Stakeholder involvement in de-escalations:

An exploratory study

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This research confronts escalation theory with stakeholder theory in an ICT environment. In the current ICT-oriented society, escalations in ICT services become more important. Stakeholders play an important role in escalations, because they can both cause and resolve escalations.
This study uses an exploratory approach to confront both theories.
The main contribution of this research is the connection between stakeholder theory and escalation theory. Other contributions are the identification of stakeholders in cloud control escalations and the frameworks which can be used to identify stakeholders in escalations.

Keywords: Escalation, de-escalation, stakeholder, cloud control, ICT, participation

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1.Introduction

1.1. Context

Information and communication technology (ICT) as a service is a relatively new and important concept. ICT as a service is facilitated by a new innovation: the cloud. The cloud delivers a shared pool of resources that can be dynamically and automatically provided and released (Papazoglou & van den Heuvel, 2011).

ICT as a service consists of three concepts: Software as a service (SaaS), Platform as a service (PaaS), and infrastructure as a service (IaaS). SaaS provides users with the ability to access applications from the internet, such as Gmail, Dropbox, and Office365. PaaS provides users with a cloud platform, where a cloud framework is provided for developers to build an application. IaaS provides the users with a virtual hosting environment, where the customer controls their storage, networking, load balancing, and operating system.

The concept of ICT as a service originates from the global shift from a manufacturing economy to a service economy (Fuchs, 1968). In fact, the ICT sector was relatively slow in adopting a service-oriented attitude. The first sign of this approach was the development of the discipline IT Service Management (ITSM).

ITSM is a process-oriented discipline for managing IT operations as a service. An important process of ITSM is escalation management. This is important because when an incident occurs within a cloud infrastructure it can affect large and important parts of an organisation. When an escalation occurs, it is likely that stakeholders are affected. This research is focused on escalation management and the stakeholders that are part of the escalations.

Escalations are defined as continuing commitment to a project with negative likelihood of goal attainment (Brockner, 1992; Keil, 1995). Where escalations encompass the worsening situation of a project, de-escalations encompass the resolution of these problems. De-escalations provide remedies for the ills of the escalations (Pan, Pan, Newman, & Flynn, 2006).

Stakeholders are important in ICT projects, because fulfilling the expectations of relevant stakeholders is an integral part of these projects (Lyytinen and Hirschheim, 1987). Therefore, stakeholders also play an important role in escalations and de-escalations of ICT projects (Pan, 2005).

1.2. Research background

This research is based on two different pillars of research. On the one hand this research studies the complexity of simultaneously satisfying the needs of different stakeholders. On the other hand, this research investigates the escalating behaviour within organisations. This research connects both research pillars by investigating them within an ICT environment.

Mähring and Keil (2008) argue that ICT environments are prone to escalations. This is caused by the high complexity of tasks and the difficulty to manage those tasks (Kirsch, 1996, Tiwana, 2009). Within this complexity, stakeholders play an important role. This research focuses on the role stakeholders will play in this regard. Below both the concepts escalations and stakeholders will be described briefly.

1.2.1. Escalation theory

Escalation theory is applied in different practices, such as healthcare, conflict theory, and research within the ICT domain. A definition for escalation within healthcare and conflict theory could be "continuing with a failing course of action".

In healthcare, an escalation is used to describe the continuation of a costly procedure which does not lead to better results. In conflict theory escalations are used to describe the growing severity of a conflict. A conflict starts with a relatively small incident and escalates into larger conflict.

ICT projects are prone to escalations because of the high complexity of tasks and the limited knowledge of decision makers (Kirsch, 1996). When such a project is escalating, it is important to solve this escalation. The process of solving an escalating situation is called de-escalation. De-escalation occurs whenever there is reduced commitment to a failing course of action. Reduced commitment can result in project abandonment, but also movement away from some previous course of action (redirection).

There are several stages of de-escalating projects: 1. Problem recognition, 2. re-examination of prior course of action, 3. Search for alternative course of action, 4. Implementing an exit strategy (Montealegre & Keil, 2000). These stages will be explained in more detail in the following chapters.

1.2.2. Stakeholder theory

Stakeholder theory contains the body of research which focuses on the individuals or organisations who are affected by or are affecting an organisation. The term stakeholder was

introduced by the Stanford Research Institute in 1963, but it gained wide recognition after the book by Freeman in 1984: *Strategic Management: A Stakeholder Approach*. Freeman (1984) initiated the discussion on the importance of stakeholders, who are defined as: "any group or individual who can affect or is affected by the achievement of an organisation's purpose" (Freeman, 2010, p. 53).

After the discussion on stakeholders was initiated by Freeman, other studies have showed that acknowledging and paying attention to stakeholders improves an organisation's performance (Berman, Wicks, Kotha, & Jones, 1999; Choi & Wang, 2009; De Gooyert, 2016; Hillman & Keim, 2001, Wang & Huang, 2006). Although Friedman (1970) has challenged the notion of paying attention to stakeholders, by saying that the only responsibility of businesses is to increase profit. Contradicting Friedman (1970), recent studies show that paying attention to stakeholders indeed improves corporate performance (Deng, Kang, & Low, 2013; Dimson, Karakas, & Li, 2015; Ferrel, Liang, & Renneboog, 2016).

Within the ICT field of research, it is acknowledged that stakeholder theory contributes to performance (Bailur, 2006; Rowley, 2011; Islam & Grönlund, 2007). The first mention of stakeholders within an ICT environment is made by Mumford and Weir (1979). They defined the end user as an important stakeholder within development and implementation of a project. According to Pouloudi (1999) ICT research focuses primarily on individuals or groups within an organisation, instead of individuals or groups outside of the organisation. This distinction will be explained in more detail in chapter two.

Another important aspect within stakeholder research is the extent to which stakeholders are involved. This research topic was introduced by Arnstein (1969). Arnstein (1969) conducted research into citizen participation in society and developed a ladder of participation with eight consecutive steps. Based on the study of Arnstein (1969), Wilcox (1994) adjusted the ladder of participation into five levels. The distinction between the two ladders of participation will be described in chapter two.

1.3. Research aim

The aim of this research is to gain understanding of stakeholders in an escalating and de-escalating process to help organisations in dealing with stakeholders during escalations and de-escalations. In order to meet this objective, this research will focus on what an organisation requires from its stakeholder to successfully transform an escalating situation into a de-escalating situation.

To examine the stakeholders that are part of the escalation and de-escalation process an exploratory research approach is chosen. This relationship between escalations and stakeholders is investigated in an ICT environment. This will be explained in more detail in the next part.

1.4. Research setting

This research uses an exploratory approach to analyse the relationship between stakeholders and escalations. The relationship between stakeholders and escalations is an unexplored area of research, therefore an exploratory study is suited (Thomas & Hodges, 2010). To determine the relationship between stakeholders and escalations, the exploratory study is conducted at a Dutch ICT company: Itility BV.

Itility is an ICT oriented company that is built on three pillars: ICT infrastructure, ICT analytics, and ICT innovation. Itility was originally founded in 2006 and grew into a high-end ICT service provider, within 10 years. Itility focuses on escalations in both ICT infrastructure and ICT innovation. This will be explained in more detail in chapter three.

Before continuing with the main concepts of research, a more detailed description of the environment in which this study operates has to be given first. The ICT environment in which Itility operates, consists of two important concepts: big data and cloud computing.

Both big data and cloud computing are part of the latest ICT technologies. Big data is a large pool of data, which can be analysed with specific tools. Big data gives companies more insights and provides better analytics for diverse purposes. Cloud computing is a model for enabling on-demand network access to a shared pool of configurable computing resources that can rapidly be provided and released with minimal management effort or service provider interaction (Mell & Grance, 2011). Important features of the cloud are sharing of computing capacity, accessibility, resource pooling, elasticity, and monitoring (Aceto, Botta, Donato, & Pescapè, 2013; Marston, Li, Bandyopadhyay, Zhang, & Ghalsasi, 2011).

Itility combines the features of big data and cloud computing to monitor the ICT infrastructure of the customer. When something goes wrong within the ICT infrastructure a team intervenes to provide a solution to the problem. A lot must be arranged to provide such services, such as Service Level Agreements (SLA) and escalation procedures and processes. Service Level Agreements are defined to clarify the expected level of service between the consumer and the provider (Patel, Ranabahu, & Sheth, 2009). Patel et al. (2009) acknowledge the importance of defining SLA's when working with the cloud. When something goes wrong

in these cloud infrastructures different stakeholders are influenced. Therefore, stakeholders have an important role when it comes to ICT infrastructure and escalations within this infrastructure.

1.5. Research questions

The most important concepts in this research are stakeholders and escalations. This research focuses on how stakeholders influence and are influenced by escalations. This is an undiscussed research topic, while in practice escalations occur often and different stakeholders are affected by those escalations. This research will try to provide answers to the gap between literature and practice. This research focuses on a cloud control context. Therefore, the main research question is:

What does a firm require from its stakeholders to successfully de-escalate a cloud control escalation?

This question invokes multiple other questions. When stakeholder involvement is well organized within a cloud control escalation, which stakeholders are then involved? This results in the first sub-question of this research:

1. *Which stakeholders should be involved in a cloud control escalation?*

Another relevant question is when these stakeholders are important. In the escalation theory, relevant stages of escalations and de-escalations are described. The second sub-question will examine when stakeholders are important:

2. *At which stage of a cloud control escalation is the involvement of stakeholders necessary?*

The last sub question discusses the required involvement of stakeholders to de-escalate the situation at hand. This question is asked because in practice it is relevant to know what is required from stakeholders to de-escalate the situation. The last sub-question therefore is:

3. *What is the required level of stakeholder participation in a cloud control escalation?*

1.6. Research contribution

By confronting the concepts of stakeholders and escalations, this research contributes to both the literature and practice. The contribution to the literature is twofold. On the one hand this research contributes to the literature about escalations, by identifying which stakeholders are required during an escalation. On the other hand, this research contributes to the descriptive literature about stakeholders by identifying which stakeholders are impacted by a cloud control escalation.

This research also provides practical contributions by identifying, the stakeholders that are important in escalations and de-escalations, the stages in which the stakeholders are important, and the level of participation that these stakeholders must have. This research also assists managers in escalating situations by providing frameworks to analyse the necessary stakeholders in escalations.

1.7. Thesis outline

The main research question and sub-questions will be discussed in the next chapters. The second chapter discusses the relevant literature, which is the foundation of this research. When the theoretical basis of this research is explained, the research setting and the methods of this research will be discussed. Thereafter the fourth chapter will present the results and in the last chapter conclusions will be formulated, based on these results.

2.Theoretical background

2.1. Introduction

This chapter explains the relevant concepts of this research in more detail. As discussed in the previous chapter, this research focuses on stakeholders and escalations in an ICT environment.

Both stakeholder theory and escalation theory are widely investigated research topics. Stakeholder theory aligns the interests of multiple stakeholders to create value for organisations (Donaldson and Preston, 1995; Freeman, 2010; De Gooyert, Rouwette, Van Kranenburg, & Freeman, 2017). Escalation theory describes the phenomenon that organisations persist in pursuing failing courses of action (Brockner, 1992; Staw, 1976; Whyte, 1986). These failing courses of action can be identified as projects that exceed either time or budget (Staw and Ross, 1987).

Obviously, there is a link between stakeholder theory and escalation theory, because during an escalation several stakeholders are involved or should be involved. Therefore, it is surprising to notice that there is almost no theoretical integration between the concepts of stakeholders and escalations.

This chapter identifies the important concepts from both escalation theory and stakeholder theory which help to assist the theoretical integration. Firstly an introduction will be given of the ICT concepts, which are discussed to understand the context in which this research is conducted. Thereafter, the concepts of escalations and stakeholders will be discussed. At the end of this chapter, the concepts of escalations and stakeholders are combined.

2.2. Theoretical background

2.2.1. Information and communication technology

Information and communication technology, in short ICT, is a widely-used term which encompasses a lot of different subjects, such as computers, mobile devices, social media, the cloud, internet of things, etcetera. Since the introduction of the internet in 1969, ICT has led to enormous innovation and economic growth (Chapman, James-Moore, Szczygiel, Thompson, 2000; Schreyer, 2000).

ICT innovations have been compared to other great innovations of the past, such as the steam engine and electricity (David, 1990; Hempell, Van Leeuwen, Van der Wiel, 2004). The

innovations consist of both hardware innovations and software innovations (Kelly, 2010). Hardware innovations are tangible and examples are computers and mobile devices. Software innovations are intangible, like internet of things, big data tools, and the cloud applications. These two concepts intertwine most of the times, so a clear distinction between hardware and software innovations is hard to make.

Two important recent ICT innovations are big data and cloud computing. Big data refers to a large set of data, which is used for different purposes. Big data results in organisations and people gaining more knowledge about their business through measuring and analysing data. This can help organisations to improve decision making and performance (McAfee, Brynjolfsson, Davenport, Patil & Barton, 2012). Big data can be used for predictive analysis and behaviour analysis. Google and Facebook are examples of well-known companies who are making use of big data. Google uses big data to improve their search algorithms. This way, Google tries to provide users with the best search results. At the same time, Google tries to learn as much as possible about their users, to target their advertisements better. The same holds for Facebook. Facebook uses big data to analyse what users are looking for and thereafter provide users with personalised marketing (Lohr, 2012).

The cloud is a large pool of pay-per use virtualized resources, such as hardware, development platforms, and devices. These resources can be reconfigured to adjust to a variable load, allowing optimal resource utilization (Vaquero, Rodero-Merino, Caceres, & Lindner, 2008). This means that data can be stored and accessed in another place, which results in two important things: organisational agility and capacity planning (Jadeja & Modi, 2012).

Organizational agility is the measure of an organisation's response to change (Jadeja & Modi, 2012). This is encouraged by the cloud because the business can scale its IT resources when things do not work out as they were planned to. Capacity planning is the process of determining and fulfilling future demands of an organisation's IT resources (Jadeja & Modi, 2012). Capacity in this case means the maximum amount of work an IT resource can deliver. A discrepancy between capacity and demand of an IT resource can result in over- or under-provisioning. Over-provisioning means that the system will be inefficient, due to more available resources than demand. Under-provisioning means that the system cannot fulfil user needs, due to more demand than resources. With cloud computing a match strategy can also be applied. This means adding IT resource in small increments, as demand increases. With cloud computing load balancing can be applied. This means that usage can be balanced, due to peaks from some users and downtime of others. Because this can be applied users do not

have to make unreasonable financial investments, to accommodate those peaks. This also results in cost reduction (Jadeja & Modi, 2012). Examples of companies that provide such cloud services are Dropbox, Amazon Web Services, and Azure.

Besides the advantages of organisational agility and capacity planning depending on the cloud services also has its disadvantages. For instance, security issues or performance of the cloud providers. Because the data is stored elsewhere it is very important that the data is secured very well. Otherwise other parties can access the data of the customers and huge financial losses can be the result of this. Performance is also crucial when depending on cloud services (Garg, Versteeg, & Buyya, 2013). When an organisation's core activities depend on cloud services it is necessary that those cloud services perform very well. Otherwise organisations should switch to other cloud providers or find another solution.

The introduction of cloud computing entails a more service oriented approach for ICT companies. Where originally each company had to have their own datacentres and developers, nowadays because of cloud computing this can be performed by other parties. This service oriented approach developed into a new concept: IT Service Management (Heininger, 2012). IT Service Management consists of three important concepts: SaaS, PaaS, and IaaS.

SaaS is the online delivery of software (Dubey & Wagle, 2007). SaaS provides business the opportunity of signing up to use an application hosted by another company, instead of buying software licenses and installing this software on individual machines. In this way, an organisation gains more flexibility to switch vendors and the organisation also does not have to maintain the software itself (Dubey & Wagle, 2007). As mentioned, examples of SaaS are Dropbox and Office 365.

PaaS is a software platform on which systems run (Vaquero et al., 2008). PaaS gives developers a framework on which they can develop or customize applications. Examples of PaaS providers are the Google Apps Engine, Amazon Web Services and Azure.

IaaS is the delivery of hardware (server, storage and network), and associated software (Bhardwaj, Jain, & Jain, 2010). IaaS provides a virtual hosting environment with controls the storage, networks, load balancing, and operating system. By using IaaS, a company doesn't have to buy the hardware themselves. Three examples of IaaS providers are: Amazon, Google, and Microsoft.

The context which this research investigates is an ICT company which uses a cloud computing environment together with a big data platform to provide IaaS and PaaS services to other companies. The applications of these other companies depend on the underlying IaaS

and PaaS services. Therefore, when something goes wrong with a project within these services or these services are not performed properly the situation quickly escalates.

2.2.2. Escalations

Escalation theory is the first of the two main theoretical pillars of this research. Escalations describe the phenomenon that organisations persist in pursuing failing courses of action (Brockner, 1992; Staw, 1976; Whyte, 1986). This failing course of action is mostly related to going over time or over budget. Escalations within an IT environment occur very often. Kirsch (1996) argues that IT projects are prone to escalations, due to highly complex tasks and limited knowledge of the decision makers. According to Keil, Tan, Wei, Saarinen, Tuunainen, and Wassenaar (2000) one of the most challenging decisions that a manager must confront is whether to continue or abandon a troubled IT project.

IT is not the only discipline where escalations are used. For instance, healthcare and conflict theory. In all practices escalations are related to failing courses of action, where the situation becomes worse. In healthcare examples of escalations are rising use of drugs, dose increases, or increasing medical costs. In conflict theory, an escalation is used to describe a worsening situation in a conflict area (Schönbach, 2010). This research focuses on escalations in organisations.

Escalation theory in organisations originates from the research of Staw (1976), who described the process of escalating commitment in a business investment decision. Staw (1976) shows that decision makers often increase the commitment of resources when negative consequences occur, instead of reversing earlier decisions. Those individuals increase commitment to those failing courses of action and undergo the risk of further negative consequences.

Why these individuals continue with these failing courses of action is related to three types of decision errors (Staw, 1981): the self-justification in commitment decisions, external versus internal justification, and the norms for consistency.

The self-justification theory describes the tension of individuals to bias their attitudes in a positive direction to justify their previous behaviour (Cohen, Brehm, & Fleming, 1958; Festinger, 1962; Weick, 1964; Wicklund & Brehm, 2013). This means that individuals try to redirect their biases to justify their previous decisions. This is most likely to occur when individuals feel personally responsible for the negative consequences and these consequences are difficult to undo (Brehm & Cohen, 1962; Cooper, 1971). In an organisational setting this

would mean that when an individual has invested much in a previous action they try to justify losses by redirecting their own biases. This can result in commitment to a decision and therefore escalation of the situation.

External vs internal justification describes an individual's process of supporting one's actions to their selves and to others. Internal justification is the tendency of an individual to assure themselves that the decision is right (Aronson, 1968, Hen, Tan, & Wei, 2003). External justification is the need for individuals to assure others that their decisions were appropriate (Heng et al., 2003). External justification and internal justification force motivating individuals to persist with projects with a failing course of action. In an organisation, this would mean that employees will persist with a failing course of action because they feel that they have to justify their actions to their supervisors.

The concept of norms for consistency describes the tendency of individuals to be steady in their decisions. This is done by individuals because it is perceived that managers who are consistent in their actions are better leaders than those who switch from one line of behaviour to the other (Staw, 1981). This would mean that individuals in an organisation will continue with their previous course of action because they want to be perceived as consistent. This means that if a manager likes to be perceived as consistent they could hold on to a failing course of action because of this.

These three biases indicate why individuals would hold on to failing courses of action. When this happens, the escalation will continue and a project will escalate even further. To prevent the escalation from continuing a de-escalation process must be started. In this way, time and resources can be saved and channelled to more productive uses elsewhere (Heng et al., 2003). The de-escalation process is important because de-escalation provides remedies for the ills of escalation (Pan, Pan, Newman, & Flynn, 2006).

Before an escalating project can go from escalation to de-escalation a trigger must redirect the course of the project (Montealegre & Keil, 2000). Montealegre and Keil (2000) identify triggering activities or conditions which can break the escalation and guide the project into a de-escalating situation. A few triggering activities or conditions that are relevant for this research will be discussed.

The first is the setting minimum target levels. This is discussed in Keil and Robey (1999) and Simonson and Staw (1992). The minimum target level explains that setting a minimum target increases the chance that troubled projects will be de-escalated. This is because it is more likely for escalations to continue when there is lack of clarity about what constitutes success and failure.

The second triggering activity or condition is making negative outcomes less threatening. Reducing the threat posed by negative outcomes is useful for de-escalating the situation (Keil & Robey, 1999; Simonson & Staw, 1992). This means for an organisation that when severe punishment for failures is not imposed, organisations can encourage de-escalation.

The third is the separation of responsibility for initiating and evaluating projects. When individuals feel high personal responsibility for a specific project, the project is more likely to escalate (Barton, Duchon, & Dunegan, 1989; Keil and Robey, 1999). Therefore, when the responsibility for initiation and evaluation is separated a project is more likely to de-escalate.

The fourth is the appeal to other stakeholders. This means that when other stakeholders are involved and the appeal to other stakeholders is at stake, the project is more likely to be de-escalated (Ross & Staw, 1993). This would mean in an organisation that when more stakeholders are involved, that it is more likely that a project will be de-escalated.

The fifth is unambiguously negative feedback. This originates from the idea that IT projects are prone to escalations, because software is invisible and intangible (Abdel-Hamid, 1988; Mähring & Keil, 2008). Garland, Sandefur, and Rogers (1990) argue that de-escalation will not occur until the gravity of the problem manifests itself unambiguously.

These five triggers or conditions help identifying escalations and guiding them into de-escalations or can assist in preventing escalations. When an escalation occurs, several stages can be identified in the escalation/de-escalation process. These stages are described in both the studies of Pan et al. (2006) and of Montealegre and Keil (2000). Pan et al. (2006) identify three stages and focus on the commitment during the transformation from escalation to de-escalation. Montealegre and Keil (2000) identify four stages of de-escalations and they focus on practical guidelines for identifying and managing troubled projects.

The three stages of escalations/de-escalations described by Pan et al. (2006) are unfreezing commitment to previous failing course of action, changing the previous beliefs and attitudes, and refreezing the new attitudes and behaviours. These three stages are considered as an unfreezing-changing-refreezing process (Lewin, 1951). These stages identify the biases of stakeholders and can be used to identify de-escalation strategies for future projects.

In the first stage, unfreezing commitment to the previous failing course of action, the motivation to change is created. Three steps are important to create the motivation to change. The first is disconfirmation of expectations, which implies a disequilibrium based on disconfirming information. When this is shown, the data must be accepted as valid and

relevant, but this is prevented by learning anxiety. Therefore, the second step is induction of guilt or survival anxiety. The third step is to overcome this learning anxiety by creating psychological safety (Schein, 1996). When this has happened, we have unfrozen the commitment to a previous failing course of action.

The second stage of de-escalation is changing the previous beliefs and attitudes. In this stage, new attitudes and behaviours are developed based on new information and cognitive redefinition (Pan et al., 2006). This stage consists of four stages in which the individual moves in a spiral pattern (Weick & Quinn, 1999). The first stage is precontemplation, the second contemplation, the third action, and the last maintenance (Pan et al., 2006; Prochaska, DiClemente, & Norcross, 1992). In this stage the role of a prime mover (leader) who creates change is very important. The new behaviour of the prime mover will incite new behaviour of followers (Spreitzer & Quinn, 1996).

When the beliefs and attitudes are changed and the behaviour fits both the personality of the target and the expectations of the target's social network the new attitudes and behaviours can be refrozen (Weick & Quinn, 1999). This is the third stage of the de-escalation process. In this stage the new beliefs are aligned and integrated, and it is assessed whether the beliefs are 'bought in' (Pan et al., 2006).

In addition to the three stages of de-escalation provided by Pan et al. (2006), Montealegre and Keil (2000) identify four stages of de-escalation. These stages are defined to assist in identifying and managing troubled projects. The four stages are: problem recognition, re-examination of prior course of action, search for alternative course of action, and implementing an exit strategy.

The first stage, problem recognition, is an important stage in an escalation and especially in an IT environment. Escalations are more difficult to identify in an IT environment, because IT projects are prone to escalations. This is due to the of the invisible and intangible nature of IT components and the complexity of tasks (Abdel-Hamid, 1988; Mähring & Keil, 2008). Therefore, a clear understanding must exist in an organisation that something is wrong with the present course of action. When this is not the case, the problem will not be identified and the escalation will continue.

The second stage is re-examination of the prior course of action. This stage encompasses clarifying the magnitude of the problem and fundamentally redefining the problem (Montealegre & Keil, 2000). The magnitude of an escalation is very important, because there are very small as well as very large escalations.

The third stage is searching for alternative course of action. When the problem is understood, managers begin to search for alternative courses of action. This includes convincing other stakeholders of the need of change and this also includes face-saving behaviour to other stakeholders.

The last stage is implementing an exit strategy. This involves deciding on a mutually agreeable implementation strategy and de-institutionalizing the project. De-institutionalizing the project is removing it from the core of the firm (Ross & Staw, 1993). In this way, the project can de-escalate. Otherwise multiple stakeholders will interfere in the de-escalation process.

To give structure to the previous enumerations of stages by Montealegre and Keil (2000) and Pan et al. (2006) a table will be given, which summarizes these stages:

Escalation stages	**Montealegre & Keil (2000)**	**Pan et al. (2006)**
	Problem recognition	Unfreezing commitment to previous failing course of action
	Re-examination of prior course of action	Changing the previous beliefs and attitudes
	Search for alternative courses of action	Refreezing the new attitudes and behaviours
	Implementing an exit strategy	

Table 1: Escalation stages

This research will apply de-escalation theory from the perspective of Montealegre and Keil (2000) to identify the stages of an escalation. The perspective of Montealegre and Keil (2000) is chosen because this research, like the research of Montealegre and Keil (2000), focuses more on the practical guidelines for identifying and managing troubled projects, in contrast to the research of Pan et al. (2006) who focus on the commitment during the escalation.

2.2.3. Stakeholder theory

The foundations of stakeholder theory are built by Freeman with his book Strategic management: a stakeholder approach. He identified the importance of involving stakeholders within organisations. He defines stakeholders as the groups and individuals who can affect, or

are effected by, the achievement of an organisation's mission. Examples of stakeholders are suppliers, customers, unions, the government, and employees (Freeman & Reed, 1983).

Stakeholder analysis is used within several disciplines, such as healthcare, management, and development literature (Brugha & Varvasovszky, 2000). Stakeholder analysis can be used to improve knowledge about relevant actors in any situation to understand their behaviour, interrelations, interests, and potential influence (Brugha & Varvasovszky, 2000; Mena, Tomas, & Hult, 2017; Weiss, 2014).

Donaldson and Preston (1995) identified three distinct aspects of stakeholder theory. The three aspects are the normative, the instrumental and the descriptive aspect. This distinction has been highly influential in shaping research into stakeholder theory (Hendry, 2001; Egels-Zandén & Sandberg, 2010). Still, there are several notable authors who have criticized the distinction of Donaldson and Preston (1995), such as Freeman (1999) and Kaler (2003). According to the criticasters this distinction originates from the philosophy of sciences. This research follows Hendry (2001), who indicates that the distinction has been highly influential in shaping the research into stakeholders. Therefore, the distinction will be explained here and at the end the concepts of this research will be linked to the distinction between the normative, the instrumental and the descriptive aspect stakeholder theory.

The first is the descriptive aspect of stakeholder theory. When stakeholder theory is used to describe or to explain specific characteristics and behaviour of an organisation, then it is called descriptive (Donaldson & Preston, 1995). Descriptive aspects can be used to answer important questions, such as which stakeholders are important, when and why are they important, and how resources should be allocated between stakeholders (Jawahar & McLaughlin, 2001).

The second is the instrumental aspect of stakeholder theory. The instrumental aspect contains the connection between stakeholder management and corporate objectives (Egels-Zandén & Sandberg, 2010). Considering this aspect, a lot of studies are conducted to test the relationship between stakeholders and financial or organisational performance. Several studies show that successfully paying more attention to stakeholders improves an organisation's financial and social performance (Berman et al., 1999; Clarkson, 1995).

The third is the normative aspect of stakeholder theory. The normative aspect considers what ought to be in light of stakeholder management (Jawahar & McLaughlin, 2001). One example of a subject in the normative aspect are the ethics within stakeholder theory. How should an organisation deal with their stakeholders is one of the normative questions within stakeholder theory.

This research uses the descriptive aspect of stakeholder theory to identify which stakeholders are relevant in a cloud control escalation. Previous research of Sharp, Finkelstein, and Galal (1999) shows that there are two different types of stakeholders within an ICT context: baseline stakeholders and network stakeholders.

Baseline stakeholders are the stakeholders who directly influence a product or service (Sarkar & Cybulski, 2002; Sharp et al., 1999). Sharp et al. (1999) identify four baseline stakeholders in a requirements engineering process: the users, developers, legislators, and the decision makers.

The users are the people, groups, or companies who will interact with the software and control it directly (Sharp et al., 1999). They are also the ones who will use the products of the system. The developers are the ones who establish the system as it is. The developers can also make additions to the system when the users require this. The legislators are the professional organisations, such as government agencies, trade unions, and legal representatives (Sharp et al., 1999). They influence the product or service by setting the boundaries for this service. The last baseline stakeholder are the decision-makers. They are the ones who decide on important manners within the service or product.

Next to the baseline stakeholders there are the stakeholders that are in the network of the baseline. The network stakeholders in interact with the baseline (Ballejos & Montagna, 2008; Sharp et al., 1999). The network stakeholders consist of clients, suppliers, and satellite stakeholders. These stakeholders do not directly influence the service or product, but influence the ones that do.

The clients are the ones who uses the product or service. The client stakeholder is easier to capture when thinking about a product, rather than a service. The client is the one who receives a product from the baseline stakeholder. The supplier is the stakeholder who supports the baseline stakeholders by providing them with goods or services. The satellite stakeholders are the other stakeholders who interact with the baseline in a variety of ways (Sharp et al., 1999).

Both baseline stakeholders and network stakeholders will be taken into account when looking at the stakeholders who are important in a cloud control escalation. The research of Sharp et al. (1999) will therefore be used to assist in answering research sub-question one: which stakeholders should be involved in a cloud control escalation.

The stakeholders that must be involved in a cloud control escalation are important to answer the main question of what a firm require from its stakeholders to de-escalate a cloud control escalation. Another important aspect is the level of participation of stakeholders in a

cloud control escalation. This is important because when stakeholders are not involved enough it is much more difficult to de-escalate a cloud control escalation. Also, when specific stakeholders are involved to much the de-escalation process will be hindered by those stakeholders.

Citizen participation studies give a starting point into the extent to which stakeholders are involved. Arnstein (1969) was the first who designed a ladder of citizen participation, which reflected the influence of citizens in society. This ladder has eight different rungs of participation, starting at one end from manipulation of the government until citizen control on the other end of the ladder. These eight different rungs are summarized into three levels of participation: nonparticipation, tokenism, and citizen power.

The ladder of Arnstein (1969) consists of three important levels. The first is nonparticipation at the bottom. Nonparticipation can be viewed as not including individuals in institutions, communication and decisions that affect them (Checkoway, 2011; Green & Hunton-Clarke, 2003). Nonparticipation involves two rungs on the ladder of participation: manipulation and therapy. Manipulation is defined as dishonestly engineering support (Arnstein, 1969; Hirsch, 2012). Therapy is used as a means for the disaffected to become involved in the decision making (Lawrence, Daniels, & Stankey, 1997).

The second level is tokenism in the middle of the ladder. Tokenism is in the essence making individuals feel that their contributions and input are being considered, but in fact they have little or no choice in the decision (Barber, 2007; Ile & Mapuva, 2010). Tokenism consists of three rungs: informing, consulting, and placation. Informing means only providing one-way communication that provide individuals with information (Grönlund, 2009). Consulting is two-way communication where individuals interact and react to each other's statements (Sadura & Olko, 2016). Placation means that stakeholders have some degree of influences, without authority to make decisions (Henriksen, Refsgaard, Højberg, Ferrand, Gijsbers, & Scholten, 2009).

The third and top level is citizen power. Citizen power implies that decision makers delegate decision-making powers to other stakeholders and allow them to initiate or control programmes within their domain (Ile & Mapuva, 2010). Citizen power consists of three rungs: partnership, delegated power, and citizen control. A partnership is a commitment by a corporation or an individual to work together with another organisation or individual, to encourage joint decision making (Diamond, 2001; Googins & Rochlin, 2000). Delegated power means that authority is delegated to other stakeholders (Chadderton, 1995). Citizen

control is the rung where citizens have complete power. These stakeholders plan and manage entire projects or programs (Elgarah & Courtney, 2002).

The research of Arnstein (1969) gives a detailed distinction between several levels of participation. This idea of Arnstein (1969) is continued by different authors into several ladders for multiple disciplines (Choguill, 1996; Dorcey, Doney, & Rueggeberg, 1994; Rocha, 1997; Wilcox, 1994). This research will use the ladder provided by Wilcox (1994), because of the generic character that is has. The ladders of participation provided by for instance Arnstein (1969), Choguill (1996), and Rocha (1997) all focus on very specific subjects, whereas the ladder provided by Wilcox (1994) has a more universal and simple character (Green & Hunton-Clarke, 2003). The research of Wilcox (1994) also focuses partly on stakeholders, which fits to this research.

The ladder of participation provided by Wilcox (1994) has five different rungs, from top to bottom these are: supporting, acting together, deciding together, consultation, and information. The three at the top are according to Wilcox (1994) substantial participation, which means that from the third level stakeholders are participating in the decision process. The levels of Wilcox (1994) will be used to determine the level of participation of stakeholders in a cloud control escalation and therefore will be explained in more detail. The levels of stakeholder involvement will be discussed from bottom to top.

The first level is information, which is according to Burgess and Chilvers (2006) a form of engagement but not participation. It is often used to assist other forms of participation (Burgess & Chilvers, 2006). In this type of participation only information is given out and getting to another party, no information is received in return (Wilcox, 1994).

The second level is consultation. Consultation is appropriate when you can give other stakeholders some choices and listen to the feedback that you get (Wilcox, 1994). Therefore, consulting is two-way communication where decision-making authority is not shared (Waheduzzaman & As-Saber, 2015).

The third level, deciding together, encourages stakeholders to provide ideas and options and join in decision-making (Wilcox, 1994). The stakeholders who participate in deciding together will discuss and decide on the best way forward. This level differs from the previous because of the decision-making of both stakeholders.

The fourth level, acting together, consists of stakeholders who discuss ideas, decide on these ideas, and carry out these ideas (Agyeman, 2003; Wilcox, 1994). Acting together involves stakeholders not only in the decision-making, but the ideas are executed together.

The last and fifth level is supporting. Supporting consist of helping other stakeholders to do what they want with advice and support provided by the resource holder (Wilcox, 1994). This would mean that in an organisation there are initiatives started by groups who are supported with money or advice from others.

The levels of involvement of Arnstein (1969) and Wilcox (1994) are summarized in the following table:

Levels of participation	**Arnstein (1969)**	**Wilcox (1994)**
	Manipulation	Information
	Therapy	Consultation
	Informing	Deciding together
	Consultation	Acting together
	Placation	Supporting
	Partnership	
	Delegated power	
	Citizen control	

Table 2: Levels of participation

The levels of involvement of Wilcox (1994) will be used to answer research question three, which involves the required level of stakeholder participation in cloud control escalations.

2.2.4. Combining escalation theory and stakeholder theory

As was stated at the beginning of this chapter there is a relationship between escalations and stakeholders. This part serves to explain this relationship and to identify research that is already done in this regard.

It is remarkable that the theoretical integration between stakeholder theory and escalation theory is not present in recent literature, because obviously in escalations stakeholders are highly important. The stages of the escalations, as described by both Pan et al. (2006) and Montealegre and Keil (2000), are highly influenced by stakeholders.

The lack of theoretical integration is also noticed by De Gooyert et al. (2017). His focus is on the theoretical integration between not only stakeholders and escalations, but on stakeholders and operational research in general. Operational research is the discipline which

improves decision making in organisations (Friend & Jessop, 2013). De Gooyert et al. (2017) indicates that where in the founding years of stakeholder theory the connection with Operational Research was large, nowadays only a small stream of papers relates both fields.

De Gooyert et al. (2017) distinguished four traditions of stakeholder involvement. These four traditions are optimizing, balancing, structuring, and involving. Optimizing is appropriate when the problem and possible solutions are known and the problem can be translated into mathematical relationships. Balancing is eliciting stakeholder preferences, by involving them in the identification of alternatives and criteria. Thereafter, giving them the opportunity to score those alternatives and give weight to the criteria. Structuring implies dealing with stakeholders to increase understanding of the problem. This tradition is important when the problem is not entirely known. The last tradition is involving, which acknowledges that different viewpoints on an issue at hand need to be incorporated to be able to structure the problem.

This research is best categorised into the tradition of structuring. When an escalation occurs, the problem and possible solutions with commitment to action must be identified. In contrast to the traditions described by De Gooyert et al. (2017), for escalations, there is no time for workshops or long meetings. The escalation must be de-escalated as well and quickly as possible, because severe escalations can cause serious harm to an organisation.

This research contributes to the missing body of knowledge between stakeholder theory and Operational Research, by looking at stakeholders within escalations. This is investigated in a cloud control context, because ICT environments are prone to escalations and an escalation within this environment can cause serious harm to an organisation.

This chapter tried to explain the relevant concepts of this research by firstly explaining the environment of this research. Thereafter the bodies of research of stakeholder theory and escalation theory are explained. At the end of this chapter the connection is made between these two concepts of this research. The next chapter will review the methods applied in this research to investigate these concepts.

3.Method

3.1. Introduction

This chapter describes the method of research used to answer the research questions. This chapter serves as an explanation about the techniques used in this research and the research process. This research uses an exploratory approach to investigate the relationship between stakeholders and escalations. This chapter will discuss the methodological considerations of this research.

The first section explains the underlying research method that is used. The second section considers the methods which are used to gather the data. The third section explains the relevant concepts, which build a framework for analysing the data. Thereafter the methods for analysing the data will be discussed. The fifth section describes the actual data gathering and analysis of this research. The last two sections explain the moral considerations of this research and the validity and reliability.

3.2. Research approach

This section explains the methodological considerations that are made in this research, including the choice for an exploratory approach and the choice for a qualitative approach. Both these choices derive from the purpose of this research, which is to gain understanding of the stakeholders that are part of the escalation and de-escalation process.

This is investigated by an exploratory approach, which is suited for subjects on which little or no previous research has been conducted (Brown, 2006). This fits this research because little theoretical integration is found between stakeholder theory and escalation theory. Had such integration already been present, more guiding aspects of research would have been more suitable (Swanborn, 2013).

Within an exploratory approach several considerations can be made regarding the types of research. The first distinction that must be made is the distinction between qualitative and quantitative research approaches. In general, quantitative research strategies are particularly applicable for questions which are readily transformed into testable propositions (Darlington & Scott, 2002). Qualitative research strategies are more applicable to explore generally unanswered and uninvestigated questions (Darlington & Scott, 2002). A qualitative approach is best suited for this research, because it fits to the exploratory characteristics of this research (Ghauri & Grønhaug, 2005).

Next to the exploratory research approach, this research also used a design-oriented aspect to investigate the link between stakeholders and escalations. Design-oriented research is research which aims at solving constructive or inventive problems (Verschuren & Hartog, 2005). This research used a design-oriented aspect to identify the current escalation procedure and design a test script to evaluate the escalation methods. This test script was requested by Itility BV. to test their escalation methods and procedures. This will be explained in more detail in the data gathering section.

3.3. Research strategy

A qualitative research approach provides several methods that can be used to gather data. This section explains which methods are chosen in this research. A qualitative research approach gives several methods by which data can be gathered: in-depth interviews, focus group discussions, observations, document analysis, visual methods, and life histories (Darlington & Scott, 2002; Hennink, Hutter, & Bailey, 2010). This research chooses in-depth interviews and a document analysis to investigate the research questions.

In-depth interviews are best able to report how experts experience a particular event or phenomenon (Boyce & Neale, 2006). In this research these interviews are used to gain better understanding of the involvement of stakeholders within the cloud control escalations. The number of interviews was determined by applying the principle concept of saturation. The point of saturation is achieved when the collection of new data does not provide further information on the issue that is investigated (Guest, Bunce, & Johnson, 2006; Mason, 2010). Guest et al. (2006) and Morse (1994) suggest that in most cases this is between six and twelve interviews.

A document analysis is a systematic procedure for reviewing or evaluating documents, both printed and electronic (Bowen, 2009). Conducting a document analysis has several advantages such as efficiency, availability, and a cost-effectiveness. This research uses the document analysis because of the availability of the data and the cost-effectiveness of the document analysis. The results of the document analysis are used to provide context and supplementary data to the interviews that were conducted.

The choice for two methods is part of a triangulation approach. Triangulation involves the use of multiple methods to examine the same dimension, to overcome the deficiencies that flow from one investigation or one method (Cho & Trent, 2006; Denzin, 1989; Jick, 1979). Triangulation increases the reliability of this research.

To explore the connection between stakeholders and escalations an ICT company was chosen: Itility BV. Itility BV was chosen for this research because of the ICT environment in which they operate. As was stated earlier, ICT environments are prone to escalations, due to their complex tasks and the difficulty to manage those tasks (Kirsch, 1996; Tiwana, 2009).

Itility is a Dutch ICT oriented company located in Eindhoven and Palo Alto (Silicon Valley). Itility focuses on three pillars as an ICT organisation. The first is IT engineering, which consists of the development and operation of the IT infrastructure of the client. The second is IT factory, which consists of cloud services. Cloud services provide the client with scalable, automated, and uninterrupted applications. The last is digital transformation of the IT landscape, which considers moving the IT landscape of a client to the cloud.

Two parts of an IT landscape in the cloud are IaaS and PaaS. Infrastructure and Platform as a Service are service-oriented approaches which are used to manage the cloud environment of an organisation. Itility uses IaaS and PaaS to monitor and intervene in cloud infrastructures of the customers. This is the part where most escalations are managed.

3.4. Concepts of Research

This research studies the involvement of stakeholders within escalations. Three sub questions are asked to identify what is necessary from stakeholders to de-escalate a cloud control escalation. These sub questions will be discussed here and a framework for answering these questions will be given.

The first sub question links a cloud control escalation to the stakeholders that should be involved. Therefore, a model of stakeholder involvement is needed. This model is provided by Sharp et al. (1999). They identify stakeholders in the requirements engineering process. Elements of this research are used, due to the link with ICT that this research provides. Sharp et al. (1999) identify two types of stakeholders, baseline stakeholders and network stakeholders.

As discussed in the theoretical background, baseline stakeholders are the stakeholders that directly involve or interact with the system (Sarkar & Cybulski, 2002; Sharp et al., 1999). Baseline stakeholders consist of users, developers, legislators, and decision makers. Network stakeholders are the stakeholders who interact with the baseline (Ballejos & Montagna, 2008; Sharp et al., 1999). Network stakeholders consist of suppliers, satellite, and client stakeholders. They are the stakeholders surrounding the baseline. This can be represented in the following table. The blanks of this table will be filled out in the next chapter.

Stakeholders		
Baseline		
	Users	
	Developers	
	Legislators	
	Decision makers	
Network		
	Supplier	
	Client	
	Satellite	

Table 3: Baseline and Network Stakeholders

This model is made of the most important concepts of the research of Sharp et al. (1999). This model represents the stakeholders that should be involved within an ICT environment and therefore this model will be used as a guideline to answer sub question one.

The second sub question of this research considers the stage of a cloud control escalation when involvement of stakeholders is required. As was discussed in the theoretical background, an escalation consists of several stages. The stages used in this research are provided by Montealegre and Keil (2000). These stages are chosen because Montealegre and Keil (2000) provide practical guidelines for identifying and managing troubled projects. This fits to this research which tries also to provide practical guidelines for involving stakeholders in escalating situations.

Montealegre and Keil (2000) identify four stages of de-escalation: Problem recognition, re-examination of prior course of action, search for alternative courses of action, and implementing an exit strategy. To give an overview of the stakeholders within these stages the model below will be used. Again, the blanks will be filled out in the next chapter.

Stages of an escalation/de-escalation	**Stakeholders**
Problem recognition	
Re-examination of prior course of action	
Search for alternative course of action	
Implementing an exit strategy	

Table 4: Stages of an escalation/de-escalation

The last sub question identifies the required level of stakeholder participation. As previous chapter shows, there are several ladders to identify the involvement of stakeholders. This research has chosen the ladder of Wilcox (1994) to identify the required level of participation in a cloud control escalation.

The research of Wilcox (1994) is chosen because of the more universal and simple character, as was indicated by Green and Hunton-Clarke (2003). The research of Wilcox (1994) also focuses partly on stakeholders. The ladder provided by Wilcox (1994) identifies five rungs of stakeholder involvement: informing, consulting, deciding together, acting together and supporting.

We can show these levels of stakeholder involvement in a graphical representation. Together with the previous research question on stages of an escalation this graph can be applied to answer sub question three.

		Levels of stakeholder involvement				
		Informing	Consulting	Deciding together	Acting together	Supporting
Stages of an escalation/de-escalation	Problem recognition					
	Re-examination of prior course of action					
	Search for alternative course of action					
	Implementing an exit strategy					

Table 5: Levels of involvement and stages of an escalation

When all three sub-questions are analysed an answer can be formulated to the main question of this research, which is how should stakeholder involvement be organized in a cloud control escalation.

3.5. Analysing the data

After the interviews are conducted and the documents are gathered, the data has to be analysed. This section explains the considerations that are made regarding the analysis of the data. The next section will explain the actual data gathering and analysis.

Analysing the data is an important part of the qualitative research and can be done in several ways. This research chooses an inductive approach, where the researcher analyses the material without the theoretical expectations which are investigated (Bleijenbergh, 2013; Thomas, 2006). This approach suits this research, because little research is done in the past about this specific topic. For a topic, that has been investigated on a large scale a deductive approach would have suited better (Elo & Kyngäs, 2008; Thomas, 2006).

Analysis can be done in two different ways. The first is manually, the second is computer assisted (Kelle & Bird, 1995). A computer assisted approach makes use of software to organize and structure the data. These types of software are called Qualitative Data Analysis software (QDA-software). One example of QDA-software is Atlas.ti. Atlas.ti is used in this research because it assisted the researcher in structuring the data.

This research uses an inductive approach to analyse the data and therefore also uses an inductive coding approach. Inductive coding is coding based on the concepts that respondents use themselves to describe the social phenomenon (Bleijenbergh, 2013; Thomas, 2006). This coding practice suits this research because there is no precedent in the subject of this research.

When performing inductive research, three coding steps must be followed (Boeije, 2014; Strauss & Corbin, 1990). The first is open coding. Open coding is the part of the analysis that deals with the labelling and categorising of the phenomenon as indicated by the data (Kendall, 1999; Pandit, 1996). The second is axial coding, which entails connecting the categories identified with open coding (Pandit, 1996; Walker & Myrick, 2006). This puts the fractured data back together in new ways (Walker & Myrick, 2006). The last is selective coding, which is the last stage of the coding process. This stage encompasses systematically relating the core categories and refine these categories into theoretical constructions (Kendall, 1999).

Coding and gathering data can be done in a cycle. By switching between coding and data gathering they enforce each other. When the data is gathered and coded, this could give new insights to the theoretical concepts of the research (Boeije, 2014). This approach is used in this research to learn about the relevant concepts of this research.

To increase the validity of a research member checks can be performed after the data is analysed. Member checks serve to verify the insights that were gained during the coding phase (Cho & Trent, 2006; Koelsch, 2013; Sandelowski, 1993). The next section will describe the actual data gathering and analysis of this research, including the member checks that were conducted.

3.6. Data gathering and analysis

The previous parts of this chapter explain the relevant methodological considerations of this research. This part explains the actual gathering and analysis of the data. Data gathering consists of a few steps, which will be explained here. The first is getting access to the respondents and the data. The second is conducting the interviews and selecting the relevant data. The last is analysing the data.

The first step of data gathering is getting access to the data. In this research, the access to the documents and interviews was provided by Itility, coupled with an internship to gain a more in-depth understanding of the organisation. The documents were analysed on one hand to gain more information about the context and on the other to provide relevant information for this research.

Gathering of relevant escalation data was done in the first month of the internship and was necessary for the researcher to on one hand gather relevant data for this research and for the practical assignment. On the other hand, it was necessary for the researcher to understand the environment in which the escalations occurred. The gathering of the documents was a time intensive process, because in the beginning of this research the researcher did not possess all relevant knowledge to determine the usefulness of the data.

The researcher gathered 21 documents related to the research concepts. The subjects of these documents varied from the tools which were needed for the service Itility provides to the procedures during an escalation. One important distinction that was provided by these documents was the distinction between levels of escalations. This research investigates severe escalations, which have impact on a large part of an organisation. This has impact on the generalizability of this research, which will be discussed at the end of this chapter. After the documents were studied in more detail during and at the end of the interviews that were conducted, only four documents were coded. These four documents provided additions to the data that was gathered during the interviews. The others were used to verify the data of the interviews or were used as background data for the researcher.

Next to the document review also interviews were held. Participants for these interviews were chosen by the researcher in agreement with Itility. The participants were chosen based on their position in the organisation. Different positions in the organisation were chosen to get a complete understanding of the escalation process.

The participants were interviewed by the researcher in a semi-structured way. A semi-structured interview is an interview in which the questions are prepared in advance and sometimes the order of the questions is set (Bleijenbergh, 2013). The semi-structured interview was chosen over the structured interview because it offered the interviewer possibilities to ask impromptu questions on the subjects discussed. This was required for this research because a semi-structured interview has the advantage of allowing respondents to speak in their own terminology about the subject.

The interviewees were chosen based on the function within the organisations. One data analyst, one engineer, two escalation managers, two project managers, one project employee, and one member of the board of directors was interviewed. The interview questions which were used can be found in appendix one. These questions are in Dutch, because the interviewer and the interviewees were all Dutch. During the interviews the interviews were taped with a mobile phone, to assist the researcher in transcribing the interviews. The table below summarizes the interviews that were held for this research.

The eight interviews were held between September 2016 and April 2017. The average time of the interviews was 26 minutes and 47 seconds, but the interviews in the beginning of the research were longer than the interviews at the end. This was due to the unstructured nature of the interviews in the beginning. Ones the interviews became more structured, the interviews went fine and the time of the interviews decreased.

Interview date	**Function of the interviewee**	**Duration**
28-09-2016	Data analyst	41:11
05-10-2016	Engineer	41:19
10-10-2016	Escalation manager (1)	47:54
28-11-2016	Project manager (1)	19:37
30-11-2016	Escalation manager (2)	26:11
03-04-2017	Project employee	10:08
06-04-2017	Project manager (2)	13:32
20-04-2017	Member of the board of directors	14:28

Table 6: Interviews

After the interviews were conducted and the documents were reviewed, the data was analysed. The analysis and coding were done in a cycle, as is described earlier. This explains the time between the interview dates. The interviews were transcribed with computer assistance, with the application Express Scribe. This application assisted in controlling the speed of the played interviews and pausing/playing the tapes.

The coding consisted, as was explained earlier, of three steps: open coding, axial coding, and selective coding. Both the documents as well as the interviews were coded like this. The coding was also done with computer assistance. The application Atlas.ti assisted in the coding of this research, by providing an easy coding tool for both open and axial coding. In appendix two a small fragment of an interviews is given. This example is again in Dutch. This again is only a small fragment, due to confidentiality of this research. The coding is switched from Atlas.ti to Word, because of demonstration purposes. In the appendix the transcriptions are shown on the left-hand side. In the middle the open codes are presented and at the right-hand side the axial codes are shown. The selective coding is not presented in the appendix, because in selective coding only the core categories are selected and the relation between the categories is determined. These are the results of this research and therefore are given in the next chapters.

During the coding procedure member checks were conducted. Member checks are an important component of reliability in qualitative research (Koelsch, 2013). Member checks serve to verify the insights that were gained during the coding phase (Cho & Trent, 2006; Koelsch, 2013; Sandelowski, 1993). This research used member check to get answers to aspects from the interviews that were not clear or controversial. Also, member checks were held to ask questions which were required due to new insights. Member checks, like triangulation, are used in this research to increase the reliability of this research (Cho & Trent, 2006).

As was indicated in the beginning of this chapter, also an escalation test script was conducted for this research. This test script was made together with one engineer and an escalation manager. The test script is shown in appendix three. The appendix only shows a small and censored part of the test script, due to confidentiality reasons. The appendix shows three steps that have to be passed in order to report an incident. The pass/fail column shows that these steps were passed in this test. The entire script is focused on the necessary services that should be in place when an escalation occurs. This includes procedures when an escalation occurs and stakeholders that are relevant in these procedures.

Therefore, the test script is used in this research. The test script contributes to the other data by providing a detailed description of the procedures that are in place when an escalation occurs. Also, the test script provides a detailed description of the tools that have to be in place when such an escalation occurs.

3.7. Research ethics

Research ethics are the moral considerations that have to be made in research. Two specific topics will be described in this section. The first is the consent procedure, the second is the combination of confidentiality and anonymity.

The consent procedure involves informing the participants about the procedures and risks involved in this research. The participants themselves had a choice to contribute to the research or not. This was explicitly asked at the beginning of an interview. Also, approval was asked to audio record the interview for review purposes.

Confidentiality and anonymity consider the privacy of an interviewees responses. This is an important issue as these responses are instrumental to this research. Therefore, a respondent should feel free to answer any question honestly and openly. To that end the interviews are processed in an anonymous way in the following research results and conclusions.

3.8. Validity and reliability

This research uses an exploratory approach. This approach brings implications for the internal and external validity and for the reliability of this research. This part will explain these concepts and how this research has dealt with these concepts.

The concept of validity means that the propositions are described and explained in a correct way (Swanborn, 1996). Internal validity investigates if the interpretations of this research are correct (Swanborn, 1996; Swanborn, 2013). Within qualitative research the internal validity can be affected by the researcher himself. The presence of the researcher in social settings can affect the respondents to behave different than they usually do. This research tried to prevent this by anonymizing the respondents and by applying a triangulation approach. By anonymizing the respondents an open setting was created, in which the respondents could speak freely on the topic discussed. A triangulation approach allowed the researcher to check the information provided by the respondents and the documents.

External validity investigates the generalizability of a research. The generalizability questions whether from the investigated cases we can generalize our findings to the uninvestigated cases (Swanborn, 2013). This study only investigated the situation in one specific environment. Therefore, the results of this research are not generalizable to the univestigated cases. This results from the exploratory approach of this research.

This research also only investigates severe escalations. This is done because when escalations become more severe, more stakeholders are involved. This also impacts the generalizability of this research. Future research can look at the different stakeholders in different escalation levels.

Reliability is the extent to which the results are consistent, representative, and reproducible (Golafshani, 2003). In the end this indicates if the research is replicable. This research uses two aspects of research to increase the reliability. These are: triangulation and member checks. Triangulation improves the reliability by using multiple methods to examine the same dimension. Member checks improve the reliability by verifying the insights gained from the participants.

4.Results

4.1. Introduction

Based on the transcribed interviews and document analysis, the results are described in this chapter. The results are described in line with the sub questions and main question asked in this research. At the end of this chapter also additional results will be described.

The first sub question analyses the stakeholders that are involved in a cloud control escalation. The second sub question examines the stages of a cloud control escalation and the stakeholders that are part of these stages. The third sub question elaborates on the first two parts by looking at the required level of participation of stakeholders within these stages. After the third sub question is answered, the results to the main question will be provided. The main question of this research is what does a firm require from its stakeholders to successfully de-escalate a cloud control escalation.

4.2. Stakeholders in a cloud control escalations

As was mentioned earlier, IT projects are very prone to escalations (Kirsch, 1996). Identifying and resolving these escalations as well as possible can be urgent for a project and an organisation (Sharp et al., 1999). In the process of identifying and resolving escalations as well as possible, stakeholders are highly important. The alignment between and cooperation of several stakeholders can be crucial in resolving escalations.

As is discussed in the theoretical background, a distinction is made between two types of stakeholders: baseline and network stakeholders (Sharp et al., 1999). Baseline stakeholders are those stakeholders that directly influence the product or service that is provided (Sarkar & Cybulski, 2002). Network stakeholders are the stakeholders that interact with the baseline (Ballejos & Montagna, 2008).

A cloud control escalation is a situation in which parts of a virtualization platform do not work as they should. Many large organisations, both manufacturing and service providers, depend on cloud infrastructure for their products. When an escalation occurs, this can have enormous impact on the organisation. In a cloud control escalation, stakeholders are impacted and some stakeholders should be involved to de-escalate the situation. Therefore, it is important to determine the stakeholders that are part of the escalations. The research of Sharp et al. (1999) provides a guideline for identifying stakeholders in ICT projects and therefore

will be used here. First the baseline stakeholders will be discussed, and thereafter the network stakeholders will be examined.

Three groups of baseline stakeholders can be identified in cloud control escalations. The first are the users. Users are the ones directly affected by a cloud control escalation. An example of the users being affected in a cloud control escalation is when the users are not able to login, to perform their daily work, to access their documents, or to use an application.

The users are important for two different aspects of an escalation. Firstly, users are the ones that can recognize an escalation. This can also be automatically with specific tools. When those tools are not working well, the users are the ones that recognize the problem. Secondly, the users are the ones that cannot perform their work when something goes wrong. This means that communication and updates are very important to satisfy users in an escalation. In one of the interviews a respondent stated that an escalation is a situation in which the user is impacted:

"When identifying an escalation, you look at the business and users. The situation is called an escalation when the users are impacted unexpectedly."

The second group are the engineers. The engineers are the ones that must solve the technical issues of an escalation. Sharp et al. (1999) called this group the developers. This research uses engineers instead of developers, because engineers can be the developers of the part where an escalation occurs but they do not have to be. The engineers can be helped by tooling when solving escalations. Different kinds of engineers can be identified, such as storage engineers, network engineers and Devops engineers. It depends on the situation which of these engineers are important to solve the problem.

The third group are the decision makers. Decision makers must identify the escalating situation timely and think of an approach to solve the situation. Several different decision makers can be identified for escalations. There are project managers, escalation managers, and IT directors. Again, depending on the type of escalation, any of these is needed to determine an approach for each specific escalation. When there is an important project that escalates, the escalation will be communicated throughout the organisation and the IT direction will be consulted by the escalation manager and project manager to determine an approach to solve the escalation.

In cloud control escalations, managers can be assisted in making decisions by two tools. First, an escalation script can provide managers a guideline on who to contact, when to

contact them, and how frequently this contact must be. The second tool is a procedure for important changes. When important projects escalate, this procedure can help in identifying the approach for the escalating situation. In the procedure, a roll-back scenario is determined. The roll-back scenario details, if possible, how to revert to the previous stable situation. A project manager can activate this roll-back scenario in an escalating situation. According to one of the respondents a roll-back scenario is one of the most important aspects to think of when performing a change:

"When implementing a change, you try to foresee as many obstacles as possible, but you cannot foresee everything. Therefore, a roll-back scenario is very important and you must not hesitate in starting the roll-back scenario. Often it is better building to a decent situation result, than muddle trying to reach a perfect situation."

Besides the baseline stakeholders, the network stakeholders are also important in cloud control escalations. Sharp et al (1999) identify suppliers, clients and satellite stakeholders as network stakeholders. In a cloud control escalation, the client and the user overlap. The client who uses the cloud infrastructure is also the user. Therefore, the client is a baseline stakeholder in a cloud control escalation.

The supplier within a cloud control escalation is a network stakeholder as identified by Sharp et al. (1999). The supplier is a very important stakeholder, because the supplier can directly cause an escalation. Suppliers provide the software and hardware on which the cloud infrastructure operates. When the supplier has a problem within their software or hardware the cloud infrastructure does not work. This will definitively create a huge escalation and can cause enormous harm to an organisation.

Finally, there are satellite stakeholders that influence cloud control escalations. In a cloud control escalation, these can be the clients of an organisation that makes use of the cloud infrastructure. These can for instance be affected by a cloud control escalation when this escalation delays the manufacturing process.

Research question one considers the stakeholders that should be involved in a cloud control escalation. Baseline stakeholders should always be involved in a cloud control escalation. Network stakeholders should be involved when they are affected by or are affecting the escalating situation. The stakeholders that are required in a cloud control escalation are now added in the model defined earlier:

Stakeholders		
Baseline		
	Users/Clients	The ones who use the cloud infrastructure
	Engineers	The technical experts, who must solve the technical problems of the escalation
	Decision makers	Program managers, IT direction, CR, Escalation managers. Those who make the decision in development and use of the system
Network		
	Supplier	A party that provides the hard and/or software for the cloud infrastructure
	Satellite	Other influential parties

Table 7: Stakeholders in a cloud control escalation

The second research question considers the stages of cloud control escalations in which the involvement of specific stakeholders is necessary. As was discussed in the second chapter there are four stages identified by Montealegre and Keil (2000). These are problem recognition, re-examination of prior course of action, search for alternative courses of action, and implementing an exit strategy.

The first stage problem recognition is very important in a cloud control escalation, because when the escalations is not recognized the situation will not be de-escalated. When there is something wrong in the cloud infrastructure, it can be recognized by two different stakeholders. The engineers can be triggered by the tools that they are using to monitor the cloud infrastructure, or the user can recognize that something is wrong and notice that there is a problem.

Montealegre and Keil (2000) identify re-examination of a prior course of action as the second stage after problem recognition, before the search for alternative courses of action. In a cloud control escalation when the problem is recognized, a short review will be held to identify the problem to assist the search for alternative courses of action. Still, the actual re-examination of prior course of action will be held after the situation has been de-escalated. Re-examination in a cloud control escalation is called a post-mortem analysis. In this post-mortem analysis, the escalation will be re-examined and a root cause analysis will be conducted. A root cause analysis is conducted to discover where the escalations started and who started the escalation. From the post-mortem and the root cause analysis additions can be made to the current processes to prevent the escalation from happening again. One of the managers stated the importance of this post-mortem analysis as follows:

"In the weekly meetings, the post-mortems are discussed. This ensures that it is not a fixed, but a growing knowledge system. By discussing the post-mortems and how these are fixed, work instructions can be made. This makes sure that the relevant knowledge will be shared and instead of having one superman who knows all, we can have several."

There is, however, another side to re-examining a prior course of action. In a cloud control escalation, the escalation is mostly caused by a human error. There is mostly an engineer who caused the escalation. As such, a re-examination can be confronting and caution is required in communication about the cause. This was stated by a member of the board of directors:

"A root cause analysis can be confronting, because a human error of one of the engineers is mostly the cause of the escalation. One example from a serious escalation is that we acknowledged that the engineer was very sick from the fact that he caused this error, but we had to give him an official warning, to make sure he understood the fact that it was a very serious escalation. Still, it is important to see that there is a human side to the post-mortem analysis."

Notice that the re-examination is done after the escalation has ended. This contradicts to the findings of Montealegre and Keil (2000). The re-examination is conducted by the engineers and the escalation managers to improve knowledge sharing and improve the current processes.

The third stage of an escalation is the search for alternative courses of action. In cloud control escalations, a lot of alternative courses of action can be described in a roll-back scenario. These scenarios assist project managers when an escalation occurs. When a roll-back scenario cannot be applied, it is key to consult the decision makers in a search for an alternative course of action. It depends on severity of the escalation which decision makers have to be consulted. When it is a highly severe escalation the IT-direction must be consulted for an approach.

The stakeholders that are part of the search for alternative courses of action are the engineers, the escalation managers, the project managers, and the IT direction. The engineers help by identifying the alternative courses of action. The project managers and escalation managers communicate these alternative courses. Together with the IT direction, the

escalation managers and project managers will determine an approach to de-escalate the situation.

The final stage is implementing an exit strategy. This exit strategy can either be a roll-back to a previous state, or going to a new state. To implement an exit strategy project managers are needed to communicate the desired exit strategy, engineers are needed to implement the exit strategy, and Technical Application Managers (TAM) are responsible for testing if the exit strategy has worked correctly.

The four stages of an escalation are depicted in the diagram below. This diagram deviates from the findings of Montealegre and Keil (2000). The second stage according to Montealegre and Keil (2000) is placed as the final stage in this thesis. This is changed because the stages described by Montealegre and Keil (2000) are consecutive, and in a cloud control escalation the re-examination of the prior course of action is done after the situation is de-escalated.

Stages of an escalation/de-escalation	**Stakeholders**
Problem recognition	Users and engineers
Search for alternative course of action	Engineers, IT-direction, escalation manager, project manager
Implementing an exit strategy	Engineers, project manager, TAM
Re-examination of prior course of action	Engineers and escalation managers

Table 8: Stages and stakeholders in a cloud control escalation

The third sub question considers the required level of stakeholder participation in a cloud control escalation. The levels of stakeholder participation are described in the research of Wilcox (1994). He describes five levels of participation: informing, consulting, deciding together, acting together, and supporting. Depending on the severity of the escalation, the stakeholders can shift between categories. For example, in an escalation which is not severe for the organisation the IT direction will only be informed of the situation. In an escalation which is highly severe for an organisation, the IT direction will not only be informed, they will be at least be deciding together on how to de-escalate the situation. This shows how the severity of an escalation can determine the different levels of involvement. To simplify the results for research question three, this research focuses on severe escalations.

Informing is giving information to the persons who are affected, but asking nothing from them. In a cloud control escalation informing, would imply telling a stakeholder group

that they are affected by the escalation, but asking nothing in return. This is exactly what happens to the users of an application who are affected by the escalation. The users are informed about the escalation and when it will be resolved (if this can be determined), but this is their only contribution to the problem.

As was indicated in one of the interviews. The frequency of informing is important. The end user must know what to expect from the party that tries to de-escalate the situation. When the frequency of communication is high, the end user can determine the impact for their processes and can inform their stakeholders. This was indicated in one of the interviews as follows:

"The end users are the ones that are informed in an escalation. I am personally in favor of a high frequency of contact."

Consulting implies that a stakeholder is asked for advice, but this stakeholder is not part of the actual decision. In a cloud control escalation, the Customer Responsible (CR) is the one who is consulted on the approach, but the CR will not be part of the actual decision. He will interact with the IT management of the client and therefore will be part of the escalation. The CR will not decide on an approach, because the CR does not have the specific knowledge to participate in decision making in the escalation.

Deciding together means making the decision together, but not carrying out the decision together. For example, you can determine the approach for the solution but one of the parties carries out this approach. This is done by the IT managers from both the client and the supplier. The IT managers together with the engineers and project managers determine an approach to solve the escalation. The IT managers their selves do not carry out this decision, they only determine the approach. This is described by one of the consultants:

"In an escalation stakeholders in higher echelons of an organisation are consulted. This can even go to the CIO. From these echelons choices and decisions are communicated to lower echelons. They give directions and made choices to continue and de-escalate the situation."

Acting together is the fourth level of participation. Acting together means deciding together on an approach to solve the escalation and carrying out this decision together. Acting together differs from the previous stage because in this stage the decisions are carried out by

both parties. Acting together also differs from the next stage, because in the next stage ideas are backed by advice, money, or support. In a cloud control escalation the difference between acting together and deciding together is negligible, therefore in this thesis the stage of acting together will be deleted from the stages of an escalation/de-escalation.

Supporting is the last level of participation. Supporting means making and carrying out decisions together. This also includes backing ideas with advice, money, and support (Wilcox, 1994). In a cloud control escalation, the team and the managers are supporting each other. They recognize the problem and search for alternative courses of action together. They discuss the exit strategy with the IT management and carry out this strategy. Afterwards they re-examine the course of action, to prevent reoccurring issues. This shows that the team of engineers and the project/escalation managers are in the last level of participation.

The different traditions of stakeholder involvement are summarized in the following table:

Traditions of stakeholder involvement	Informing	Consulting	Deciding together	Supporting
Stakeholders	End users	CR	IT-directors	TAM, engineers, project managers

Table 9: Traditions of stakeholder involvement and stakeholders

We can combine the three research questions by identifying to what extent the stakeholders are important in the stages of an escalation. This can be done by combining the three graphs into one overview:

		Traditions of stakeholder involvement			
		Informing	Consulting	Deciding together	Supporting
Stages of an escalation/de-escalation	Problem recognition	End users, IT management, CR			Engineers, project managers, TAM
	Search for alternative course of action		CR	IT Management	Engineers, project managers, TAM
	Implementing an exit strategy	End users, IT management			Engineers, project managers, TAM
	Re-examination of prior course of action	IT-management, CR			Engineers, project managers

Table 10: Overview of the traditions of stakeholder involvement and the stages of an escalation/de-escalation

By combining these graphs a few interesting findings are shown. The first is that the IT-management shift between the traditions of involvement during an escalation/de-escalation. In some stages, it is highly important to involve the IT-management in deciding about the course of action. In others, it is enough to simply inform them about the problems or findings.

The second thing is the importance of the team who fixes the escalation. This team must support each other during the entire escalation. This can be important for the resolution time of the escalation. The managers of these teams should act on this level of involvement by providing the team with the required conditions to de-escalate the situation.

The last graph shows the answer to sub-question three: what is the required level of participation in a cloud control escalation. This differs between the stakeholders and the stages, but the graph gives an overview of the required level of participation for each stakeholder at the different stages of an escalation/de-escalation.

4.3. Other findings

This research is conducted to determine the stakeholders that were required in the stages of a cloud control escalation. In this search, other findings were done regarding escalations as

well. The first is the absence of a clear definition of an escalation in organisations. The second is the escalation cycle. Both findings are additions to the research.

Starting with the definition of an escalation. As stated in chapter two, previous research describes escalations as the phenomenon that organisations persist in pursuing failing courses of action. During the interviews, different definitions of escalations were mentioned. Three of them will be used as an example here:

"An escalation occurs when the business and end users are impacted."

"An escalation occurs when certain deadlines are not achieved."

"An escalation is a problem that has to be reported to higher hierarchies to solve the escalation"

These examples show that there is no clear definition of an escalation. The definition given in literature is very broad and can be applied to different contexts. In organisations, a sharper definition is required, because otherwise miscommunication about the severity of the escalation could occur. This finding brings an opportunity for future research to provide escalation theory with a fitting definition for a cloud control escalation.

The second additional finding of this research is the escalation cycle. The escalation cycle is a new concept, which originates from the escalation stages. There are four stages of an escalation originally described by Montealegre and Keil (2000). The stages are problem recognition, re-examination of prior course of action, search for alternative course of action, and implementing an exit strategy.

As was stated earlier in this results chapter, this research identifies that in a cloud control escalation the re-examination of prior course of action is performed after the escalation is resolved. This results in different escalation stages, where the re-examination is done after the exit strategy is performed. When the re-examination is executed the current processes and guidelines will be re-examined and altered if necessary. This will influence the next escalation, because the processes and guidelines will be applied. If we consider multiple escalations than the escalation stages form a cycle:

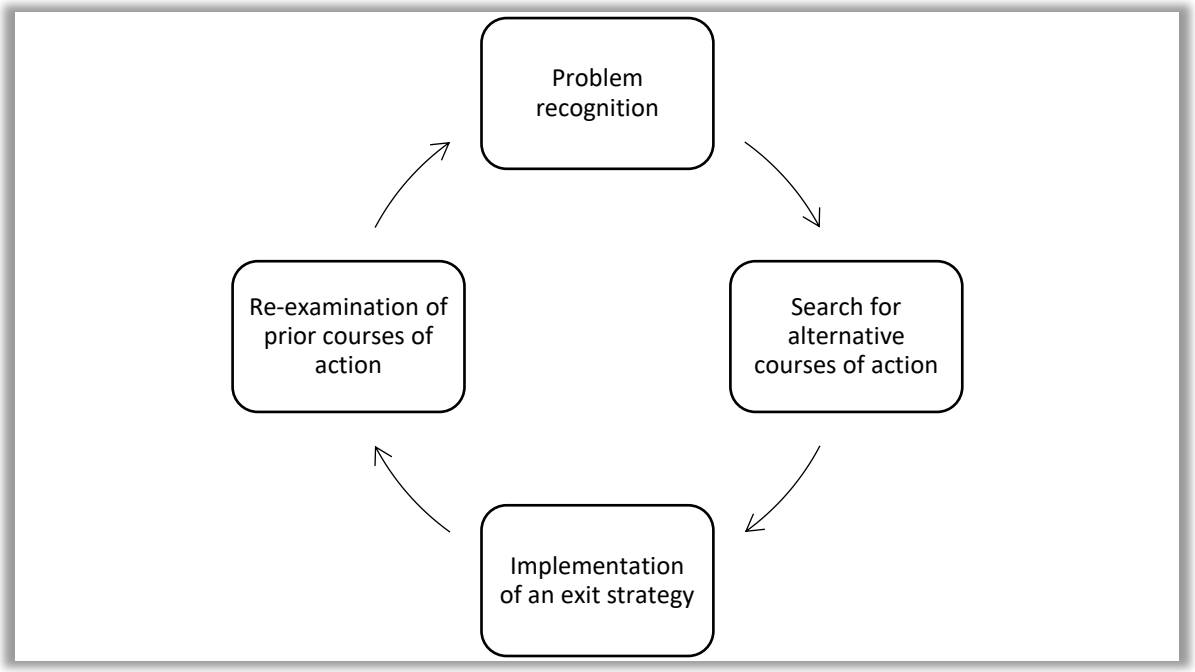

Figure 1: Escalation cycle

To summarize this chapter presented the results of this research, including two additional results. These results will be discussed in the next chapter, including the contributions that this research made to the current literature.

5.Conclusion and discussion

5.1. Introduction

This chapter presents the conclusions and discussion of this research. This research has been conducted to give insight into what is required from the stakeholders to successfully de-escalate a cloud control escalation. This chapter builds on the previous chapters by discussing and drawing conclusions from the results that are given.

This chapter will focus on the new information that is provided by conducting this research. Therefore, first the sub-questions and the main question will be reviewed. Thereafter the new information that is given in this research will be discussed. At last limitations to this research and suggestions for future research will be given.

5.2. Stakeholders in a cloud control escalation

The main contribution of this research is connecting the concepts of stakeholders and escalations. This has been done by exploring three sub-questions and one main question, which identified the relationship between these stakeholders and the escalations.

The first sub question considered the stakeholders that should be involved in a cloud control escalation. A conceptual framework for answering this question was given by Sharp et al. (1999). They provided a distinction between baseline stakeholders and network stakeholders. This research showed that in a cloud control escalation this distinction can also be applied.

If you compare these findings to findings of Sharp et al. (1999) there are two findings which are important to discuss. The first is that in the framework of Sharp et al. (1999) the clients are part of the network stakeholders. In a cloud control escalation, the users are more important and therefore can be considered as a baseline stakeholder. The second is that the framework of Sharp et al. (1999) indicates legislators as a baseline stakeholder and thus is considered as an important stakeholder. Within cloud control escalations, legislators are not included in the escalation process. Therefore, legislators will not be included in the baseline or network stakeholders.

The second sub question considered the stage of a cloud control escalation in which the involvement of stakeholders is necessary. Four stages of a cloud control escalations are identified: problem recognition, search for alternative course of action, and implementing an exit strategy, re-examination of prior course of action.

These stages are slightly different from the stages described by Montealegre and Keil (2000). This study places the re-examination of prior course of action to the last stage of an escalation. By placing the re-examination of prior course of action at the end of the escalation stages, the escalation stages can form an escalation cycle. This can be an opening for future research. For instance, learning within this cycle can be examined. Also, how this re-examination leads to better dealing with escalations in the future can be examined.

The third research question considered the required level of stakeholder participation in a cloud control escalation. This research adjusted the levels of participation Wilcox (1994) to informing, consulting, deciding together, and supporting. The adjustment that is made is that acting together is removed from the levels of participation. This adjustment is made because the concepts of deciding together and acting together overlap in a cloud control escalation. Therefore, only four levels of participation remain in this research.

Answers to these three sub questions lead to the main question of this research. The main question of this research considers what a firm needs from its stakeholders to successfully de-escalate a cloud control escalation. The first sub question shows the relevant stakeholders which are part of a cloud control escalation. The second sub question shows the stages in an escalation in which stakeholders are important. And the last sub question shows which stakeholders are important in which stage of an escalation.

The answers to these sub questions show that when an escalating situation occurs, different stakeholders are needed at different stages of an escalation. There are two stakeholders who must be involved at every stage of an escalation. These are the managers, who guide the escalation and the engineers, who can solve a cloud control escalation. The Technical Application Managers also play an important role, as they are responsible for a specific application. When a project escalates and the application is affected, then the TAM should be involved extensively. This is an important finding in this research, because in practice contracts between employers and employees, and between parties within an organisation should be adjusted to reflect these findings.

Another important finding of this research is the role of the IT direction, or decision makers in general. The decision makers do not have to be in a supporting role in an escalating situation. They must only be able to decide about the important course of an escalation when needed. When they do not decide on the course of the escalation when this is asked from them, that the escalation might require more time to solve than necessary.

The last finding, regarding the involvement of specific stakeholders, is that in contrast to the findings of Sharp et al. (1999). The role of the client is very important in a cloud control

escalation, because the service of cloud control is provided to them. They are the user of the cloud infrastructure which is monitored and they are affected when something goes wrong.

5.3. Contributions of this research

The most important contribution is the connection between stakeholders and escalations which was not investigated in previous literature. This research connects both concepts by providing relevant literature which assist in this regard. Furthermore, relevant frameworks are given which assist future research in connecting stakeholders and escalations. Both stakeholder research and escalation research can benefit from the connection that is provided within this research.

Descriptive and instrumental aspects of stakeholder theory can benefit from this research. Descriptive stakeholder theory can benefit from this research by looking at the stakeholders which are relevant in a cloud control escalation. Also, this research gives insight into the stakeholders which are relevant in an ICT environment. Future descriptive literature on stakeholder theory can benefit from this research by applying the frameworks provided to determine which stakeholders are relevant in escalations and in ICT environments.

Instrumental aspects of stakeholder theory can benefit by applying the concepts used in this research to determine the effect on the corporate objectives. Various aspects of stakeholders can be investigated to determine the effect on escalations, such as the number of stakeholders, the optimal level of involvement. Furthermore, future research can investigate the alignment between current SLA's and what is required from stakeholders.

Escalation research can benefit from this research by looking at the stakeholders that are needed in an escalation. When the right stakeholders are involved the process of going from escalations to de-escalations can be assisted. Also, the stages indicated in this research can be used by escalation research to identify the stage of a current escalation and what should be achieved in this stage.

Escalation research can also benefit from the escalation cycle which provided in this research. The escalation cycle can assist in improving the current processes and procedures of escalations. By using the escalation cycle, one can identify the stages of an escalation and the actions that must be performed in this stage. The escalation cycle can also assist in learning about escalations.

The last contribution to escalation research is the ICT environment in which this research operates. Escalations in an ICT environment occur very often and this research can assist in identifying which stakeholders are important in these ICT environments.

Next to theoretical contributions, there are practical contributions of this research. The benefits for organisations dealing with escalations are twofold. Firstly, it is beneficial for organisations to identify the stakeholders that are needed in escalating situations. This research provides managers with frameworks to identify the stakeholders in an escalation and the stages of this escalation. This can be assessed in light of the current SLA's of an organisation. It could be the case that these SLA's are not defined properly for an escalation and that these should be adjusted.

Secondly, this research provides a few practical suggestions to assist during escalations, such as a roll-back scenario and a root cause analysis. A manager can use these methods to cope with escalations.

At last, escalation research and escalations in practice can benefit from the remark that escalations are still not defined clearly in organisations. Organisations can adjust to this by discussing escalations within their organisations and creating consistency about the definition of an escalations. Research can adapt to this remark by conducting future research into the definitions of an escalation in specific cases.

5.4. Limitations to this research

There are a few important limitations to this research. The most important is the generalizability of this research. This research investigates the involvement of stakeholders in escalations in the context of Itility. This means that it is difficult to generalize these findings. This is a result of the exploratory approach of this research. Due to the time and resources available for this research it was not possible to explore other situations.

Another important limitation to this research is the unstructured research process. The connection between stakeholders and escalations was not investigated in literature before. This, in combination with the limited knowledge on the subject of the researcher in the beginning, resulted in the unstructured nature of the interviews in the beginning.

The last limitation considers the coding procedure used in this research. A neat coding procedure consists of three consecutive steps: open coding, axial coding, and selective coding. Between these coding steps data is gathered every time because of new insights due to the steps that are followed. This research followed all three coding steps, but the data gathering

was only done after the first and second coding step. Ideally another round of interviews should have been held after the axial coding step, but this was not possible considering the time and budget limitations of this research.

5.5. Opportunities for future research

This study explores which stakeholders are needed, to what extent they are needed, and in which stage they are needed in an escalating situation. The explorative nature of this research gives a lot of questions which can be addressed in future research. Such as, what is the optimal number of stakeholders to de-escalate an escalation? And, what is the optimal level of involvement of a stakeholder to de-escalate an escalation?

There are several other opportunities for future research related to the concepts of this research. The first opportunity comes from the frameworks which this research provides. Future research can assess the procedures regarding escalating situations and service contracts that are addressed in such situations. This type of research could identify the existence of a gap between the current procedures and contracts. This could result in improvement of both procedures and contracts in these situations.

The second opportunity for future research is the opportunity to look at different levels of severity and the stakeholders that are involved in other levels of severity. This research only examines severe escalations, and therefore leaves the opportunity for future research to look at other levels of escalations.

The third opportunity is research into the escalation cycle which is represented in this research. This research identifies dealing with escalations in a broad perspective as a continuous process. Adapting to new environments increases the chance of new escalations. Therefore, future research can focus on improving the escalation cycle to become better in dealing with escalations, to prevent escalations from happening, or prevent escalations from having a large impact.

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Appendix 1: Interview questions

- Wat is je functie?

- Wat is jouw rol bij een escalatie?

- Wat zijn je ervaringen met escalatie?

- In welke frequentie maak je escalaties mee?

- Wat is volgens jou een escalatie?

- Wanneer mag je volgens jou iets een escalatie noemen?

- Kan je een voorbeeld geven van een escalatie?

- Kan je beschrijven wat er precies gebeurt tijdens zo'n escalatie?

- Welke stakeholders zijn er nodig bij een escalatie?

- Wie heb je nodig om de escalatie te verhelpen?

- In welke mate heb je die stakeholders nodig?
    (Inform) Hoef je deze alleen te informeren?
    (Consult) Heb je alleen specifieke kennis van ze nodig?
    (Involve) Betrek je ze actief bij een escalatie?

Appendix 2: Interview and codes

Transcriptie	Open code	Axiale code
Onderzoeker: Wanneer is iets volgens jou een escalatie? Wat zijn kenmerken van een escalatie?		
Respondent: Primair kijk je naar de business en de eindgebruikers. Het is een escalatie als die ge-impact zijn.	Business Eindgebruiker Escalatie definitie	Stakeholder Stakeholder Definitie
Onderzoeker: Dus elk probleem waar de business last van heeft?		
Respondent: Ja	Business	Stakeholder
Onderzoeker: Ook als een escalatie een lage prioriteit heeft?		
Respondent: Een escalatie met een lage prioriteit is ook een escalatie, ja nja dat is een goede vraag. Dan zou ik een definitie op moeten zoeken. Ik zou met mijn gezonde verstand zeggen dat alles waar de gebruiker last van heeft, dat is een escalatie. De verdeling tussen hoge en lage prioriteit die weet ik niet precies, maar ik weet wel waar die staat als ik hem nodig heb.	Lage prioriteit Hoge prioriteit Definitie	Prioriteit Prioriteit Definitie
….		
Onderzoeker: Als je kijkt op welke manier je stakeholders betrekt. Wie informeer je dan? Wie consulteer je dan? En wie betrek je helemaal?		
Respondent: Informeren is vooral de eindgebruiker en dat is de frequentie die zou wat mij betreft hoog moeten zijn. Dan consulteren zijn vooral de IT-managers aan de klant kant maar ook aan de Itility kant. Bijvoorbeeld de CR, die moet ook zijn zegje kunnen doen.	Eindgebruiker IT-management klant CR Frequentie contact Informeren Consulteren IT-management Itility	Stakeholder Stakeholder Stakeholder Frequentie Manier van betrekken Manier van betrekken Stakeholder
…		
Respondent: Soms moet ook de CR van Itility juist degene zijn die de communicatie richting de IT-manager van de klant doet. Want die kan ook de klant helemaal overheen kijken en die is dan ook verantwoordelijk voor alles wat er bij die klant gebeurt. En degene waar je het meest mee gaat zitten is uiteindelijk het team waarmee je het moet gaan fixen.	Communicatie IT-management klant CR Team Supporting	Communicatie Stakeholder Stakeholder Stakeholder Manier van betrekken

Appendix 3: Test script

Case ID	Step	Case Name	Prerequisites	Description	Tools / Transaction	Test Date	Start Time	End Time	Expected Test Results	Actual Test Results	Pass / Fail
23	1	Support Center		Customer is able to create an article in ...	...	2 nov 2016	13:00	13:15	It is possible to create, edit and delete an article in the support center.		Pass
24	1	Support Center		Customer is able to reply with a public reply to an incident ticket	...	8 nov 2016	17:25	17:27	Customer replied with a public reply to an incident ticket		Pass
25	1	Support Center		Customer is able to reply with an internal note to an incident ticket	...	8 nov 2016	17:27	17:29	Customer replied with an internal note to an incident ticket		Pass