

# The evolvment of stakeholders' focus of attention in the context of a failing project

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Trefw Electronic Health Records, issue management, stakeholder management, failing project

## **PREFACE**

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## ABSTRACT

Currently, Electronic Health Records (EHRs) are becoming the standard within healthcare institutions. However, although these systems provide many benefits, hospitals are struggling with the implementation of EHRs. In order to provide some insight in the difficulties related to these implementations, the central aim of this paper is to study how the issues voiced by stakeholders have evolved over time during a failed EHR project within a large teaching hospital. By combining theories about stakeholder and issue management and using Pettigrew's (1987) classification of process, context and content related issues, seventeen issue sub-categories were identified. The majority of them were perceived as threats during the project, yet two of the sub-categories evolved from being perceived as an opportunity towards becoming a threat over time. Also, it turned out that stakeholders raised different issues at different moments during the failed project, meaning that some of the voiced issues were only mentioned at the start of the project, while others surfaced later on. Moreover, the results show interdependencies exist between some of the issue sub-categories.



## 1 INTRODUCTION

In recent years, healthcare has become an important research area for business scholars and other disciplines because of its growing costs and its importance to individuals and governments (Fichman, Kohli, & Krishnan, 2011). Furthermore, within the domain of healthcare research, the use and implementation of information systems (IS) and information technology (IT) in healthcare is becoming a well-documented subject (e.g. Bower, 2005; Samy, Ahman, & Ismail, 2010; Hung, Chen, & Wang, 2014). According to Kolodner, Cohn and Friedman (2008: 391), this can be explained because “health IT adoption and use are necessary ingredients of a vibrant, patient-centered system that promotes the health and well-being of individuals and communities”. Within this IT research area, some authors have focused on the development and use of the Electronic Health Record (EHR). According to Ploem and Gevers (2011), an EHR consists of a large database containing information about the patients of a hospital. The use of IT systems, such as EHRs, within hospitals is found to be associated with a number of benefits, including lower patient mortality rates (Devaraj & Kohli, 2000) and a reduction in costs and the length of stay of patients (Amarasingham, Plantinga, Diener-west, Gaskin, & Powe, 2009). However, despite these benefits, there is evidence that the move to an EHR is a challenge for many hospitals (Houser & Johnson, 2008). This is supported by the fact that many healthcare IT systems do not meet all expectations (Heeks, 2006; Avison & Young, 2007; Igira, 2012). Legris and Collette (2006) note that although some IT projects fail because of technological reasons, many failures are related to weak implementation management, which mainly concerns problems related to stakeholder involvement. The argument that stakeholder management is critical for the successful implementation of IT projects is widely adopted in the literature (e.g. Boonstra, Boddy, & Bell, 2008; Monteiro de Carvalho, 2013), as stakeholders are one of the major sources of uncertainty during such change projects (Ward & Chapman, 2008). In IT projects, large numbers of stakeholders from different organizational departments with different levels of autonomy are involved and resistance is often displayed by some of these stake-

holders. With respect to stakeholder management in healthcare settings, Boonstra and Govers (2009) found that this is particularly important in hospitals, as these organizations consist of distinct units with diverse social contexts and each unit has its unique history, circumstances, power and degrees of autonomy.

Next to the theoretical strand of stakeholder management, another well-developed strand focuses on issue management, which can be defined as “the proactive identification and subsequent defusing of problems before they escalate into crises” (Luoma-aho & Vos, 2010: 316). Although stakeholder and issue management have much to offer on its own, research that combines both is just starting to emerge. This is striking, as Boutilier (2011: 4) states that “trying to manage issues without building relations with stakeholders is like trying to direct a movie and change the script without ever talking to the actors or crew”. Luoma-aho and Vos (2010) are one of the few authors who link stakeholder and issue management and they note that combining both offers the opportunity of giving a more complete overview of the context in which organizations operate. Another, more recent, study is provided by Bundy, Shropshire and Buchholtz (2013), who investigate how the connection between issues and stakeholders is related to firm responsiveness. However, their focal point is on the organizational level, as they focus on how managers interpret issues and on the manner in which a firm acts based on this interpretation. According to Olander and Landin (2005) and Karim, Rahman, Berawi and Jaapar (2007), stakeholders often have different and conflicting targets, objectives and interests within projects. Therefore, Karim et al. (2007) state that fostering a project’s development requires identifying and managing all needs of stakeholders. However, managers have cognitive limitations, which means that they have limited information processing capabilities (Drejer, 2002). This makes it unlikely that managers are able to correctly identify and interpret all issues of stakeholders. Furthermore, focusing on the managerial interpretation of issues has the natural drawback that managers can attribute a different meaning to an issue compared

to stakeholders (e.g. Dutton, Stumpf, & Wagner, 1990; Kuvaas & Kaufmann, 2004). In order to counter these problems, this paper will focus on the meaning an issue has for individual stakeholders.

For this research, a case study has been conducted within a large teaching hospital, in which the implementation of an EHR failed. This provides the unique opportunity of investigating how stakeholders' issues have developed and changed during such an unsuccessful project. Trying to uncover how issues have developed over time is consistent with the suggestions of Bundy et al. (2013), who state, based on the work of Proffitt and Spicer (2006), that it is valuable to capture the entire life cycle of an issue as this helps to understand how the meaning and interpretation of an issue has evolved. Moreover, it is widely acknowledged that learning from failure is an important, yet difficult task (e.g. Shepherd & Cardon, 2009; Shepherd, Patzelt, Williams, & Warnecke, 2014). However, by analyzing how issues have developed over time within an unsuccessful project, 'learning points' for future EHR projects can be formulated. Furthermore, Heeks (2006) notes that most medical informatics literature focuses on presenting successful health information systems (HIS) by conducting implementation case studies which are considered to be successful. Buntin, Burke, Hoaglin and Blumenthal (2011) also acknowledge this and they call for studies that highlight the challenging aspect of implementing health IT. The current study provides the opportunity of doing a case study within a HIS project which has failed, thereby offering an opposite view and allowing to focus on the challenges faced during the project. Finally, this study takes the remarks of Greenhalgh, Potts, Wong, Bark and Swinglehurst (2009) into account, as they state that qualitative case studies on electronic patient records should be directed to enrich the theoretical understanding of this complex field. This will be accomplished by linking stakeholders and their issues in the context of a failed EHR project, which is why the main research question will be:

*How do stakeholder issues evolve in the context of a failing EHR project?*

The remainder of this paper is structured in the following way. In the next section, a background of the relevant litera-

ture regarding stakeholder and issue management will be provided. After describing the theory, the methods used for this paper are presented and discussed. The methods section is followed by an overview of the results. The subsequent section provides a discussion about these findings, presents theoretical and managerial implications and describes limitations of this study and suggestions for further research.

## 2 LITERATURE REVIEW

This section starts with describing stakeholder management and discusses advantages of using stakeholder management within an EHR setting. Next, the concept of issue management is covered by providing a definition of what an issue entails and by presenting multiple issue classifications.

### 2.1 STAKEHOLDER MANAGEMENT

Edward Freeman is often seen as the ‘father of stakeholder theory’. Although he reports feeling “amused and somewhat horrified” by this (Freeman, 2005: 433) and gives credit to others for developing stakeholder theory, his book *Strategic Management: A Stakeholder Approach* (Freeman, 1984) continues to be highly cited by numerous authors. Since the publication of this book, the concept of stakeholders has become a common term in management language. However, despite the popularity of the concept, there is no common agreement on who the organization’s stakeholders are. Freeman (1984: 46) defines stakeholders as “any group or individual who can affect or is affected by the achievement of the organization’s objectives”. According to Mitchell, Agle and Wood (1997), this is one of the broadest definitions of stakeholders as it potentially includes everyone. Furthermore, they note that although the definition of Freeman is often cited in the literature, it is not universally accepted. Vos and Achterkamp (2006) state that Freeman’s definition is often used as a starting point in order to develop a more narrow view on stakeholders. An example of an author providing such a view is Clarkson (1994: 5), who defines stakeholders as those who “bear some form of risk as a result of having invested some form of capital, human or financial, something of value, in a firm” or “are placed at risk as a result of a firm’s activities”.

#### 2.1.1 STAKEHOLDERS IN HEALTHCARE

With respect to stakeholders in the healthcare sector, Achterkamp, Boonstra and Vos (2013: 168) note that this sector is “characterized by a broad range of stakeholders who work together in various ways to provide cure and care

related services”. Often, stakeholders of healthcare organizations are categorized as being either internal or external stakeholders (Daake & Anthony, 2000). For instance, in the case of an IS implementation in the health care industry, Boonstra et al. (2008) distinguish immediate stakeholders inside the hospital from those immediate stakeholders located outside. However, both categorizations can include many different groups. For example, Payton, Paré, LeRouge and Reddy (2011) describe stakeholders of health IT projects as consisting of, for instance, doctors, nurses, the government, healthcare providers, patients and insurers. A more detailed and practically oriented classification is provided by Lambooi and Hummel (2013), who identify and classify stakeholders during the implementation of innovations within hospitals. According to them, the main stakeholder groups involved during these implementations are physicians, nurses, hospital management and the hospital board. Moreover, they also include patients, as in terms of Freeman (1984), they are ‘affected’ by the innovation. In addition, two external stakeholder groups, consisting of the government and insurers, are also identified as hospital stakeholders. The government has a stake, as one of its goals is to make the healthcare system future-proof and more efficient, which is enabled by certain innovations. Insurers’ stake relates to the fact that they have to pay for many of the healthcare innovations, which is why they will use their power to influence their implementation process.

#### 2.1.2 STAKEHOLDER MANAGEMENT IN EHR PROJECTS

Abouzahra (2011) states that stakeholders provide a major challenge in EHR projects and that failing to handle them correctly is likely to result in project failure. In the literature, various benefits are described of using stakeholder management during EHR projects. For instance, Boonstra, Versluis and Vos (2014: 384) argue that “by having all the direct stakeholders working together, a better EHR system can be delivered faster and with fewer problems”. This is also the reason why Weir, Lincoln, Roscoe, Turner and Moreshead (1994), Øvretveit, Scott, Rundall, Shortell and Brommels (2007) and Simon et al. (2013) argue for involving an interdisciplinary EHR group during the implementa-

tion of EHRs. Moreover, Nguyen, Bellucci and Nguyen (2014) state that because stakeholders have different needs and expectations regarding the EHR, including them in the planning, implementation and testing phases is vital. According to Simon et al. (2013), this is the case because involving representatives of stakeholder groups in the implementation of an IT project within a hospital makes them feel valued, gives them the opportunity to provide direct input in decision making and facilitates communication between the representative of a stakeholder group and the rest of the members. Furthermore, they note that identifying and supporting a ‘champion’ among each stakeholder group can be of help during the implementation of an IT project within a hospital setting. A ‘champion’ is someone who “can serve as liaison for the stakeholders, ensure that their concerns are addressed by institutional leadership, and provide reassurance to his or her peers” (Simon et al., 2013: 73). Finally, Takian, Sheikh and Barber (2012) suggest that stakeholders need to be identified prior to the EHR implementation and that their computer literacy and ability need to be assessed and adjusted accordingly. They state that engaging and involving healthcare professionals from the start of the implementation is pivotal for maximizing efficiency and improving patient care.

## 2.2 ISSUE MANAGEMENT

According to Gaunt and Ollenburger (1995), issue management started to emerge in the 1970s as a management tool. At first, issue management was seen as a business-based discipline (Jaques, 2010). However, its application is also becoming more popular within healthcare settings and more specifically EHR projects. For example, Layman (2008) used this approach to identify ethical issues related to EHRs, while Palvia, Lowe, Nemati and Jacks (2012) conducted a survey among CEOs and CIOs of hospitals in the USA in order to identify IT issues related to EHRs and Electronic Medical Records (EMRs). Moreover, Van Offenbeek and Vos (2015) included issue management in their framework for managing project issues and demonstrated its use by applying it to an EHR implementation project. A detailed definition of issue management is provided by Coates, Coates, Jarratt and Heinz (1986: ix), who state that issues management is “the organized activity of identifying

emerging trends, concerns, or issues likely to affect an organization in the next few years and developing a wider and more positive range of organizational responses toward that future”. Therefore, the key for issues management to be a successful approach is that it must be proactive (Heath, 2002; Brønn & Brønn, 2002; Jaques, 2010). This already has become clear from the definition of issue management provided in the introduction, which reads that issue management is “the proactive identification and subsequent defusing of problems before they escalate into crises” (Luoma-aho & Vos, 2010: 316). The fact that issue management can assist in preventing the escalation of crisis is also acknowledged by Jaques (2010), who sees it a crucial discipline for preventing crisis. This point is nicely illustrated by Pauchant and Mitroff (1992: 10), who state that:

*“When it comes to acts of nature such as a tornado, all we can do is prepare ourselves. But in the case of human-induced crises, we can do more than prepare – we can also attempt to prevent them from happening in the first place.”*

This quote shows that issue management goes beyond only responding to a crisis by attempting to prevent the occurrence of a crisis in the first place. For the remainder of this paper, the definition of Luoma-aho and Vos (2010) will be used, as it concisely captures the aspects of issue management as being pro-actively oriented and aimed at preventing crisis escalation.

### 2.2.1 TOWARDS DEFINING ISSUES

Now that the concept of issue management has been defined, it is also important to get a clear image of what issues are, as Jaques (2004) states that defining an issue is vital for effective issue management. According to Schwarz (2005: 40), issues can be perceived “as a forthcoming development that is likely to have an impact on an organization” and this impact can be positive or negative. Jaques (2007a) refers to issues as situations that involve external parties, where emotions rather than data prevail and that have the potential to become a crisis. An overarching definition, covering the work of Jaques (2007a) and Schwarz (2005), is provided by Regester and Larkin (2005: 43), who state that an issue is “a condition or event, either internal or external to the organization which, if it continues, will have a signifi-

cant effect on the functioning or performance of the organization or on its future interests”. This definition has established broad acceptance within the literature (Jaques, 2007b). However, as this research focuses on the stakeholders’ perception of issues, the definition will be slightly modified by including a stakeholder viewpoint. An issue will thus be defined as:

*‘A condition or event perceived by one or multiple stakeholder(s), either internal or external to the organization which, if it continues, will have a significant effect on the functioning or performance or on the future interest of the organization and/or the stakeholder(s).’*

With respect to issues, Bundy et al. (2013: 353) state that “firms and managers do not respond to stakeholder and environmental characteristics per se. Instead, they respond to specific issues and concerns advocated by stakeholders”. However, they focus on the managerial interpretation of issues and its characteristics as being salient to the firm. In contrast, as indicated by the definition shown above, this paper will focus on the meaning of issues for stakeholders. This point of view is supported by Van Offenbeek and Vos (2015), as they note that project managers need to consider an issue’s significance for stakeholders in order to safeguard project legitimacy and success, which is why they focus on the meaning of an issue for the stakeholder instead of relying on the managerial interpretation. There are two main reasons to focus on the meaning of issues for stakeholders. First, stakeholders have different issues and priorities during projects (Olander & Landin, 2005; Karim et al., 2007). Therefore, as was already illustrated in the introduction, relying on the managerial interpretation of issues probably will not give a proper overview of the variety of stakeholders’ issues since managers have cognitive limitations, which limits their ability to identify all existing issues (Drejer, 2002). Second, focusing on the managerial interpretation of issues has the natural drawback that managers can attribute a different meaning to the same issue compared to stakeholders (e.g. Dutton et al., 1990; Kuvaas & Kaufmann, 2004). For example, Kooor-Misra (2009) states that individuals have unique characteristics which influence whether they tend to see a situation as an opportunity or threat. This means that a certain situation can be perceived as a threat by person A, while person B classifies the situa-

tion as an opportunity. Moreover, even if the managerial interpretation of issues corresponds with the meaning of issues for stakeholders, this will not provide deeper insights in the reason why stakeholders have those issues in the first place. This problem is countered by focusing on the meaning that an issue has for stakeholders, which makes it possible to gain insights into the underlying reasons for the existence of certain issues.

### 2.2.2 ISSUE CLASSIFICATIONS

Dutton and Jackson (1987) state that classifying issues is crucial for imposing order on the environment, especially in contexts of change. However, Burchell and Cook (2006) note that issues emerge at different points in time during projects, which means that issues can take various forms (Van Offenbeek & Vos, 2015). In the literature, multiple issue classifications are provided, of which the most prevalent ones will be discussed below.

Dutton and Jackson (1987) describe issues in terms of opportunities and threats. According to Kooor-Misra, Clair and Bettenhausen (2001), crises and change situations are associated with both opportunity and threat attributes. Opportunities are depicted as “positive situations in which gain is likely and over which one has a fair amount of control”, in contrast, threats are characterized as “a negative situation in which loss is likely and over which one has relatively little control” (Dutton & Jackson, 1987: 80). Opportunities are for example associated with having adequate resources for resolving the issue and having the autonomy to take action, while threats can include managers’ feelings of being constrained in their actions by others or of being underqualified for resolving the threat (Jackson & Dutton, 1988). The classification of issues as either opportunities or threats has been applied to IT related changes by Beaudry and Pinsonneault (2005), who use it to assess whether users appraise an IT event as either an opportunity or threat.

Another more commonly used issue classification refers to issues as either being outcome-oriented or process-oriented. Van Knippenberg, Martin and Tyler (2006) distinguish an outcome-orientation from a process-orientation by saying that the former focuses on what is affected by the organizational change while the latter’s focal point is on

how the change is realized. Moreover, according to Rauschmayer, Berghöfer, Omann and Zikos (2009), both types focus on processes either ongoing or ex post; outcome-oriented issues by looking at the process outcomes while process-oriented issues focus on features of the change process itself.

A closely related framework is provided by Pettigrew (1987), as he focuses on the process, context and content of change. Armenakis and Bedeian (1999) state that these types of issues are common to all organizational change efforts. Pettigrew's framework of change process, context and content has been applied to study innovations in hospitals in general (e.g. Stetler, Ritchie, Rycroft-Malone, Schultz, & Charns, 2007; Hage, Roo, Van Offenbeek, & Boonstra, 2013), but also to conduct research on EHRs in specific (Boonstra et al., 2014). However, these studies are exceptions, because although researchers have acknowledged the importance of process, content and context factors, studies which assess all of them simultaneously are rare (Devos, Buelens, & Bouckenoooghe, 2007; Self, Armenakis, & Schraeder, 2007). This is remarkable, as Devos et al. (2007) note that it is essential to know the conditions associated with all three factors in order to gain a comprehensive understanding of organizational change. Content issues refer to the what of change and concerns the substance of the change initiative (Armenakis & Bedeian, 1999; Devos et al., 2007). Next to the content of the change, also contextual issues are important, as they might explain why a change initiative is not successful (Johns, 2001; Johns, 2006). Self et al. (2007: 214) define contextual factors as "the circumstances, or the existing external and internal conditions that have been shown to influence organizational effectiveness". In this case, the internal context refers to organizational conditions, while external conditions refer to issues outside the organization. In contrast to content and context issues, process issues refer to the how of change, or more specifically, the specific implementation method used for the change (Self et al., 2007). An example of process conditions includes communication about the change initiative, which can be both formal and informal (Rafferty & Restubog, 2010).



### 3 METHODS

In this section, the research methods used for this paper will be discussed. First, the research approach aimed at theory development is described, after which the research site and methods used for data collection and data analysis will be elaborated upon.

#### 3.1 RESEARCH APPROACH

This research will focus on theory development, which Van Aken, Berends and Van der Bij (2012) describe as consisting of four steps. The first step includes the observation of a business phenomenon which has not yet been (fully) addressed in the literature. This phenomenon, generally recognized in organizations, is the research trigger, making this study practically relevant (Van Aken, 2005). For this case study, the business phenomenon is the fact that many large-scale health IT projects fail (Kaplan & Harris-Salamone, 2009) and that stakeholders are likely to come up with many issues over time during such unsuccessful projects. The next step includes the observation of the business phenomenon by using one or multiple case studies. For this research, a single case study has been used. According to Eisenhardt (1989) and Dyer and Wilkins (1991), case studies assist in providing a description and gaining understanding of the dynamics present within a single setting. Moreover, Yin (1981) classifies three types of case studies, which include descriptive, explanatory and exploratory. This research makes use of an exploratory case study, as the goal is to uncover how stakeholders' issues have evolved over time within the context of a failed EHR implementation project. The third step entails the development of an explanation with respect to the business phenomenon using grounded theory, which aims to use the collected data as a starting point for explaining the observed phenomenon (Glaser & Strauss, 1967; Faggiolani, 2011). Finally, the fourth and final step of the theory development process concerns forming propositions, which includes additions to or changes of existing theories (Van Aken et al., 2012). With respect to these final two steps, the discussion and conclusion section will provide explana-

tions and propositions related to the business phenomenon.

#### 3.2 RESEARCH SITE

The selection of the case organization used for this study was not random, which is consistent with the view of Eisenhardt (1989: 537), as she states that random selection for case studies is "neither necessary, nor even preferable". Moreover, using a qualitative case study for investigating the change processes related to electronic databases within hospitals is an often used approach within the change management tradition (Greenhalgh et al., 2009). The case organization of this study involves a large teaching hospital, in which the implementation of the EHR failed because the vendor was not able to keep its promises and deliver what it had promised in time. In terms of Heeks (2006), this project can be classified as a 'total failure', as the initiative never reached the implementation phase, but was still in the pre-implementation stage when the project stopped. The EHR would consist of a large database containing information about the patients of the hospital. During the project, the hospital used the rule of thumb that 80% of the system would be generic, while the remaining 20% was allowed to be customized to meet specific requirements. Moreover, the project was organized along three core pillars, being Functional (responsible for creating process descriptions), Technical (responsible for delivering technical components of the new EHR) and Education & Implementation-support (responsible for a smooth transition to the new EHR). The main reason for the implementation was that many IT applications were running and used by different units within the hospital. The new EHR should have replaced these 'local' applications with an overarching database in order to prevent double entries and provide a digital file for every patient which would have been accessible for all health professionals and administrators within the hospital. Furthermore, many of the current applications were not supported anymore by their vendors, which introduced security risks when the system would be continued to use.

For this study, stakeholders were considered to be internal users of the EHR system. Focusing on users of the EHR system is consistent with the work of McGinn et al. (2011: 2), as they state that “understanding and comparing the perspectives of each user group is essential to the successful implementation of EHRs”. In the current case, the perspectives of users regarding their issues might help in uncovering why the project failed. Therefore, for this research, interviews with stakeholders as specific user groups were conducted. However, as the groups of internal users included a large number, interviewing all of them was not feasible due to time and resource constraints. For this reason, representatives of these user groups were interviewed. These internal user’s representatives were actively involved in the EHR implementation project by being members of sub-teams within the project. The teams were responsible for different aspects of the implementation and the representatives’ role included providing input based on their practical background. In terms of Lambooi and Hummel (2013), these internal users consisted of physicians and nurses, but also health-administrators were included as user group. Moreover, as the case organization is a teaching hospital, also a coordinator of research has been interviewed. This meant that other stakeholders, both externally (e.g. government and insurers) and internally (e.g. patients and hospital management) were not included, as they were not intended to work daily with the EHR.

### 3.3 DATA GATHERING

This research was performed using the standardization strategy, which is “the development and use of explicit procedures for data collection, analysis and interpretation” (Van Aken et al., 2012: 4). These procedures are described in this section, which enables replication of this research by others. Moreover, the use of these procedures improves the researcher’s independency and thereby reduces the risk of the presence of a researcher’s bias (Van Aken et al., 2012), helping to improve the reliability of this research. Both primary and secondary data sources were used (data triangulation), which increases the reliability and validity of this research by allowing cross verification of data from multiple sources (Voss, Tsiriktsis, & Frohlich, 2002; Yin, 2009; Guion, Diehl, & McDonald, 2011). The secondary

data sources included the weekly updates and newsletters that were sent to members of the project responsible for the implementation, while the primary data sources consisted of the conducted interviews with the internal user’s representatives described before. In total, 13 semi-structured in-depth interviews have been conducted; Appendix I gives an overview of these interviews and provides the function of the interviewees. In order to guarantee the anonymity of the two health-administrators and the research coordinator, these three individual internal user representatives are combined in a group called ‘other’. Therefore, the following abbreviations are used in the result section when referring to the interviewees: Physician 1/2/3/4/5/6; Nurse 1/2/3/4; and Other 1/2/3. Moreover, during the result section, the gender of the interviewees is not disclosed (e.g. by referring to them with he/she, his/her, etc.)

#### 3.3.1 INTERVIEWS

The interview questions were developed using the literature as described in the previous section and the professional insights of the researcher. Also, the questions were cross-checked by two research experts, after which some of them were adjusted. Moreover, before interviewing the representatives, a pilot interview was conducted with a member of the EHR project management in order to verify that the questions were clear and easily understood (Taylor, Sinha, & Ghoshal, 2006; Turner, 2010). Based on this pilot interview, some minor modifications were made in the interview protocol. The final version of this protocol can be found in Appendix II.

The interview questions were structured in such a way that it was possible to uncover the dynamics and evolution of the issues present within the project. Moreover, all the interviews were conducted together with another researcher at the hospital. This enhances the creative potential of this study as both interviewers can complement each other during the interviews and it also increases the confidence in the findings (Eisenhardt, 1989). All interviewees gave their permission for recording of the interview, which prevented losing any important information and increases the reliability and validity of this study (Golafshani, 2003). The interviews were performed in Dutch, which is the mother

tongue of all interviewees. Also the interview transcriptions were made in Dutch in order to prevent losing specific meanings and expressions. By doing this, the remarks of Davidson (2009) are taken into account, as she states that transcriptions which include the translation from one language to another are challenging and complex. Therefore, many researchers transcribe the interviews in the language in which they were conducted (e.g. Major & Hopper, 2005).

After conducting the interviews, the interviewees were invited to receive the written interview transcripts in order to give them the opportunity to review it. The use of interview transcript reviews offers the opportunity to verify the accuracy and correcting inaccuracies and/or errors in the transcripts (Hagens, Dobrow, & Chafe, 2009). However, interviewees only received the transcripts if they explicitly responded positively to the invitation, as transcripts are cumbersome and lengthy to read and sending everyone their written transcript without upfront approval results in low response rates (Hagens et al., 2009; Mero-Jaffe, 2011). In total, nine interviewees requested to receive the interview transcripts, and only one of them made some minor modifications in the transcript. Only this modified transcript was used during the data analysis process.

### 3.3.2 TIMELINE

As the course of the EHR implementation project was very dynamic with ups and downs, it was important to get a clear image upfront of how the project evolved over time. Therefore, prior to the interviews, a timeline was developed regarding the EHR project. On this timeline, events and incidents that occurred during the project from the start until the time of the interview were displayed in chronological order. The timeline was constructed by reading the weekly updates and newsletters which were sent to all participants within the EHR implementation project. Moreover, input was received during an interview with the communication manager of the project, who was responsible for developing these updates and newsletters and who had been working within the project from its initiation. This timeline was used as background knowledge for the interviews, but it also enabled probing regarding specific events during the interviews. However, as this timeline contains confidential events, it is not attached as an Appendix.

## 3.4 DATA ANALYSIS

The interview transcripts were analyzed using the program Atlas.ti, which makes the analyze process more transparent and replicable and therefore enhances the credibility of this research (Hwang, 2008). More specifically, the interview transcripts were analyzed using the coding process as developed by Miles and Huberman (1994). According to them, there are two levels of coding. The first one consists of first-level coding, which is about summarizing the segments of interview data. During first-level coding, two types of codes were used. Deductive codes were developed using literature supplemented with professional insights. Next to that, inductive codes were created by looking at the interview transcripts in order to identify emerging important topics. Yet, as this research uses a grounded approach, only the issues categories process, context and content were created deductively while the remaining sub-categories are inductive codes. The second level is pattern coding, which consists of grouping the first-level codes into a smaller amount of themes, sets or constructs (Miles & Huberman, 1994). By using pattern coding, first-level codes were grouped by finding a code which applied to and summarized all first-level codes within the group. This coding process helped in uncovering how stakeholder issues evolved during the EHR project. Moreover, the used process also assisted in identifying interdependencies between issues, as Van Offenbeek and Vos (2015) note that such interconnections are highly likely.

The first interview transcript was coded by two researchers together in order to become familiar with the used codes and how the other coded the transcripts. Contradictions and/or differences of opinion that resulted during this initial coding process were discussed until consensus was reached. The remaining interview transcripts were coded individually, but regular discussions regarding the coded transcripts took place. This way of check-coding not only assists by providing more clarity regarding the codes and how they are defined, but also is a good reliability check (Miles & Huberman, 1994). Because of this approach, the coding scheme was handled as a 'living document', which means that codes were added and/or existing codes were modified when new data regarding the evolution of issues emerged (Miles & Huberman, 1994). An overview of

the final codes used for this research is provided in the codebook (see Appendix III). This codebook mentions the code, gives a description and provides examples of the

codes. Moreover, Table 1 summarizes the steps taken during the coding process and provides an example of created codes during each of the coding steps.

Step	Coding process	Codes created
1	The recorded interviews are transcribed and read by two researchers independently in order to get familiar with the data.	e.g. vendor
2	The transcript of the first conducted interview is coded by two researchers together and contradictions and/or differences of opinion are discussed until consensus is reached.	e.g. facilitation
3	The remaining transcripts are coded individually with regular meetings in which the coded transcripts and emerging inductive codes are discussed.	e.g. personal consequences
4	The coding schema is finalized by getting agreement on code names and separating or merging codes where needed. Moreover, descriptions and examples of the codes are established.	e.g. merging the codes team composition and size
5	The final round of coding is conducted using the coding schema.	-

**Table 1** Coding process steps (adapted from Eseryel & Eseryel, 2013).

## 4 RESULTS

This section provides an overview of the empirical findings of this research, which are organized based on process, context and content issues (Pettigrew, 1987). Within each issue category, the results are chronologically organized, which makes it possible to explore the evolvement of issues over time.

### 4.1 PROCESS ISSUES

This section will describe the issues associated with the implementation process used for the EHR (Self et al., 2007). It is divided in three chronological sub-headings, being the start of the representatives working for the EHR project, their activities within the teams and the final phase of the project.

#### 4.1.1 REPRESENTATIVES' START AT THE PROJECT

The majority of the interviewees were satisfied with the recruitment process. Most of the stakeholder representatives stated that their department communicated to all employees that there were some vacancies available for becoming a member of the EHR project. However, there were also interviewees who noted that their manager asked them personally to become a representative. It was at this stage that issues about the *recruitment* emerged. One of these issues is related to the amount of FTE that the representatives should work for the EHR project. Initially, the minimum amount of FTE was set at 0.6 and some were even recruited to work full-time for the project. But according to some of the interviewees this amount of hours was too high. For example, Nurse 4 stated that:

*'In my opinion, stakeholder representatives were recruited based on their experience and their connections on their workplace, and on their know-how of the processes that are present at their workplace. And then you don't need someone who is not present at the workplace.'*

However, one representative remarked that full-time employment for the EHR project also provided advantages, as he/she noted some part-timers were not able to attend project meetings because they were working at their original department or did not have enough time to combine both jobs. Next, the picture of the EHR that was communicated during the recruitment phase by the project was very positive and enthusiastic. This is illustrated by Physician 4, who states that the communicated intention of the EHR was to provide a solution to challenges regarding education, research and administration. Therefore, the expectations regarding the EHR system were high. However, although many of the interviewees had high expectations, most of them also stated that they lacked a concrete picture of the EHR at the start of the project. For example, Physician 6 stated that:

*'That has been the problem all the time, that we did not know how the EHR would look like. So we all had wishes, but no picture was created of the EHR.'*

Next to issues about the *recruitment* of the user representatives, the second issue category that emerged during the starting phase is related to their *job description*. According to some of the interviewees, this description was vague and unclear, which is illustrated by Physician 6:

*'Well, there was no clear picture created in my opinion. They needed input from stakeholder representatives, but what that would mean in practice, that has never been discussed.'*

This meant that the representatives had a lot of freedom to decide how to organize their working practices. This was positively received by Nurse 2, who refers to his/her start at the project as being creative, meaning that he/she felt being allowed to bring up own ideas. Yet, Nurse 3 has a different, more negative, opinion, as he/she would have liked to receive a clear assignment upfront, so that he/she would have known immediately what he/she was supposed to do. Nurse 3 supports this opinion by saying that especially

nurses are used to do a defined piece of work in their daily practices. The final issue category that surfaced is about the *preparation and introduction* of the representatives before their start at the project, as this was insufficient according to all. Many stated that they missed guidance and support during the starting phase. This is illustrated by Nurse 3:

*'It was simply at this date you can find your bureau at this floor... And then you had to figure it out yourself.'*

Yet, the members of the project communicated to the representatives that there was a digital drive which contained key documents of the EHR project. However, physician 5 noted that this drive included approximately 70.000 documents, which illustrates why the drive was referred to as a 'maze'. Moreover, Nurse 4 stated that he/she only became aware of the existence of this database after three months working in the project. Because of the lack of a proper introduction, the representatives encountered difficulties during their start at the project. For example, they did not know what certain systems included or how they worked. Also, two representatives stated that they did not know the responsibilities and competencies, or even the names of key members of the project (e.g. the management). Physician 5 noted that he/she knew the structure of the project in general, but was unaware of the faces behind it and what colleagues were precisely doing. An interesting remark regarding this is made by Other 2. He/she noted that during the final project meeting, which marked the end of the project, movies were broadcasted which showed members of the sub-teams and their final message to all attendees. However, he/she suggested that having such a meeting at the start of the project would have allowed him/her to get an image of the people present within the project and what their functions were. This also explains why Physician 5 refers to this first period as a 'missed opportunity' and a 'waste of money'. Another interesting remark regarding the preparation of the representatives, made by Nurse 4, concerns the last recruited representative (not all representative were recruited at the same time). Nurse 4 noted that this representative mentioned the same problems regarding the preparation at the project as he/she had faced, as this person also had to figure it out all on its own and had not received information about existing systems. Therefore, in his/her opinion, the project was not able to make

improvement in the recruitment and preparation processes over time.

#### 4.1.2 REPRESENTATIVES' TEAM ACTIVITIES

After describing the process issues associated with the start of the stakeholder representatives at the project, this section will focus on the issues that emerged during the representatives' work activities in the sub-teams. The first issue that surfaced is categorized as *distribution and amount of teams*. In total, the representatives were recruited for around 20 teams in the EHR project. The representatives got the opportunity to divide these mutually during a meeting, and this division was based on their function and experience. Most of the interviewees did not mention issues regarding this distribution process, however, two nurses (Nurse 1 & 4) came up with a similar issue. This issue included that they did not know precisely what each team was intended to do during the project. Therefore, Nurse 4 stated that dividing the teams was more or less guessing about in which teams he/she had most to offer. At the end, he/she was enrolled in fourteen teams, which resulted in the issue regarding the amount of teams in which representatives were enrolled. According to the majority of the interviewees, they were enrolled in too many teams. For example, Physician 3, who was enrolled in eleven teams, stated that his/her 0.6 FTE was paid by the EHR project. However, he/she also had his/her normal work which required time and effort. This meant that Physician 3 was not able to manage all eleven teams. Moreover, he/she also stated that there was a practical issue regarding the organization of the teams. Physician 3 mentioned that sometimes team-meetings overlapped each other, which meant that he/she was forced to choose between teams. This issue is also shared by other interviewees. For example, Physician 6 noted:

*'There were overlapping appointments, and then I had to choose where I could have my largest contribution and which one I could best attend. And then I went there. And then you should try to catch up with what was discussed in the other meeting.'*

Another issue category that emerged during the representatives' work in the project teams concerns the *size and*

*composition of these teams.* With respect to the size of the teams, three representatives (Physician 1, Nurse 2 and Nurse 4) noted that they sometimes felt that the size of the team was too large. For instance, Physician 1 noted that one of his/her teams contained approximately 20 members. According to him/her, this works for an informing purpose, but not if the intention is to make decisions, as the larger the team, the more time-consuming decision making processes will be. A contrasting opinion regarding the team size is made by Other 1, who notes that his/her team was too small. Therefore, he/she felt that the team did not contain enough expertise to make well-informed decisions. However, the issue of Other 1 about small teams is more about the composition of the teams. This person was the only representative from his/her department and feels that this is not appropriate, as he/she states that:

*'This hospital has three key elements; you got research, education and healthcare. And certainly research is important, so to make the design of the new EHR dependent on a few people is risky.'*

Moreover, also Nurse 3 noted that he/she, in the role as representative, sometimes had to make decisions about matters of which he/she lacked knowledge in his/her opinion. Of course, the representatives were able to contact departments in order to collect the required knowhow. For example, some of the interviewees stated that they visited their original department in order to get in contact with the people who possessed the required knowledge. However, some of the representatives mentioned issues when they contacted departments other than the one they belong to, as people at these departments were not compensated by the EHR project for EHR related activities. These issues are grouped under the heading *facilitation of departments*. The consequence of this lack of facilitation was that members of the departments were only paid for doing their primary job and therefore lacked time or were not willing to participate in the project. This made that the representatives were dependent on the willingness of the people from within the hospital to provide them with the information they needed. Moreover, as these people had busy agenda's, it took the representatives lots of effort to schedule appointments with members of the departments. According to Physician 3:

*'It is partly the organization, who doesn't facilitate and who puts giving medical attention to people at the first place. That is also the main reason why a medical practitioner chose to do his work. So if you don't get room to participate in the development of other things...'*

Therefore, getting in contact with people in the hospital was perceived as being difficult according to some of the interviewees due to the fact that they were not awarded time to participate in the implementation process. Moving back to the issue *size and composition of teams*, one of the consequences of the large team size was that discussions went on for a long time. Moreover, many discussions were repeated frequently and were focused on minor details of the EHR. For example, Physician 2 mentioned the example of how patients should be ordered within the system. Some departments stated that they wanted the patient to be ordered on the date of arrival, while others preferred an ordering based on the patient's name. This issue, defined as *long discussions*, is mentioned by the majority of the interviewees. Moreover, the issue of *long discussions* is related to issues regarding the team size (*size and composition of teams*), which is illustrated by Physician 2, who states that if you want to make decisions based on consensus within a project of around 150 members, it will take much time. The fact that decision making processes in the project were time consuming is also related to the procedures used within the teams. This issue is summarized by Physician 1:

*'In my opinion, in such a team where you have a lot of people from multiple disciplines and functions, you need close supervision. I don't think that that has happened.'*

However, the representatives experienced differences between the teams. Because the representatives were divided across multiple teams, they were able to experience the issue of *variety in management approaches*. These differences can explain why some of the representatives experienced that some teams worked very structured, using weekly planning schemas, while others lacked these methods, which made that the representatives had no clue whether things were going as planned or not. Also, an issue raised by some of the representatives is that they missed a clearly defined description of what the teams were sup-

posed to achieve. This issue, categorized as *team description*, made that the boundaries of what was allowed to be discussed and what not vague. According to Nurse 2, one of the consequences was that sometimes key principles of the program were discussed. For example, with respect to the basic principle that 80% of the project should be generic and 20% should be specific, discussions about how to define generic and specific took place. Therefore, the issue of a lacking specified *team description* describing the orientation of each team and the general principles of the project itself is *related* to the issue of *long discussions*. The relationship between both issues is illustrated by Physician 4:

*'Well I think, and that is for the whole program, that you need a better definition of the task and work area. I participated in teams and it was not clear at all what we were doing, what the boundaries were. And everyone interfered with everything. So the existing principles were not outlined enough. So it looked like there was a lot of room for discussion, but actually there wasn't.'*

Also, during this phase, the *lack of a tangible EHR* became an important issue. During the recruitment process of the representatives, no clear picture of the EHR was communicated. The general principle of the EHR, being an overarching database which could be used for educational, research and healthcare purposes was communicated and during a meeting at the start of the project, a demo version of the EHR system was shown. Physician 2 stated that at the beginning of the project, he/she accepted that there was no clear image of how the EHR would work. Yet, he/she also noted that when the project moved on, the vendor still was not able to show a working demo-product. This issue of the lack of a tangible and working demo product was raised by the majority of the representatives. They noted that although the vendor showed some screenshots of the product and descriptions on paper, they did not get the opportunity to actually work with a demo version of the EHR system. This issue is nicely exemplified by Physician 2:

*'Imagine that you are going to buy a car. And that you go to a BMW dealer who tells you that you should buy a 5 series.*

*That is the best car. But do you have a folder which I can see? No, I don't have a folder. And do you have an example of the car? No. Or a movie on the internet? No, but it really is the best car. By the way, what seat color do you want? And then you are talking about the color of the seats, the kind of steering wheel and the type of motor. But you have never seen the car itself.'*

This quote is an illustration of the fact that the EHR never became tangible for the representatives. Physician 2 noted that the output of the teams consisted of process descriptions, which the vendor should translate to a working system. However, as the vendor was not able to provide such a tangible translation, the teams started to create their own translation by using mock-ups. These mock-ups consisted of Excel files, which have the disadvantage that they are abstract. For instance, Nurse 4 noted that you cannot work with these mock-ups and that it is not possible to see what it can do or what the lay-out looks like. A final issue regarding the representatives' work in teams that was mentioned during the interviews is categorized as *communication and collaboration between teams*. According to the interviewees, the teams in which they were enrolled worked mostly in isolation from each-other with minimal communication between them. Physician 6 provides a nice example:

*'We thought we had created good process descriptions. And once after a session, there were people of ICT, or the pillar Technical. And I talked to her and she said it is not going well. Because we can't do anything with your process designs. And that was the first time that I heard that. That's when I realized that things are not going well.'*

Yet, during the project, the representatives felt that they became responsible for creating linkages between teams, as they were the only ones divided across multiple teams. However, Nurse 3 noted that this responsibility was not communicated to them at the start of the project as being part of their job. Therefore, the issue of an unclear *job description*, which emerged at the start of the project, remained an issue during the representatives' work in the project teams. With respect to this, Physician 6 stated:



*'I was recruited as a stakeholder representative, not for maintaining an overview and arranging things between teams. That was not my responsibility. At least, that is my opinion.'*

Nonetheless, the majority of the representatives felt it as their responsibility to keep an overview across the teams. This allowed them to mention during team-meetings what other teams had discussed and they tried to prevent teams from duplication of effort. However, as previously stated, the issue of the *distribution and amount of teams* caused that the representatives were not able to attend all of the team meetings, which made that the *communication and collaboration between teams* remained an issue throughout the project. Therefore, although the representatives were willing to keep an overview across the project teams (*communication and collaboration between teams*), they were not able to do so because they were enrolled in too many teams (*distribution and amount of teams*). Also, when considering the issue *job description*, Nurse 2, who first had a positive opinion towards the vague job description, became more negative during the project. He/she states that although he/she positively evaluated the freedom and creativity provided by the vaguely defined job description at the start of the project, it made it harder to deliver output over time. This was the case as there were no clear boundaries on the representatives' job activities, meaning that they involved themselves in too many activities, thereby making it hard to deliver for example process descriptions within time.

#### 4.1.3 FINAL PHASE OF THE PROJECT

During the final months of the project, the majority of the representatives stated that they realized that things were not going as they were supposed to go. Also, the issue of a *lack of a tangible EHR* was still present, as the vendor had not been able to show a working demo version of the EHR system. According to Other 1:

*'Until the moment that the project stopped, we never received a good design. So that I was able to see if it would work.'*

Yet, although some of the interviewees stated that they understood something needed to happen, not all of them expected the radical shutdown of the project. This led to one of the two other issues mentioned regarding this final phase, which is that the *communication* during this final period was incomplete. For example, Physician 2 noted that in his/her opinion, only ten percent of what was discussed by the top of the project was communicated to all project members. However, he/she also stated that he/she thinks it is not possible to be completely open, because of the legal consequences. Therefore, Physician 2 felt that the decision to stop may have been made a long time before the actual stop of the project, but because the teaching hospital did not want to breach the contract, the project continued. This results in the second issue mentioned regarding the final phase, which is that some of the interviewees felt that the project only continued in order to build a strong legal case against the vendor (categorized as *building a legal case*). Physician 4 illustrates this with two quotes:

*'We were busy with something different than building an EHR; we were busy with substantiating why this EHR would not work. So the content of your work activities changed.'*

*'At some point we were busier with indicating what was going wrong than with building an EHR. And if you are collecting evidence that things are not working well, you are not focusing on making the project work.'*

Therefore, the majority of the representatives indicated that they knew they were continuing their activities within the project only to build a strong legal case against the vendor and not for building a new EHR. So, in short, during the final phase it became clear to the interviewees that the project in its current form would not work and that they were only continuing in order to substantiate that if the project failed the vendor was to blame. However, this was not explicitly communicated by the management of the program. Yet, the interviewees understood this as large interests were at stake, which made that the project management simply was not able to engage in open communication.

## 4.2 CONTEXT ISSUES

In this section, the circumstances, or the existing external and internal conditions that influenced the effectiveness of the EHR implementation project will be discussed (Self et al., 2007). During the interviews, two widely acknowledged context issues surfaced. The first one, categorized as *commitment* to continue working, was important during the whole project, while the second issue category, *personal consequences of the stop*, only played a role at the final phase of the project.

### 4.2.1 COMMITMENT

At the start of the project, the *commitment* of the interviewees to create a new EHR was high as everyone understood the need for such a system. During the interviews, three main reasons for this high level of commitment emerged. First, Physician 5 and Other 2 noted that at the moment it takes a lot of time to search for medical paper files and to transport them within the hospital. The new system would result in more efficient processes and thereby save time and money. Second, currently, many stand-alone applications are running within the hospital. This means that medical practitioners have to log-in on sometimes up to four or five programs during their work. The new EHR would integrate this into one system, thereby making their work easier. And finally, the current ICT within the hospital is outdated. For example, some systems are not supported anymore by their vendors, which results in security risks. Physician 2 describes the current state within the hospital as:

*'It is like a Russian nuclear facility which is held together with tape and gum. And you know it will go wrong eventually. It is just waiting until it says "Boem".'*

Therefore, the commitment of the interviewees was high during the start of the project. Also the departments were motivated and willing to cooperate in order to construct a new EHR. However, the EHR was more remote and vague for them. According to Nurse 2 and Other 1 and 3 this is because during their work in healthcare, patient cure and care is central. When looking at the final phase of the project, the majority stated that their commitment decreased.

Nevertheless, during the interviews, the large majority of the interviewees noted that although they encountered problems along the way and their motivation decreased, they were still committed to get the most out of it. This point is illustrated by Nurse 4:

*'Look, quitting was not an option. Because it was a fact that we had to work with that product. If I would quit I would have no influence anymore. And if I would stay I had to make the best of it. And with that picture I was working all the time, to make the best of it.'*

So, although the commitment decreased at the end of the project, the interviewees continued their work and tried to make the best of it.

### 4.2.2 PERSONAL CONSEQUENCES OF THE STOP

The second contextual issue, emerging at the final phase of the project, concerns the *personal consequences of the stop* for the interviewees. These consequences are related to the fact that some of the interviewees worked full-time at the project, while others were part-timers. As the part-timers were still working at their original department, they were able to return and work full-time again in their previous job after the project stopped. However, the interviewees who were full-time involved in the project encountered some problems. For example, Other 3 and Nurse 1 noted that their original function was not available anymore or someone else had been recruited for their job, which is why they were forced to move to a new function. In contrast, part-timer Physician 3 got the guarantee of his/her department that if the project would stop, he/she could return to his/her original job. Therefore, Physician 3 did not experience the fear of what would happen after the project ended. Moreover, although this issue was not present for Other 2, he/she was aware of it:

*'People who have applied themselves to work here for two years and who now have to move back to their department where there is no room for them. Luckily I did not have that problem, but I can't imagine how that would be. (...). You feel like you are arriving with your bag under your arm, like "here I am again guys, do you have some work for me?"'*

The issue that some of the interviewees could not return to their original department caused that the atmosphere became more negative, as people started to wonder what would happen with them if the project would stop. As stated before, this was especially an issue mentioned by the interviewees who were full-time involved in the project. This is illustrated by Physician 4, who worked part-time at the project. He/she compares his/her time at the project with a refreshing part-time internship which was intended to have a duration of two years, but unfortunately only lasted nearly a year. And after this internship, he/she could simply return to his/her department and work there full-time again.

### 4.3 CONTENT ISSUES

This section will describe the content of the EHR, which concerns the substance of the change initiative (Armenakis & Bedeian, 1999; Devos et al., 2007). Two content issues that emerged during the interviews concern the *research component* of the EHR system and *unfulfilled expectations* by the vendor.

#### 4.3.1 RESEARCH COMPONENT OF THE EHR

The first content issue, called *research component*, emerged during the representatives' activities within the teams and the final phase of the project. The intention of the EHR was that the data of the system could be used anonymously for research. However, in order to collect usable data for research, medical practitioners had to tick boxes instead of writing one-liners in the EHR. According to Other 1, nurses and physicians prefer to write one- or multi-liners instead of ticking these boxes. But Other 1 notes that one of the consequences of doing so is that data is destroyed and not usable anymore for research. Nevertheless, taking the perspective of medical practitioners, Physician 2 stated that:

*'We were trying that when we write something down, that it is very objective and validated. So that we can re-use it 100 times, while that is not relevant.'*

In his/her opinion, working with ticking boxes instead of written text is too rigid and not workable in daily practice. Therefore, Physician 2 states that although the intention is to code everything:

*'In reality you cannot code anything of patients. It is always a bit different than normal; a bit of this and a bit of that.'*

Moreover, he/she questions the value of the data, as it is entered in the system by many different practitioners. Therefore, Physician 2 notes that large rounds of data validation are required before you can use the data from the EHR system. Finally, he/she states that just writing a one-liner is quicker than ticking many boxes and that he/she knows from experience that the more boxes you have to tick, the less you do so. Simply writing a single sentence about a patient saves time and is clearer, which he/she illustrates with an example:

*'If I order a nurse to clean a drain three times a day, I simply write "clean drain three times a day". If you can develop a computer system where I can register this quicker than with one sentence on paper, and just as clear and with all nuances. Because if you write something and someone writes an exclamation mark or marks something. That makes it very relevant, but you can't find that in an EHR.'*

#### 4.3.2 UNFULFILLED EXPECTATIONS

The second content issue that surfaced during the project is labeled *unfulfilled expectations* by the vendor. This issue was present from the start of the project until its final phase. Over time, it became clear that the vendor was not able to meet the high expectations created at the start of the project regarding the EHR. Therefore, although the vendor stated in the beginning that almost everything was possible, it became clear over time that this promise was not true. Physician 2 illustrates this by saying that:

*'I thought we could create the system as we wanted it to be. But after a few months I understood that we got stuck with a very rigid system of the vendor. With lots of things that were not possible.'*

During the project, some of the representatives noted that they came up with ideas about elements that they wanted in the EHR, but which were not possible according to the vendor. An example of this is provided by Nurse 4, who had the expectation that if he/she would enter the weight of a person in the EHR, it would be available at all related components of the system. However, this was not possible and he/she noted that this lack of integration between sub-systems is exactly one of the main problems of the current hospital IT. The fact that the vendor was not able to deliver on these basic EHR functionalities can be explained by the fact that the vendor sold a product which it did not have. During the final project meeting, someone mentioned that the hospital had bought a promise instead of a product and that the vendor thus had sold a promise which it could not fulfil. One of the consequences of the *unfulfilled expectations* issue is that departments started to create work-arounds in order to make it possible to continue using the current IT system. However, this is likely to create an issue in the future when a new EHR implementation will be attempted. According to Physician 2:

*'So we are starting to use tricks in order to make sure that we can continue to use the current system for a while. However, the problem is that everyone is stitching new patches to the patchwork, which makes it even more complicated to implement a new EHR.'*

So, the fact that the vendor was not able to realize even the basic expectations of an EHR (e.g. integration between systems) made that departments started to create work-arounds, which is likely to make the implementation of a new EHR in the future even more difficult.

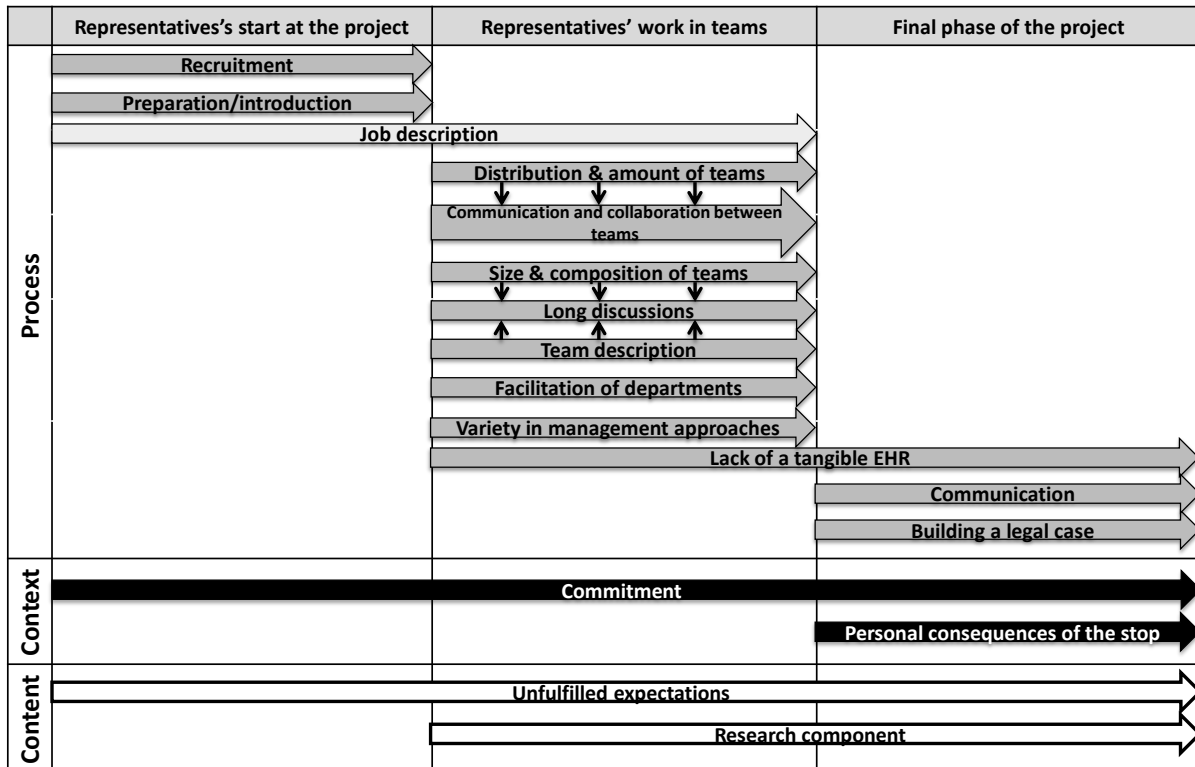
#### 4.4 SUMMARY

The previous section provided the results regarding the process, context and content issue sub-categories that surfaced during this research. Table 2 on the next page provides a short overview of these sub-categories and gives a short description of each. Next, in order to illustrate the evolvement of issues over time, Figure 1 (page 22) shows during which of the three phases the issue sub-categories were present. It turned out that the issues *job description*

and *unfulfilled expectations* evolved from being an opportunity towards becoming a threat. Moreover, as was illustrated before, issue sub-categories were raised at different phases during the project and while some only surfaced during one of these phases, others were present at multiple ones. Finally, as the results showed that some of these sub-categories were inter-related, the figure also visualizes these relationships using arrows.

<b>Process issues</b>	
<b><i>Sub-category</i></b>	<b><i>Category description, expressed concerns about:</i></b>
Recruitment	The recruitment process for the EHR project.
Preparation and introduction	The preparation and/or introduction of newly recruited members during the EHR project.
Job description	The description of the jobs within the EHR project.
Distribution and amount of teams	The distribution of the teams and the amount of teams in which members of the EHR project were involved.
Communication and collaboration between teams	The communication and collaboration between project teams.
Size and composition of teams	The size and composition of the teams.
Long discussions	Discussions that went on for a long time.
Team description	The description of what the teams were supposed to do and achieve.
Facilitation of departments	The facilitation of hospital departments by the EHR project.
Variety in management approaches	The variety of management approaches used within the different sub-teams of the EHR project
Lack of a tangible EHR	The lack of a tangible EHR system during the project.
Communication	Communication between the top of the project and the rest of the members.
Building a legal case	Continue working only to build a legal case against the vendor.
<b>Context Issues</b>	
Commitment	The commitment of the members of the EHR project.
Personal consequences of the stop	Personal consequences of the stop for project members
<b>Content Issues</b>	
Unfulfilled expectations	Unfulfilled expectations by the vendor regarding the EHR.
Research component	The research component of the EHR.

**Table 2** Overview of Issue categories.



**Figure 1** Chronological overview of issues.

## 5 DISCUSSION AND CONCLUSION

This research has addressed the following research question: *How do stakeholder issues evolve in the context of a failing EHR project?* In order to answer this question, a case study has been conducted in a large teaching hospital. By combining stakeholder and issue management, emerging issues were categorized as being process, context and content related based on Pettigrew's (1987) work, which resulted in seventeen sub-categories. It turned out that these sub-categories surfaced at different moments in time during the project and that two of them evolved from being perceived as an opportunity towards becoming a threat. This makes sense, as it gradually became clear to the user representatives that the project in its current form would not be successful. Next, the analysis also revealed that interdependencies existed between issue sub-categories, which means that some issues can only be resolved if other issues are handled first.

In the remainder of this section the results of this study will be discussed and compared with relevant literature. Moreover, theoretical and managerial implications of this paper will be provided as well as the limitations of this study and suggestions for further research.

### 5.1 LITERATURE CONFRONTATION

The central aim of this section is to compare the emerging issue concepts with existing literature, which is an essential feature of theory building (Eisenhardt, 1989). First, some of the identified issue sub-categories will be discussed, after which the evolvement of and interdependencies between issues will be addressed.

#### 5.1.1 ISSUE CATEGORIES

During this research, the three issue categories of Pettigrew (1987), being process, context and content, proved to be appropriate for categorizing the issues. All issues that surfaced could be attributed to one of these categories. This was also one of the findings of Øvretveit et al. (2007), who investigated the factors that facilitated or hindered the ef-

fective implementation of an Electronic Medical Record (EMR) within a hospital. According to them, the key factors associated with the cost effective implementation and operation of IT in hospitals include the used implementation method (process), the conditions present when the implementation took place (context) and features of the system itself (content). Therefore, this study confirms the findings of Øvretveit et al. (2007) that process, context and content factors are central during the implementation of electronic databases within hospitals.

Moving on to the sub-categories of issues found (see page 21 for an overview), the majority of issues are organized under the heading process. This matches the findings of Boonstra et al. (2014), who conducted a literature review on EHR implementations in hospitals. They also structured their findings using Pettigrew's dimensions of process, context and content, and found that over fifty percent of the included literature's findings were headed under the process dimension. Boonstra et al. (2014) note that this is not surprising, given that the focus of their paper is on the implementation process (which is also the focus of this research).

When taking a closer look at some of the issue sub-categories, it must be noted that the majority are not explicitly recognized in existing studies. Yet, some interesting confirmations can be found in the literature. For example, regarding the content issue *research component*, Jensen, Jensen and Brunak (2012) state that clinicians value the flexibility of writing free text. However, in order to make the data from the EHR usable for research purposes, standardization and structuring of data is needed (Goldwein, 2007). Therefore, Rosenbloom et al. (2011) and Jensen et al. (2012) note that there is a tension between healthcare practitioners who document the data in the EHR system and those who re-use the data for research. This issue, classified as *research component*, also surfaced in this research, as a physician noted that he/she valued writing free texts, while Other 1 indicated that a more structured approach

for documenting data in the EHR is needed in order to make the data useful for research.

Another issue that was identified in previous research is the process issue *facilitation of departments*. According to Øvretveit et al. (2007), the factor that was most often mentioned as hindering the implementation entailed that personnel were not attributed extra time. For instance, respondents noted that they had difficulties combining their activities for the EMR implementation with their ordinary work. Moreover, Boonstra et al. (2014) hint to the existence of this issue by stating that a sufficient number of appropriate staff should be assigned to an EHR implementation process. In this case, the issue of the absence of *facilitation of departments* included that members of the departments were not compensated by the EHR project for their EHR related activities. Therefore, some of these people lacked time or were not willing to cooperate.

Finally, also the context issue of a high level of *commitment* towards the EHR implementation can be observed in the literature. In the case hospital, everyone understood that a new EHR was needed. According to Øvretveit et al. (2007), one of the key-factors for implementing a new EMR includes that medical practitioners see the benefits of the new system, as this increases the participants' commitment to build a new EMR. The commitment issue is also implicitly present in the work of Boonstra et al. (2014) and McGinn et al. (2011). The former notes that resistance to an EHR implementation is a major barrier, while the latter states that a positive attitude to the benefits of an EHR is an important facilitating factor. Therefore, the fact that everyone in the case hospital understood the need for changing towards a new EHR proved to be a major facilitator during this study.

#### 5.1.2 EVOLVEMENT OF ISSUES

The previous section discussed some of the issue categories that surfaced during this study. However, an important aspect of this research includes investigating the evolution of these issues over time. As became clear from the results, some of the issues emerged only at the start of the project, while others surfaced during the representatives' work in the teams or the final phase of the project. This

makes sense, as issues related to the *recruitment* process are likely to surface early, while others (e.g. the issue *size and composition of teams*) only emerge as an issue after representatives have worked some time at the project. Therefore, this research shows that issues surface at different points in the project's timeline, which is also what Legris & Collette (2006) and Keshavjee et al. (2006) found.

Moreover, the evolution of issues has been observed during this research. The majority of the issues were initially perceived as threats and remained being seen that way (with the exception of *commitment*, which remained relatively high during the project and can therefore be seen as an opportunity). This fact can be explained by two reasons. First, the interviews were conducted shortly after the project was stopped. According to Kovoor-Misra (2009), organizational members are likely to perceive issues as threats during the direct aftermath of a crisis like a large technological failure. The second reason is that people in general are more sensitive to threat-consistent information compared to opportunity-consistent information (Jackson & Dutton, 1988; Barr & Glynn, 2004). Therefore, interviewees are more likely to acknowledge the presence of threats, but reluctant to confirm the existence of opportunities.

However, two issue categories form an exception. First, at the start of the project, the vaguely defined *job description* was perceived by one user representative as an opportunity, as it allowed him/her a lot of freedom to be creative and to bring forward own ideas. However, while working in the teams, this same issue became a threat, as this representative bit off more than he/she could chew by being involved in more activities than he/she could handle. Therefore, he/she found it hard to meet work deadlines. The second exception concerns the *unfulfilled expectations* issue. At the start of the project, the high expectations regarding the EHR were perceived as an opportunity, as the new EHR would solve existing problems and make work easier. However, over time, it became a threat, as it turned out that these expectations were not realizable by the vendor, meaning that even basic EHR functions were not possible. So, when taking the evolution of issues into account, the majority of the issues emerged as a threat and kept being seen that way (except *commitment*), while two issues



evolved from being perceived as an opportunity to becoming a threat over time.

### 5.1.3 INTERCONNECTIONS BETWEEN ISSUES

Next to identifying issue (sub-)categories and how these evolve over time, a final objective of this paper is to identify interdependencies between issues. Van Offenbeek and Vos (2015) define the level at which interconnections between issues become clear as the semantic level and note that although an issue can stand on its own and in isolation of others, it is more common that interdependencies exist. Therefore, project managers cannot focus on an issue in isolation as they need to appreciate how coping with one issue will influence other issues. During this research, three dependencies between issues surfaced. First, the issues *size and composition of teams* and *team description* resulted in the issue of *long discussions*. Because the teams lacked a detailed team description and consisted of a lot of members with diverse backgrounds, the duration and frequency of discussions were perceived as too high. Using the work of Thompson (1967), the observed level of dependency is sequential, which means that a solution for issue Y requires a solution for issue X first. In this case, the issues *size and composition of teams* and *team description* need to be addressed before the issue of *long discussions* can be solved. Another sequential interdependency that became clear from the results is that the majority of the representatives felt it as their responsibility to create linkages between teams, although this was not communicated as being part of their job. However, as the representatives were enrolled in too many teams, they were not able to realize optimal inter-team communication and collaboration. Therefore, it turned out that before trying to solve the issue of *communication and collaboration between teams*, the issue of *distribution and amount of teams* should be addressed first.

## 5.2 THEORETICAL IMPLICATIONS

Existing literature currently fails to provide a comprehensive EHR change approach (Boonstra et al., 2014). Although this research does not have the intention to develop such a method, it contributes to the EHR literature by providing insight into how stakeholder issues evolve in the context of a failed EHR project. First, this study implies that categoriz-

ing issues using Pettigrew's (1987) classification is appropriate for such a context, as all the issues that surfaced during the failed project could be attributed to one of the categories. Next, this research adds to the existing literature by providing issue sub-categories associated with an EHR project's process, context and content. Although some of the sub-categories are already recognized by earlier studies, the majority of them are new, which makes this research the first attempt to provide an overview of issues present in the context of failed EHR implementation.

Moreover, this study supports the findings of Legris & Colletterte (2006) and Keshavjee et al. (2006), as they state that issues surface at different moments during the project. During this research, some of the issue sub-categories were recognized early, while others emerged later in the project. Also, some of the issues were recognized in multiple phases, while others were only present in one. Furthermore, this study supports the view of Bundy et al. (2013), who state that considering the entire life cycle of an issue helps to understand how its meaning and interpretation has evolved. By using their view, it became clear that in the context of a failed EHR implementation, the interpretation of an issue can evolve from being perceived as an opportunity to being classified as a threat.

Next to the evolvement of issues over time, also interconnections between issues surfaced. Therefore, this study confirms the work of Van Offenbeek and Vos (2015), as they note that project managers cannot focus on an issue in isolation, but need to assess how coping with one issue will influence other issues. Finally, this study is one of the first to combine stakeholder and issue management in the context of a failing project. Doing so allowed different stakeholder groups to provide input regarding the issues they faced; thereby substantiating the work of Luoma-aho and Vos (2010), as they state that combining both theories allows creating a larger overview of the issues present within an organization.

### 5.3 MANAGERIAL IMPLICATIONS

Next to these theoretical implications, also some practical implications can be developed. Although this research agrees with Aarts, Doorewaard and Berg (2004) that no success formula can be developed for EHR implementations, it provides practitioners with the opportunity to learn from the issues raised during this failed project and avoid falling in the same traps. For example, practitioners responsible for implementing an EHR can observe the issue categories and associated sub-categories in order to make sure that these issues are not becoming an obstacle during their implementation process. Moreover, this study showed that interdependencies can exist between issues, which means that managers need to take this interplay into account when trying to manage them. Also, this study shows that issues surface at different moments in time and that issues might evolve from being perceived as opportunity towards becoming a threat. All of this implies that change agents cannot 'sit back and relax' if there are currently no issues, as issues might evolve or surface latter on. Therefore, it is important that implementers are proactively oriented towards monitoring and identifying issues which might affect the future performance of the organization and that they are aware of possible interdependencies. As this study has shown, combining stakeholder and issue management is an appropriate approach for doing so, as it allows change agents to keep track of stakeholder issues during EHR implementation projects.

### 5.4 RESEARCH LIMITATIONS AND FURTHER RESEARCH

Although this research resulted in interesting implications, some limitations regarding this research need to be reflected upon. First, although Yin (2009) states that a single-case study is appropriate if the case represents a unique case (in this study a failed EHR project), he acknowledges the fact that using such a design limits the generalizability of this research. Data was gathered at only one large teaching hospital, meaning that the results might not be transferable to other teaching hospitals because they are context-specific. Second, this study relied on 13 interviews for data collection, which were conducted with internal stakeholder representatives. However, although this is consistent with the suggestions of McGinn et al. (2011), it also means that

perspectives of external stakeholder groups were not included. Moreover, the composition of the interviewees was also skewed, as six physicians were interviewed, while only one interview was conducted with a research coordinator. This could mean that some perspectives were underrepresented, thereby affecting the findings of the current study. Third, the majority of the user representatives were recruited after the vendor had already been chosen and start-up preparations had been made. Therefore, they were not involved throughout the whole project, meaning that the identified issues cover only the latter part of the implementation process. Furthermore, the user representatives were actively involved during the EHR implementation project, which makes it likely that their voiced issues differ to some extent from those of the uninvolved stakeholders they represent. A final limitation concerns the fact that this study is a retrospective case study, which means that interviews have been conducted after the fact. Therefore, the interviewees might have engaged themselves in retrospective sensemaking, which means that as the failure of the project was known at the time of the interviews, they might have constructed their story to fit this outcome (Mills, Durepos, & Wiebe, 2010). According to Eisenhardt and Graebner (2007), one method to mitigate this bias is to conduct the interviews with highly knowledgeable informants with diverse perspectives. A suggestion made by them is to include interviewees from different organizational functional areas, which was accomplished in this research by interviewing physicians, nurses, health-administrators and a research coordinator. However, although this used approach is likely to limit the retrospective sensemaking bias, it cannot be guaranteed that this bias is completely absent.

This research is one of the first to explore how issues evolve over time in the context of a failing project. However, in order to validate the findings of this study, further research is required in order to test whether the results of the current study hold in other settings. These settings might include other teaching hospitals, but it is also interesting to conduct case studies on failed IT projects outside the healthcare sector. Next, the case project failure occurred before the vendor was able to deliver a tangible product which was ready to be implemented within the hospital. Therefore, it might be interesting to conduct further research in a teaching hospital context in which the project

failed after attempts were made to actually implement an EHR in order to validate whether the results of this study still hold. Finally, the identified issues show that the implementation process was troublesome. Yet, the project continued despite these early warning signals. In the literature, many instances of 'escalation of commitment' are described, in which failing IT projects were permitted to continue (e.g. Keil et al., 2000; Desai & Chulkov, 2009). This raises the question of when is the right moment to stop a struggling IT (or EHR) implementation project and what is the best way to organize such a project termination. Further research might shed some light on these questions.



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## APPENDIX I OVERVIEW OF INTERVIEWS

Below in Table 3, an overview of the conducted interviews is provided. As can be seen, the function of the interviewee is provided, as well as the duration of the interview.

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<b>Pilot Interviews</b>		
	<b><i>Interviewee</i></b>	<b><i>Duration</i></b>
1	Communication manager	32:20
2	Member of project management	40:00

<b>Interviews with internal user's representatives</b>		
	<b><i>Interviewee (abbreviation)</i></b>	<b><i>Duration</i></b>
3	Physician (1)	1:03:28
4	Physician (2)	56:32
5	Physician (3)	1:03:29
6	Physician (4)	46:40
7	Physician (5)	39:57
8	Physician (6)	47:28
9	Nurse (1)	55:04
10	Nurse (2)	1:02:37
11	Nurse (3)	37:59
12	Nurse (4)	54:44
13	Other (1)	40:41
14	Other (2)	59:43
15	Other (3)	44:18

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**Table 3** Overview of conducted interviews

## APPENDIX II INTERVIEW PROTOCOL

### General

- 1 Can you tell something about your background?  
When did your work as a user representative start?  
What is your original department?

### Recruitment process

- 2 How did you get involved in the EHR project?
- 3 What is your impression of the process used for recruiting user representatives?
- 4 What image of the EHR project was communicated during the recruitment process? Was this different from your own image beforehand?

### Representatives' start at the project

- 5 How do you look back at your start as a user representative at the EHR project?
- 6 According to you, which issues were the most important during your start at the project? What went well during this period and what could have been better?
- 7 To what degree did you feel that these issues were shared by other members of the EHR project? Were these issues also shared by people from your original department? How did you notice this? What did this mean to you?
- 8 If you were asked to summarize in one sentence your view on the EHR as a product during your start at the project, how would you do that? Can you do the same for your view on the implementation process used for the EHR?
- 9 With whom did you talk about the EHR project? In what way were you influenced by others during your working activities? Did this influence your attitude towards the EHR? Can you give an example?

- 10 Did you talk with people from your original department/home/the EHR project (the one which was not mentioned in question 9) about the EHR?

### Representatives' team activities

- 11 How do you look back at your work activities in the project teams?
- 12 According to you, which issues were the most important during your work activities at the project? What went well during this period and what could have been better?
- 13 To what degree did you feel that these issues were shared by other members of the EHR project? Were these issues also shared by people from your original department? How did you notice this? What did this mean to you?
- 14 Were the issues regarding your start at the project still present during your team activities? Did some issues become more important than before?
- 15 If you were asked to summarize in one sentence your view on the EHR as a product during your team activities, how would you do that? Can you do the same for your view on the implementation process used for the EHR?
- 16 With whom did you talk about the EHR project? In what way were you influenced by others during your working activities? Did this influence your attitude towards the EHR? Can you give an example?
- 17 Did you talk with people from your original department/home/the EHR project (the one which was not mentioned in question 16) about the EHR?

### Final phase of the project

- 18 Eventually, the EHR project was stopped. If you look back, can you tell when you noticed that your activities

became more cumbersome? When did you observe a turning-point?

- 19 According to you, which issues were the most important during the turning-point of the project? What went well during this period and what could have been better?
- 20 To what degree did you feel that these issues were shared by other members of the EHR project? Were these issues also shared by people from your original department? How did you notice this? What did this mean to you?
- 21 Were the issues regarding your start and working activities at the project still present during the final phase of the project? Did some issues become more important than before?
- 22 If you were asked to summarize in one sentence your view on the EHR as a product during this turning-point, how would you do that? Can you do the same for your view on the implementation process used for the EHR?
- 23 With whom did you talk about the EHR project? In what way were you influenced by others during your working activities? Did this influence your attitude towards the EHR? Can you give an example?
- 24 Did you talk with people from your original department/home/the EHR project (the one which was not mentioned in question 23) about the EHR?

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### **Closing questions**

- 25 Is there something else that you want to share with us? Why?
- 26 What do you think needs to happen now? What is your message for the hospital? If the hospital would ask you again to become a user representative, would you do that?

## APPENDIX III CODEBOOK

CODEBOOK				
Category	Pattern code	First-level code	Description	Example
General	Information about the interviewee		Includes information the interviewee provides about him- or herself (e.g. background, motivation, etc.).	'Yes, I work as a nurse.'
Process	Communication	Communication within project	Communication that took place within the EHR project.	'I think that is not possible. I think that if those people have made a decision about whether to stop or continue, they can't communicate that with us. Legally, that is highly sensible and difficult.'
Process	Communication	Communication outside project	Communication that took place between members of the EHR project and departments.	'I have been working for years on that department. So I can just contact those people. Like "for the EHR project we need to do this and that, can you take a look because you have more knowledge about it".'
Process	Facilitation		Facilitation of the departments by the EHR project for cooperating within the implementation process.	'There were no people available for 1 or 2 hours per week to participate in the development by providing information or just by thinking along.'
Process	Job description		Captures the opinion about the job description of user representatives.	'According to me we did not have a clear job description.'
Process	Lack of tangibility		Refers to the lack of a tangible EHR system during the project.	'But because I did not receive an example from the vendor, it did not say anything to me.'
Process	Legal matters		Activities performed in order to build a strong legal case against the vendor.	'We were continuing to show our good intentions and to see if it is still possible to create something, and in the end to say to the vendor that it is not going to work.'
Process	Recruitment/preparation		Process used for recruiting new members for the EHR project and the preparation these members received.	'We should have been prepared for our job like this is done, this is what we still need to achieve, and this is what needs to happen.'
Process	Teams	Amount of teams	Concerns the opinion about the amount of teams in which the user representatives were enrolled.	'And that was when it became a busy period. Because you were invited for all these teams, and as a user representative, you had quite a few.'
Process	Teams	Approach	Relates to the used approaches within the project teams.	'Every team was different. But that depended on the people who were in these teams. Every team-leader was different. And every approach was different.'

Process	Teams	Cooperation	Cooperation that took place within and between the project teams.	<i>'Well, that was bad in my opinion. That was very bad.'</i>
Process	Teams	Size/composition	Concerns information about the size and/or composition of the project teams.	<i>'And sometimes I had the feeling like... I was enrolled in one team with 15 other people, but for God's sake, for what do we need 15 people.'</i>
Process	Teams	Team description	Description of what the teams were supposed to achieve.	<i>'Well I think, and that is for the whole project, that you need a better outline of the tasks and work areas. I went to teams where it was not clear what they were supposed to do, what the boundaries were.'</i>
Process	Vendor		Relates to the vendor of the EHR system	<i>'The problem was that some of the consultants of the vendor were not able to provide an answer to our questions.'</i>
Context	Commitment	Commitment department	The commitment of departments to create a new EHR.	<i>'So that is what I observed if I approached people. Everyone was enthusiastic and willing to help.'</i>
Context	Commitment	Commitment EHR project	The commitment of members of the EHR project to create a new EHR.	<i>'Let me say it like this, we tried to make the best out of it.'</i>
Context	Commitment	Underlying reason	Concerns the underlying reason(s) for the level of commitment of the departments and/or EHR project.	<i>'On the work floor, you observe that some things can be improved.'</i>
Context	Culture		Culture that was present at the EHR project and/or the original department.	<i>'Yes, and that is still the culture here. There are many independent islands who have arranged things in their own way.'</i>
Context	Personal consequences		The personal consequences that the stop of the project had for the interviewees.	<i>'Of course, it had many consequences for certain people. Not for me; I could just continue with my own job.'</i>
Content	Research	Research component	Component of the EHR used for research purposes.	<i>'There was a tendency of everyone to code everything, because then computers could use it.'</i>
Content	Research	Objective data input	Objective data input in the EHR needed for research purposes.	<i>'The data is inputted by many different people. So it is questionable whether you can use it.'</i>
Content	Unfulfilled expectations		Expectations of members of the EHR project that were not realized by the vendor.	<i>'Because they said we can make everything you want. So I said I want a list for my own patient, so that when I log in, I can drag patients to that list. "Oh no, that is not possible".'</i>
Other	Metaphor		Includes metaphors used when referring to the EHR project.	<i>'It is a bomb which is ready to explode.'</i>

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Other	Turning-point	Refers to the point in time when the interviewees understood that things were not going as they were supposed to go.	<i>'And during the year, we got the impression like we don't know if this is going to be alright. Gradually we got that idea.'</i>
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