. However, changes are unavoidable due to system updates or other aspects that are forgotten in the UAT/PDD documents. One interviewee shared a personal experience in which something was forgotten in the robot, but according to that person, the reason was that it was not clarified beforehand. A developer explained that the only way to make sure your robot is up scalable, robust, and reliable is to write in generic codes. Generic codes are codes that can easily be adapted to changes. When you write the generic codes, then things can go wrong, and things can be updated in the future. Since changes are unavoidable, anticipating and using generic codes facilitate IS-alignment over time.

4.5 Facilitators in the operational context

Having described the COISA facilitators, we will now describe their relationships to the phases in the operational context. Before we describe the main similarities and differences, we must first describe the RPA development cycle in relation to the operational phases. Figure 4.1 depicts the interactions between business and IT stakeholders from a broad view. Business users propose new cases and write the PDD before development. IT actors then give feedback to business actors to ensure that the robot is developed in line with their expectations. Once the robot is developed, end-users must first accept the solution to ensure they are satisfied. During the transition phase, business and IT stakeholders implement the robot in collaboration to ensure that everything works. In the refinement phase, stakeholder interactions continue to align on subsequent changes and errors. Table 4.1 shows which facilitators are applicable to which operational phases and the key results have been described below.

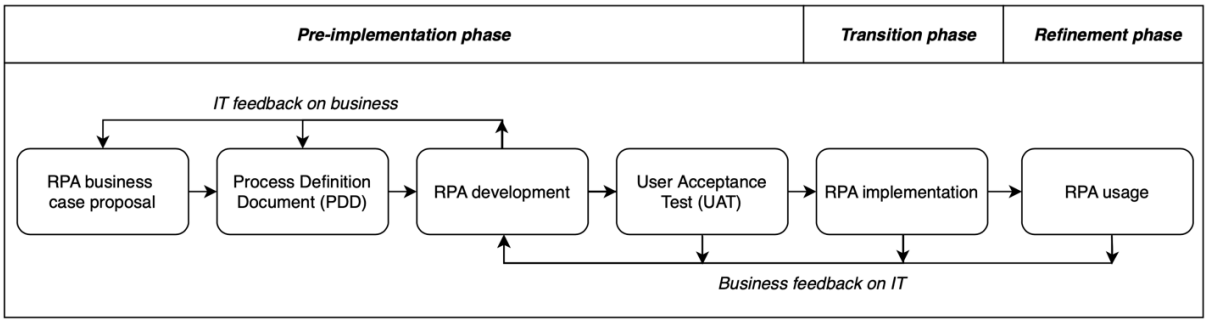

Figure 4.1: COISA interactions during RPA development cycle

We did not find significant differences in COISA facilitators between the operational phases. In the alignment motivation category, we found that only the end-user training motivator to align did not apply in the refinement phase. The other alignment motivation facilitators are important in all phases. In the stakeholder involvement category, the facilitators are highly contextual as they depend on what and who is needed. For example, the involvement of system experts is only applicable after the pre-implementation phase if a system is affected. In the interconnections category no differences were found between the 3 phases. Irrespective of the phase, stakeholders need to find each other and an environment that facilitates effective alignment (e.g., appropriate tools). Facilitators in the alignment decisions category primarily apply to the pre-implementation phase. The alignment documents and testing are performed before the usage and do therefore not apply in later phases. Only decisions that reduce complexity apply to all phases as they make reaching IS-alignment easier in general. Finally, anticipating changes and writing generic codes enables effective alignment in the refinement phase as it enables easier adjustments to the code later (i.e., robots can be aligned to new rules or systems).

The interviewees mentioned the preference of alignment in the pre-implementation phase compared to the subsequent phases. For example, if adjustments must be made after the implementation of a robot, the entire compliance process must be performed again. It is also more complex to make subsequent changes to robots when it is already developed, therefore making alignment beforehand critical. Another person noted that involving the right stakeholders in the pre-implementation phase enables stakeholders to find the right people while using and improving the robots. Moreover, it was noted that it is easier to interact before implementations as there is less time pressure and stress. At the same time, it was noted that reaching alignment up front does not guarantee sustained alignment but reduces ad-hoc interactions in the transition and refinement phases. The interviewees explained that alignment interactions in the usage and refinement phases cannot be avoided completely. There are always some errors, changes or opportunities that require alignment. Facilitating effective COISA interactions in the transition and refinement phases therefore remains critical for effective alignment.

Facilitators \ Stages	Pre-implementation	Transition	Refinement
I Alignment motivation			
1.1 accountability and mandate	x	x	x
1.2 planning and monitoring	x	x	x
1.3 intrinsic motivation of actors	x	x	x
1.4 perceived RPA benefits	x	x	x
1.5 (prevention of) misalignments	x	x	x
1.6 end-user training	x	x	
1.7 compliance policies	x	x	x
1.8 time availability	x	x	x
II Stakeholder involvement			
2.1 allocation of roles	x	x	x
2.2 champions and motivators	x	x	x
2.3 process experts	x	x	x
2.4 system experts	x		x
2.5 unofficial leaders	x	x	x
2.6 compliance/methodology experts	x		
2.7 prior IT experience/knowledge	x	x	x
2.8 leadership involvement	x	x	x
III Interconnections			
3.1 supporting tools	x	x	x
3.2 formal agreements	x	x	x
3.3 existing informal networks	x	x	x
3.4 reduced culture gap	x	x	x
3.5 safe learning environment	x	x	x
3.6 structured decision-making	x	x	x
3.7 visibility	x	x	x
IV Alignment decisions			
4.1 alignment documents	x		
4.2 testing capabilities	x		
4.3 user-acceptance test	x		
4.4 compliance policies	x		
4.5 reducing complexity	x	x	x
4.6 change anticipation			x
4.7 use of generic codes			x

Table 4.1: Facilitators linked to operational phases

5 Discussion, conclusions and recommendations

5.1 Discussion

This research aims to provide an answer to how COISA interactions can effectively be facilitated in the operational context of IT projects in the public accounting sector. A total of 30 COISA facilitators (see table 5.1) have been identified in the interviews through deductive and inductive methods and have been described in the results chapter. Our results show similarities, differences, and new insights in comparison to the extant COISA facilitation literature. The categories of COISA facilitators described by Walraven et al. (2020) proved an appropriate way to structure the facilitators found in our research. The following section will discuss our results per category in light of our context and existing literature.

In the first category, alignment motivation, multiple facilitators from the literature were identified in our results. Reasons for stakeholders to engage in alignment interactions are responsibilities, updates, (avoiding) misalignments, and training purposes. The internal motivation of actors is also important, as this can also influence the motivation of other involved stakeholders. If people must engage but are not motivated, other stakeholders could get demotivated which limits effective alignment. One facilitator, policy compliance, relates to the legal obligations facilitator described by Walraven et al. (2020). However, the difference is that stakeholders in accountancy must also comply with policies that go beyond legal obligations, such as global firm, client, or IT policies. Another factor that is critical for effective alignment is having enough available time. Walraven et al. (2020) describe compensating involved actors' time in the strategy implementation, EAM, and usage phases. However, our results show that due to the high time pressure there is often no time for actors to be involved. Therefore, to facilitate effective COISA interactions in the public accounting sector actors must have sufficient time.

The second category, stakeholder involvement, also provides new relevant insights. The importance of involving the right stakeholders for effective alignment was identifiable in our data. Like earlier studies, involving specific roles can facilitate the IS-alignment. Each project is different and requires different stakeholders at different phases, and there is no "*one-size-fits-all*". In our context, process and compliance experts must be involved to ensure that RPA solutions are appropriate and compliant. Also, involving people with IT experience helps improve language unity and motivation facilitate alignment. Involving informal leaders is also identified by Walraven et al. (2020) but is especially important in our context. In RPA projects, actors who do processes are not always the people that are involved in the interactions causing misalignments. Given the hierarchy in public accounting firms, it is important to look beyond seniority and look at relevant knowledge. For that same reason, however, leadership must be involved to allocate sufficient resources (including time) and make final decisions.

The results in the third category, interconnections, have many similarities with previous studies. Stakeholders must be able to find each other and have appropriate means of communication. Formal agreements on how to interact enable stakeholders to align effectively. Existing informal networks and visibility help stakeholders to find the right people. Supporting tools that allow two-way interactions facilitate sharing ideas and reaching alignment and with the COVID-19 pandemic, online tools have become more important for alignment interactions. Several new facilitators have also been identified. During interactions, stakeholders need awareness of potential culture gaps. Reducing gaps by understanding the needs and reasoning of others can facilitate effective alignment. Besides that, a "*safe learning environment*" must be created in which people speak freely and admit mistakes. Having structured decision-making mechanisms can also facilitate IS-alignment as evidence-based decisions can resolve conflicting interests. These facilitators are all related to effective communication, which importance was previously described by Zhang et al. (2019) and confirmed by Walraven et al. (2020).

Finally, several new alignment decision facilitators are identified. At the case organization, alignment documents are used to guide the IS-alignment process. These documents form a critical aspect of aligning as relevant stakeholders all must contribute and sign them. The documents are used to coordinate and structure the alignment process, which Walraven et al. (2020) also identified. Besides that, documents help to share knowledge between stakeholders (e.g., the PDD describes the process) and log decisions. The need for an appropriate testing infrastructure is identified, but besides the ability test, it is also important to have the "sandbox environment" with continuous testing. Compliance policies relate to the clear guidelines facilitator described by Walraven et al. (2020). Clear and up-to-date policies enable focus and sustained alignment for the IT solutions. Another facilitator is to make decisions to reduce the complexity by narrowing the project scope or by using normal language to explain code. The last facilitators relate to change anticipation and using generic codes. Ideally, changes are anticipated, and generic codes help to sustain alignment for unforeseen changes.

5.2 Conclusions

We will now conclude by answering our research question: "How can effective COISA interactions be facilitated in the operational context of IT projects in the public accountancy sector?" Many factors and choices affect the effectiveness of COISA interactions. Involving the right actors that are motivated and have the right tools in the right environment would be the short answer. We found many similarities between the theory and our results, with certain facilitators being adapted to the context of accounting. Compliance and time pressure proved important topics for effective alignment in our public accounting context that were not stressed in other studies. Certain documents, rules, and tools can facilitate alignment, but ultimately the stakeholders noted that the collaborative effort between stakeholders with fun, learning, and ongoing conversations makes the difference for effective IS-alignment. COISA facilitators are most effective when they are tailored and balanced to each context.

5.3 Recommendations for practice

The results of our research are particularly valuable for practitioners. We suggest multiple facilitators that enable effective IS-alignment interactions in the operational context of IT projects in the public accounting sector. We identified specific conditions and decisions that benefit alignment interactions, which enables to reach and sustain alignment. We recommend that practitioners critically examine which facilitators could benefit their situations. In public accounting, time pressure and compliance proved to be challenging for effective IS-alignment. Allocating enough time, involving the right people, maintaining updated compliance policies amongst other things help to manage these complexities. We encourage practitioners to think about the challenges that they are facing in reaching alignment and to start a discussion between stakeholders to choose the right facilitators in their specific context.

5.4 Recommendations for further research

We recommend further research to be conducted on the topic of COISA facilitation. Our research has suggested relevant facilitators that enabled effective alignment in one specific IT project. However, it would be relevant to see if the facilitators also apply to other settings and over a longer period. Our qualitative nature was useful to explore COISA facilitators, but quantitative research is required to understand how facilitators work together and affect each other. We only focussed on the operational context and did not account for any relations between the EAM and strategic contexts. Relationships between facilitators and their link to the operational context phases require further attention; While some facilitators can be linked to specific phases, it does not automatically mean that others don't apply or that they do not work in other settings/phases. We recommend future research to address how COISA facilitators can be adapted to different settings and phases for effective COISA alignment.

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Appendix 1: Literature overview theoretical framework

This literature overview provides more detailed insights into the scientific literature that was used to develop our theoretical framework. The overview is organized around our structured search methods.

Phase 1: Backward snowballing method

First, the following article was used to start the backward snowballing method:

- Walraven, P., Van de Wetering, R., Helms, R. W., & Caniëls, M. (2020). Aligning effectively: The Case of Electronic Medical Records. 28th European Conference on Information Systems (ECIS2020).

Based on our search criteria, the following articles were selected related:

- Allen, P. M., & Varga, L. (2006). A co-evolutionary complex systems perspective on information systems. *Journal of Information Technology*, *21*(4).
- Amarilli, F., Van Vliet, M., & Van Den Hooff, B. (2016). Business IT alignment through the lens of complexity science. *2016 International Conference on Information Systems, ICIS 2016*.
- Amarilli, F., Van Vliet, M., & Van Den Hooff, B. (2017). An Explanatory Study on the Co-evolutionary Mechanisms of Business IT Alignment. *ICIS 2017: Transforming Society with Digital Innovation*.
- Anderson, P. (1999). Perspective: Complexity Theory and Organizational Science. *Organization Science*, *10*(3).
- Benbya, H., & McKelvey, B. (2006). Using coevolutionary and complexity theories to improve IS alignment: A multi-level approach. *Journal of Information Technology*, *21*(4).
- Goh, J. M., Gao, G., & Agarwal, R. (2011). Evolving work routines: Adaptive routinization of information technology in healthcare. *Information Systems Research*, *22*(3).
- Luftman, J., & Brier, T. (1999). Achieving and sustaining business-IT alignment. *California Management Review*, *1*.
- Onik, M. F. A., Fielt, E., & Gable, G. G. (2017). Complex adaptive systems theory in information systems research-A systematic literature review. *Proceedings Ot the 21st Pacific Asia Conference on Information Systems: "'Societal Transformation Through IS/IT'", PACIS 2017*.
- Walraven, P., van de Wetering, R., Versendaal, J., & Caniëls, M. (2019). Using a co-evolutionary IS-alignment approach to understand EMR implementations. *27th European Conference on Information Systems - Information Systems for a Sharing Society, ECIS 2019*.
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Phase 2: Building block method

Secondly, the building block method resulted in the following articles on IT adoption in accounting:

- Pedrosa, I., Costa, C. J., & Aparicio, M. (2020). Determinants adoption of computer-assisted auditing tools (CAATs). Cognition, Technology and Work, 22(3).
- Rosli, K., Yeow, P. H. P., & Eu-Gene, S. (2013). Adoption of audit technology in audit firms. Proceedings of the 24th Australasian Conference on Information Systems.

Phase 3: Backward snowballing method

Thirdly, the utilization of the backward snowballing method resulted in the following articles:

- Bierstaker, J., Janvrin, D., & Lowe, D. J. (2014). What factors influence auditors' use of computer-assisted audit techniques? Advances in Accounting, 30(1).
- Curtis, M. B., & Payne, E. A. (2008). An examination of contextual factors and individual characteristics affecting technology implementation decisions in auditing. International Journal of Accounting Information Systems, 9(2).
- Hancock, P., Howieson, B., Kavanagh, M., Kent, J., Tempone, I., Segal, N., & Freeman, M. (2009). The roles of some key stakeholders in the future of accounting education in Australia. Australian Accounting Review, 19(3).
- Siew, E. G., Rosli, K., & Yeow, P. H. P. (2020). Organizational and environmental influences in the adoption of computer-assisted audit tools and techniques (CAATTs) by audit firms in Malaysia. International Journal of Accounting Information Systems, 36.

Appendix 2: Semi-structured interview guide

This interview guide was used to organize the data collection in the semi-structured interviews. A total of 5 interviews were conducted with stakeholders involved on the operational level of the Digital Centre project. The guide is written in English and Dutch to ensure that all stakeholders correctly interpret and understand the questions. Definitions from the theoretical framework were simplified to ensure that they are understood. Not all questions were formulated beforehand due to the semi-structured nature.

Dutch version:

Introductie:

Bedankt voor het meedoen aan het interview. Dit interview is onderdeel van mijn master scriptie voor de opleiding Business Process Management en IT aan de Open Universiteit. Mijn onderzoek richt zich op tweerichtings interacties tussen business en IT stakeholders. Stakeholders hebben vaak verschillende wensen en behoeftes voor IT en moeten samenwerken om iedereen op een lijn te krijgen. Ik onderzoek hoe effectieve interacties gefaciliteerd kunnen worden binnen publieke accountancy organisaties. Vandaag zal ik vragen stellen over de interacties tussen business- en IT stakeholders gedurende de RPA implementaties van het Digital Center project.

Voordat we met het interview beginnen wil ik eerst een aantal belangrijke punten behandelen. Het is belangrijk dat je bewust bent dat dit interview volledig vrijwillig is. Mocht je op enig moment willen stoppen met het interview of een bepaalde vraag niet willen beantwoorden dan is dat geen probleem. De interviews zullen anoniem en zorgvuldig worden behandeld. Mocht er tijdens het interview iets niet duidelijk zijn, aarzel dan niet om voor verdere uitleg te vragen. Omdat ik zelf ook bij het project betrokken ben wil ik vragen om mijn vragen te beantwoorden alsof ik een buitenstaander zou zijn. Soms zal ik ook verder vragen om een beter begrip te krijgen van de context. Tot slot wil ik expliciet toestemming vragen om dit video interview op te nemen, is dat akkoord? Zijn er nog overige vragen? Ik zal de opname nu starten. Zou je opnieuw akkoord kunnen geven om dit interview op te nemen?

Globale vragen (om de context beter te kunnen begrijpen):

- Wat is je rol binnen de organisatie?
- Wat is je rol binnen het digital center project?
- Wat is je algemene ervaring van het project?

Hoofd vragen (verschillen per rol en operationele fases van Goh et al. (2011)):

1. Hoe werden zaken afgestemd ***voor/tijdens/na*** de RPA-implementatie? En was dat effectief?
2. Wat heeft eraan bij gedragen dat deze interacties (of niet) effectief waren? En waarom?
3. Hoe werden besluiten genomen over de RPA-implementatie? En was dat effectief?
4. Wat was ervoor nodig om die besluitvorming effectief te maken? En waarom?
5. Heeft dit uiteindelijk bijgedragen tot een gezamenlijk besluit waar iedereen achter stond?

Doorvragen naar motivatie	→	Waarom werd er of moest er afgestemd worden?
Doorvragen naar betrokkenheid	→	Waren de juiste stakeholders hierbij betrokken?
Doorvragen naar interconnecties	→	Hoe zijn de interacties tot stand gekomen?
Doorvragen naar keuzes / condities	→	Hebben andere zaken effect gehad op interacties?

Afsluiting:

Dit is het einde van het interview, ik zal de opname nu stoppen. Binnenkort zal ik een uitwerking van het interview sturen ter confirmatie. Zou je dit zorgvuldig kunnen doornemen en laten weten of alles in orde is? Nogmaals bedankt voor je tijd en deelname aan dit interview.

English version:

Introduction:

Thank you for participating in this interview. This interview is part of my thesis for the program Business Process Management and IT at the Open University. My research is focused on the two-way interactions between business and IT stakeholders. Stakeholders often have different, sometimes conflicting needs and interests regarding new IT and must interact to get everyone on the same page. I am investigating how these interactions can be facilitated effectively within the context of the public accounting sector. Today I will be asking you questions about the interactions between business and IT stakeholders during the RPA implementations at the Digital Center project.

Before we start with the interview, I would like to discuss a few important points. It is important that you are aware of the completely voluntary nature of this interview. If you wish to stop the interview at any moment or skip a question, please feel free to do so. The interview data will be collected anonymously and with great care. If you have any questions or if there are any unclarities during the interview, please do not hesitate to ask for further elaboration. Because of my involvement with the project, I kindly ask you to answer my questions as if I were an outsider that is not involved. Sometimes I will ask follow-up questions to get a better understanding of the context. Finally, I want to ask again for explicit permission to record the interview, do you agree? Do you have any questions? I will now start the interview recording. Could you please permit me to record this interview again?

Contextual questions (to understand the context)

Wat is je rol binnen de organisatie?

- What is your role in the organization?
- What is your role in the digital center project?
- What is your experience with the digital center project?

Main questions (depending on the role and the different phases described by Goh et al. (2011)):

1. How were things aligned ***before/during/after*** the RPA implementation? Was that effective?
2. What contributed towards that these interactions were effective (or not)? And why?
3. How were decisions made regarding the RPA implementation? Was that effective?
4. What was necessary to make the decision-making effective? And why?
5. Did this ultimately contributed towards a shared decision that was supported by everyone?

Probing questions motivation	→	Why did alignment interactions take place?
Probing questions involvement	→	Were the right stakeholders involved?
Probing questions interconnections	→	How did the interactions occur/took place?
Probing questions decisions	→	Did any other factors affect the interactions?

Closing:

This is the end of the interview, I will now stop recording. You will soon receive a transcript of this interview for confirmation purposes. Could you please carefully read and check this transcript and let me know if everything is correct? I would like to thank you again for your time and participation today.

Appendix 3: Coding book with examples

Categories	***Codes***	***Examples***
# Stakeholder motivation	*## (deductive) accountability and mandate*	*[….] vanuit mijn optiek c.q. wat we nu hebben, met we hebben jou gewoon nodig. Jij moet een bepaalde call maken die wij vanuit onze bevoegdheden niet mogen c.q. kunnen maken.*
	## (deductive) planning and monitoring	*[….] de update is natuurlijk meer de status van waar we nu staan. Loop ik op schema? Welk stuk ben ik nu aan het doen? Want dan kan je vaak dan natuurlijk wel uit kaderen, hé, want je hebt al onderdelen wat je doet, dus op proces, dus daar kun je daar een update over geven.*
	## (deductive) intrinsic motivation of actors	*[….] het moet ook leuk zijn.* *[….]* Ja, dat het dan echt vanuit, vanuit hunzelf komt
	## (deductive) perceived RPA benefits	*[….] iedereen is blij als we het "rotwerk" kunnen automatiseren zodat ze het niet meer hoeven te doen.*
	## (deductive) (prevention of) misalignments	*Dus we hebben een proces afgesprokén van dit is het Nou, wat we daarin hebben gezien, is dat er tussentijds aanpassingen gedaan zijn aan de layout en het format van het Phoenix formulier [….] waardoor de robot die initieel werkte op versie één van het systeem, dus niet meer werkt. En dan moet daar een interventie meeting komen, noem ik het maar even. Waarin we dan gezamenlijk kijken: oké, wat is dan verandert en wat moet dan aangepast worden aan de robot? Of moet iets aangepast worden aan het systeem?*
	## (deductive) end-user training	*Precies, want dat is uiteindelijk de bedoeling dat zij met één druk op de knop ergens gewoon het scriptje kunnen runnen of de robot kunnen runnen of de solution kunnen gebruiken.*
	### (inductive) compliance policies	*[….] op een moment, op het moment dat we even buiten die lijntjes gaan, hè waar we het net over hadden, dan moeten wij, om te zorgen dat iedereen op dezelfde pagina zit, in een ander gremium, wel hun tijdig meenemen om te zorgen dat de QMSE, ons quality managementsysteem, om daaraan te voldoen.*
	### (inductive) time availability	*[….] en als ik gewoon voldoende tijd hebt gehad om piloten, mee te kijken, mee te ontwikkelen en zo, dan had ik sowieso toen nooit getekend ervoor [….] Van een kale kip kun je niet plukken, zeg je. Als er echt gewoon geen ruimte is, dan kun je niet plukken zegmaar.*

# Stakeholder involvement	*## (deductive) allocation of roles*	*[….] ja, dan heb ik daar in meer de regie genomen. Van ja, dat is goed dat je wilt meeten met ons, maar weet, deze en deze persoon moeten er ook bij zitten, want die moeten dat ook vinden. Dus daar heb ik, daar heb ik maar ook en uiteraard aan de andere kant, het Digital Center, daar gewoon een proactief de rol in gepakt om, om die mensen bij elkaar te brengen.*
	## (deductive) champions and motivators	*[….] de hele groep digital accelerators binnen Audit Support om hun wat meer technische background te geven over de robots die we bouwen, zodat zij juist weer vanuit hun positie wat meer in de praktijk de mogelijkheden kunnen spotten dus het aandragen van business cases willen we wat meer gaan verschuiven naar de mensen die dus net iets meer "tech savy" zijn, mede dus ook met hulp van ons omdat wij ze gaan trainen.*
	## (deductive) process experts	*Ik denk dat dat dan aan, aan de business vooral niet gekeken moet worden naar functie, maat als je iemand hebt die het proces begrijpt, maar ook een beetje affiniteit heeft met techniek.*
	## (deductive) system experts	*[….] en eventueel, indien nodig, iemand vanuit het dossier, in Aura en daar hebben wij speciale supportafdeling van, van iemand die volledig weet, of een aantal collega's die de, de ins en outs van het dossier helemaal kennen, de technische achtergrond etc.*
	## (deductive) unofficial leaders	*[….] het hiërarchische loslaat en gewoon eigenlijk het probleem even gewoon als een nieuw probleem ervaart en gewoon met een frisse blik, ieder met z'n eigen, eigenlijk expertise.*
	## (deductive) compliance and methodology experts	*Even if we develop something nice, but if the national office says no, but national office starts to take a lot of what they call compliance issue that take a lot of rules and regulations from the government, they are always updated with all processes. [….] indien dat nodig is, zoeken we daarvoor afstemming met National Office, zij zijn uiteindelijk overall verantwoordelijk voor alle quality issues en methodologische aspecten, testings, aspecten binnen heel de organisatie.*
	## (deductive) prior IT experience/ knowledge	*[….] Wat ik altijd merk is dat de mensen die er meer affiniteit mee hebben zelf dus al ja, dus misschien wel een keer iets in Alteryx hebben gemaakt of weten wat robotics inhouden.*
	## (deductive) leadership involvement	*[….] En dat gebeurt nu dus wel, vind ik, en dan moet de partner of de sponsoring manager ik weet niet wie dat is. Die moet dan eigenlijk als verantwoordelijke boven iedereen faciliteren in hetgeen waar hij of zij goed in is.*

# Interconnections	*## (deductive) supporting tools*	*[….] there are different software that might not be important to automation, but there is also software which are interactive for both sides. You can make changes. Then I can say: oh, this is the way, and I can make a change. Then it can be aligned.*
	## (deductive) formal agreements	*[….] en dat is ook het begin waar je natuurlijk afspraken over kan maken en ik probeer dat er ook altijd wel in te verwerken. Natuurlijk dat ik wel, als ik iets nodig heb en het is urgent dat ik dat dan ook weer laten blijken dat ik dan ook natuurlijk hoopt dat zij daar ook op die manier reageren.*
	## (deductive) existing informal networks	*[….] maar om de één of andere reden komt alles toch wel weer bij de juiste persoon terecht, en dat is misschien een beetje een soort van law of attraction hè! Zo van, ik straal uit en een ander, die pikt dat op en die denkt van: ja, hier kan ik wat mee en dat daardoor eigenlijk iedere keer toch wel weer bij de juiste persoon dat kan. [….] dat is een beetje "ons kent ons", zoals dat zo mooi heet.*
	### (inductive) reduced culture gap	*This is where you see the difference between developers and people coming, those who don't have I.T. backgrounds, because if you don't have an IT background, you don't know what to expect. But if you have an IT background, you know, something is not just coming from scratch. Everything comes from what has been there and only what keeps on updating a small part or change in a small part to make it more interactive and robust*
	### (inductive) safe learning environment	*gewoon kwetsbaar genoeg zijn om te kunnen zeggen was inderdaad niet de beste oplossing achteraf, op dat moment misschien wel, maar met de kennis van nu en wat we hebben geleerd van het proces kunnen we het wel weer opnieuw proberen, maar dan met een andere tool. [….] En ik voel en die gesprekken wel, de, de veilige leeromgeving om die vraag te stellen.*
	### (inductive) structured decision-making	*Ik kan me wel willen dat de hele robot aangepast wordt, om maar zo te zeggen, maar als daar niet echt een hele goede, gegronde vaktechnische reden voor is zou dat natuurlijk ook zonde zijn om iemand te dwingen om de robot opnieuw te bouwen. [….] Precies, maar ja, of ik nou vraag één op de eerste plek wil hebben of vraag tien. Ja, weetje je, dat zijn geen objectieve argumenten om iets aan te passen bij wijze van spreken.*
	### (inductive) visibility	*Ik denk dat dat nu zichtbaarheid is, van onze kant vanuit de developers naar hen toe. Iedereen weet dat er een soort van digital center, een groep jongens die bezig is met IT, maar hoe kom ik daarmee in contact?*

# Alignment decisions	*## (deductive) testing capabilities*	*We zorgen altijd wel dat dat er genoeg, dat er ook test omgeving is, waar je de oplossing kan testen en niet op de live omgeving bouwen en hem gelijk dingen laten doen. [….] Het is echt constant bouwen, testen, tweaken, testen, opnieuw bouwen.*
	### (inductive) alignment documents	*Je hebt natuurlijk je product development PDD waar je in moet gaan schrijven hoe het proces nu loopt en wat er allemaal nodig is. Ja, in principe is dat wat we in ieder geval als eerste opstellen. Iedereen weet wat, wat er wordt bedoeld en wat er aan het proces moet veranderd worden dan wel niet. En wat uiteindelijk nog moet gebeuren, moet gaan gebeuren met de uitkomsten van de robot.*
	### (inductive) user-acceptance test	*[….] en dan laten wij dan de eerste wat aan doen, gaan we door het document heen en zien wat we gedaan hebben. En daar laten we het proces zien van wat de oplossing doet. En dan vragen wij degene die de "process owner" is, of die voorgeschoven is en er wat van kan vinden, vragen wij oké, deze stap is dat ook, hoe je dat zou doen met de hand. Dan lopen we het hele proces door en als dat allemaal ja ja ja is dan. Zijn de uitkomsten zoals verwacht, ja dan vragen we ook een vragenlijst en of diegene een handtekening kan zetten. Dat proberen we te voorkomen door eerst een UAT te doen met een robot.*
	### (inductive) compliance policies	*There are standards and you have to see the standards. Is your robot or is the project which is proposed by the client aligned with this is with this thing? [….] I don't know the rules and regulations from the government, but it keeps on updating every time. So that's what I think why it's relevant, because if there is a new policy, if there is a change of system, everything. All these things are being updated so that you can you know that you can rely on it because it's always updated.*
	### (inductive) reducing complexity	*We call it the pseudocode. Pseudocode shows the process flow. No matter what, you are a developer, or you develop in different language, or you are a business-related guy like a client. You can be on one page because there is no code in pseudocode. Pseudocode is the name, but it's not a code actually it's a plain English way of explaining the codes. […]*
	### (inductive) change anticipation	*Ja, dan ben ik degene in mijn rol als servicemanager die dan aangeeft van: joh, let op die service, of dat systeem […]. Ik verwacht dat daar een change in de robot moet komen.*
	### (inductive) use of generic codes	*When you write the generic codes, then things can go wrong, and things can be updated in the future. That way you can overcome. when you upgrade the system, you don't have to do a lot.*