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Enterprise risk management and continuous re-alignment in the pursuit of accountability: A German case

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ABSTRACT

COSO defines ERM as a set of activities that lead to organizational alignment and accountability, given structured work with stable, mobile and combinable information objects. This study argues against this representation by offering three insights developed from case research. We observe ERM as a practice that oscillates between IT-based representations and social interpretations, which never "adds-up" but creates circulation and movement instead. Rather than to produce a common understanding of corporate affairs, ERM communalizes the process of identifying risks and chances and promotes a quest for accountability. Thus, ERM does not focus on improving performance or compliance. Nevertheless, by separating subjects and objects in the organizational context, ERM creates space for otherness and heterogeneity. To the extent that these are mobilized as resources, ERM might offer "intelligence" beyond the coherence and homogeneity, which accounting systems represent.

1. Introduction

In recent years, corporate risk management, or the lack thereof, has gained considerable attention (Woods, 2009). Demands for corporate governance have been followed up by new risk management concepts (COSO, 2004). New regulation demands investments in risk management practices. Sarbanes-Oxley 404 regulation, for example, requires firms to work with the COSO framework or equivalent standards, such as COBIT (IIA, 2008). The need for external display of internal organizational coherence is more relevant today than it has ever been before (Bhimani, 2009).

Risk management is currently a discipline of everything and nothing (Power, 2004, 2009). Implementations often fail to bring intended benefits (Beasley et al., 2010), perhaps because enterprise risk management (ERM[1]) depends on a firm's calculative culture (Mikes, 2009) and on the choice whether only to count risk, or make them count (Mikes, 2011). Risk management depends on multi-faceted institutional dynamics (Arena et al., 2010), but may only serve the public with certifiable "quasi-commodities" in an ongoing quest for organizational virtue and legitimacy (Power, 2007) beyond the limits of individual accountability (Messner, 2009). Unsurprisingly, some have called for the development of (an ethic for) intelligent accountability (Roberts, 2009).

Taking inspiration from contemporary debates about corporate auditability, governance, and risk management, this study explores the ways in which risk management and accountability are related and the ways in which one contributes to the development or destruction of the other.

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[1] Further abbreviations used: CRC, Corporate Risk Coordinator; DRB, Divisional Risk Board; DRC, Divisional Risk Coordinator; GRB, Group Risk Board; IRM, Integrated Risk Management; RO, Risk Owner; R2C, Risk-2-Chance.

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For that purpose, we aim to compare the abstracts of a popular risk management concept (COSO, 2004) with a case-based study of ERM in the context in which it is practiced (Hopwood, 1983; Roberts and Scapens, 1985). We want to explore conceptual and practical ERM representation in comparison to accounting. It is relevant for us understand what ERM constitutes, in particular because it has already been suggested that its future will become increasingly intertwined and inextricably interdependent with management accounting and corporate governance (Bhimani, 2009). Moreover, we have found it interesting that COSO makes explicit and frequent reference to the ways in which ERM depends on the construction of organizational alignment and accountability. Hereby, COSO appears to conceptualize ERM as an accounting system that builds its information hierarchy based on stable, mobile and combinable figures (Robson, 1992). In order to prepare for an intelligent (ethic for) accountability, it would be relevant to know *whether ERM practice unfolds itself as accounting (information systems)*. In order to answer this question, we study the technologies by which ERM is mobilized in a firm and attempt to explore what alignment and accountability mean.

Recent risk management studies suggest that firms motivate ERM by focusing on either compliance or performance (Arena et al., 2010; Mikes, 2009, 2011). We are curious to understand, *if and how performance and compliance objectives become constitutive of managerial logics in use* (Giddens, 1976) *or the "rationalizations of work" somewhere in between rhetoric, practice, concept and action* (Ahrens, 1996, 1997). COSO suggests that it is possible to achieve accountability by aligning the processes and people according to their hierarchical role and functional tasks. In that case, one could think that *ERM would involve very specific combinations of information objects and subjects in practice. However, is that the case?* Our exploration of these three questions is based on case research of a German top-tier corporation in which risk management work is set in the context of recent legislative changes at a national level and motivated by a recent publicized compliance problem.

The paper is structured as follows. Section 2 introduces in further detail COSO's conceptualization of ERM (COSO, 2004). Our aim here is to familiarize the reader with ERM as an abstract system design (Roberts and Scapens, 1985) before introducing our research approach in Section 3 and presenting our case in Section 4. In Section 5, we discuss our findings, comparing the COSO concept with a German case practice. Subsequently, in Section 6, we conclude this study, offer practical implications and derive questions for further research.

2. COSO enterprise risk management

In 2004, COSO[2] launched a concept for ERM. It conceptualizes a three-dimensional model with an intention to integrate and align corporate strategic objectives, organizational structure and managerial reporting and control procedures. In line with "modern management", ERM is represented by its own graphic – a three-dimensional cube.

We have studied this conceptualization to understand how enterprises should manage risks according to professional accountancy associations. We chose to look at COSO ERM, because this concept is often referred to as a benchmark risk management approach. In particular, we were curious to learn how this concept defines risk management, accountability and alignment.

The COSO ERM concept defines risk management using a top-down approach that segments managerial responsibilities according to hierarchical positions. It considers, for example, that "*each manager should be accountable to the next higher level for his or her portion of enterprise risk management, with the CEO ultimately accountable to the board*" (COSO, 2004, p. 86). COSO ERM states that accountability develops from everyone in the organization knowing their responsibilities and contributing to the overall mission, vision and objectives of the firm. In other words, COSO ERM adopts a classical view of organizational management, which appears contemporary mainly by its choice of rhetoric. The emphasis on classical hierarchical control and allocation of responsibility is represented by a terminology that visualizes hierarchy as a system of "cascading responsibilities", which coalesce and contribute to an entity's overall objectives – "*a cascading responsibility exists, where each executive is effectively a CEO for his or her sphere of responsibility*" (COSO, 2004, p. 85).

COSO's ERM suggests that managerial alignment of organizational roles and tasks will ensure accountability. In order to assemble risk management as an enterprise-wide activity, COSO suggests that organizations must develop a code of compliance to measure whether everyone adheres to it and acts in accordance with their individual set of defined roles and responsibilities (COSO, 2004). In addition, COSO (2004) stresses a clear separation of duties, checks and balances. For example, it suggests measuring first the alignment of managerial achievement with a code of conduct and subsequently the contribution of the individual to the firm overall (i.e. the global enterprise as one entity).

COSO ERM promotes the assumption that auditability (Power, 2009) is beneficial to the firm. Risk management work is represented in terms of formalized and disclosure-oriented types of work, which is reminiscent of COSO's (1992) internal auditing approach with its emphasis on the traceability of activities. Although it is repeatedly stressed that all "*actions ... coalesce in the entity's enterprise risk management*" (COSO, 2004, p. 86), what this actually means is less clear. COSO appears to suggest that it is possible to produce accountability by paying careful attention to the alignment of processes and the ways in which they are supported by specific activities and tasks. COSO does not address what alignment work entails, how it unfolds and in relation to which particular agendas and/or objects it

[2] Five major professional associations headquartered in the US organized the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in 1985 as an independent private-sector initiative to study the causal factors that can lead to fraudulent financial reporting. COSO's stated goal is to provide "thought leadership" dealing with three interrelated subjects: ERM, internal control and fraud deterrence.

is produced. Stated differently, alignment is made important but unclear by statements, such as "*within the context of the established mission, management establishes strategic objectives, selects strategy, and establishes other objectives cascading through the enterprise and aligned with and linked to the strategy*" (COSO, 2004, p. 20). Rather than trying to explain arguments like these, COSO visualizes them by means of the ERM cube. It depicts a cohesive entity, which builds its cohesiveness through a number of building blocks. Coincidentally (presumably), the graphic visualizes ERM as a Rubik's Cube, allowing readers to imagine how consistency is shaped once all colors (managerial building blocks) have been moved into place – the objective of the Rubik cube game. However, what it entails and what it means *to cascade* things down through an organizations hierarchy is never addressed specifically. ERM prescribes alignment and assumes that the decomposition of enterprise-wide relationships into controllable building blocks, or areas of responsibility, ensures alignment and accountability. By this conceptualization, ERM (COSO, 2004) reproduces a traditional perspective on the management of organizational hierarchy.

In our understanding, COSO ERM suggests simply that firms can monitor the execution of assignments by assessing whether individuals are successful at doing their jobs by a strict decomposition of duties, responsibilities and leadership roles. However, COSO ERM does not address the management of uncertainties. To us, this discrepancy made it interesting to explore how practitioners construct ERM in practice and what type of accountability motivates their work.

3. Theoretical coordinates and research method

3.1. Theoretical coordinates

In order to capture patterns in an organization's risk management work (Greenwood and Hinings, 1993), we take inspiration from a recent study by Arena et al. (2010). We follow how technologies, expertise[3] and rationalities are brought together in the production of ERM in a specific context. We focus on the ways in which institutional practices rather than individual actors become rationalized (Lounsbury, 2008). We aim to pay attention both to "*the broader cultural frameworks that are created and changed by field-level actors, as well as to the lower-level activities of organizations and other actors that articulate with those frameworks*" (Lounsbury, 2008, p. 356). In particular, we look for modes of rationalization that reveal something about the "*wide and apparently unspecific notions of "management" to which organisational members hold themselves and each other accountable*" (Ahrens, 1996, p. 140).

Context is addressed as the first of our four theoretical coordinates. In the literature, it is often assumed that external (compliance) concerns rather than internal aspirations and motivation frame corporate risk management activities. Our concern is to understand whether the context matters and how, and for that purpose, we pay attention to both the external and internal drivers that can potentially influence and constitute risk management practices.

Second, we study the *technologies in use*, and – in ways similar to Arena et al. (2010) – we explore the multiplicity of tools and procedures enrolled in order to practice ERM. The purpose is to understand the ways in which procedures are executed and situated in the wider organization (Chua, 2007) and to explore whether ERM is always translated locally to avoid inhabiting any global properties, as observed in prior studies (e.g., Mikes, 2009, 2011). For this purpose, Knorr-Cetina (2006) introduced a distinction between scopic and network systems on which we will draw. Scopic systems involve "*electronic and informational mechanisms of observing and contextualizing market reality and of back-projecting this reality onto computer screens*" (p. 555). In comparison, network systems are defined through the translations made by particular human actors.

Third, we turn to *the ways through which expertise is manifested* vis-à-vis ERM. Compared with our point of departure in the institutional context and our curiosity about the ways that technologies become translated into systems, we seek to understand the ways in which actors approach the alignment of risk management practices. As already introduced, popular risk management conceptualizations represent alignment as a functional, rational top-down driven process, which is mostly about the segmentation and coordination of responsibility areas. This representation assumes that objects are immutable, that is, given stable, mobile and combinable characteristics (Latour, 1987; Robson, 1992), and that the relationship between objects and subjects are defined by the role and responsibility of the latter. Both assumptions appear to us to be radically simplifying. In the following, we pay attention to whether the relationship between the two is constant or contextual.

The fourth and final focus point in our case research concerns *the nature of the rationalities* we encounter at Company X. In their study, Arena et al. (2010) drew on Rose and Miller (1992, p. 178) to define risk rationalities in terms of the "*domain for the formulation and justification of idealized schemata for representing reality, analyzing it and rectifying it*" (p. 662). Arena et al. (2010) found that ERM is usually rationalized either by reference to compliance or performance. We draw on this distinction in order to explore the type of learning process by which interviewees motivate, appreciate or assess critical corporate action.

3.2. Research methods

It is important to introduce our research methods in order to understand the basis of the resulting case. The four related perspectives by which we account for our own research are structured by the categories listed below (Table 1).

3.2.1. Research principles

The objective guiding our empirical research was to understand *how* firms mobilize risk management in the

[3] We amended the coordinate by Arena et al. (2010) of "uncertainty experts" into expertise in order to differentiate subjects from risk management objects.

Table 1
Research methods.

Research principles	Data site(s)	Data collection	Case production
Inductive approach	Singular case site	Multiple data sources	Use and role of theory
Data categorization	Research objective fit	Time frame and phasing	Analytical ordering
Conclusions implication	Fieldwork focus	Triangulation/validation	Contextualization effect

organization in practice. Therefore, we chose to engage with practitioners inductively rather than deductively as in COSO's ERM conceptualization, for example.

During subsequent data analysis, we established categories to structure our data. In order to avoid abduction, or guessing the meaning of data, we segmented our materials according to two criteria. First, we differentiated general factual descriptions of the risk management system components from respondents' personal perceptions of their usability and influence. Second, we examined the factors by which risk management was made enterprise-wide. We established seven themes addressing (1) risk management components, (2) structural organization, (3) processes, (4) risk management scope, (5) strategic concerns, (6) risk aggregation and portfolio, and (7) risk handling practices.

Our interview approach did not pre-draft these categories. The semi-structured interviews guided by the four theoretical coordinates mentioned earlier were conducted in order to understand (A) respondents' individual areas of responsibility, (B) respondents' perspectives on organizational structure and processes of risk management, (C) respondents' relationships with risk management practice, and (D) respondents' familiarity with COSO ERM. Therefore, we claim with confidence that the categories drawn from our data reflect the proposed themes in the organizational context. This allows us to speculate that our *data set* reflects practice. The conclusions drawn can be generalizable at a theoretical level (Lukka and Kassanen, 1995) but not at an empirical level (Yin, 1994). They contribute to the knowledge about the organizational practices, specifically enterprise-wide risk management. This formalization of local insights provides important groundwork for understanding the emergent phenomena and a basis for further studies.

3.2.2. Data site(s)

Our results were obtained from the data and materials collected from only one organizational context. Initially, our collection process covered multiple sites, which were subsequently reduced to two main sites. Due to the richness of the data, this study draws on data from one site only. The resulting mono-site case (Scapens, 1990) justifies itself by the following reasons. The case helps to uncover a rare rather than a new phenomenon. Thereby, it can help modify what (we think) we know about risk management. Further, the case sheds light on the mobilization of a phenomenon within a local context. In particular, this local context is interesting because it offers insight into the practices of a major firm[4] in the German manufacturing industry. Due to the explicit request of the firm, we will refer to it only by the untraceable pseudonym "Company X" throughout this paper.

At Company X, risk management constitutes one of four pillars in a corporate-wide governance system.[5] In our view, this institutional context offered a very good research site for exploring what it means to unfold risk management practices at an enterprise-wide basis. The company matched in size and complexity the type of organization implied in COSO's conceptualization of ERM. Our study explores how divisions enacted the group-wide procedures that Company X presented as its group-wide ERM system.

3.2.3. Data collection

Ideally, ethnographic studies should include longitudinal examinations in order to develop frontline proximity that can help researchers make sense of the data (Ahrens and Chapman, 2006; Georges and Bennet, 2005; Miles and Huberman, 1994; Yin, 1994). Several sources and encounters with staff in a variety of settings facilitated our understanding of Company X. The primary data source for this study was face-to-face interviews, but information was gathered also via direct observations, meeting attendance, and archival sources (Eisenhardt, 1989).

To facilitate our "field"-work, Company X provided one of the authors with an office in the management control department from which we got full access to IT-based risk management systems – in particular, data-drives containing all documents produced for risk management purposes. This allowed us to review internal materials, including board presentations, guidelines, and tutorials on the risk management system. These reviews enabled us to understand the risk management software used, structure and contents of the risk catalog definitions, as well as risk documentation habits of the organization. In addition, we attended several risk management-related meetings, including, for example, a full-day quarterly meeting of the Divisional Risk Coordinators (DRCs), a management meeting on the revision of the group risk management directive, and a training session for a new risk coordinator with a system walk-through of the group-wide risk management IT system.

We also attended an employee dialog hosted by the executive board in the headquarters where we gained insights on the focus topics of the group as well as the tone of the top – a parameter that COSO emphasizes as particularly important for ERM. We benefited from these meetings

[4] According to German regulation, organizations of a certain size must design an elaborate governance structure involving several functions in both headquarters and subsidiaries.

[5] In sum, the four pillars comprised a legal compliance function, an internal control function, a corporate auditing function, and risk management. In comparison to the other pillars, risk management was organized as a cross-functional activity and shared responsibility of many actors.

Table 2
Operationalization and use of theoretical coordinates.

Theoretical coordinates	Context		Technologies		Expertise		Rationales	
Practice themes	External	Internal	Scopic	Social	Object	Subject	Compliance	Performance
Risk management components								
Structural organization								
Processes								
Risk management scope								
Strategic concerns								
Risk aggregation and portfolio								
Risk handling practices								

by being able to observe *in action* the diversity of risk management understandings in the organization. Moreover, these meetings provided us with access to an extensive group of actors – beyond our group of interviewees – who were all involved with group-wide risk management. We were able to follow up on the experience generated in these meetings through several informal talks.

After familiarizing ourselves with IT-based risk management systems and paper trails, participating in formal risk management meetings, and engaging in day-to-day informal conversations, we conducted 15 formal interviews. As also specified in a tabular overview in Appendix A, our interviewees included all standing members of the firm's Group Risk Board (GRB), except for the CFO who was a new hire at the time of our data collections.

As mentioned, interviews were semi-structured, leaving room for new lines of discovery that could not be anticipated ex ante. All interviews were conducted individually, allowing us to record individual interpretations. Our interviews varied in length between 45 and 90 min. They were based on our interview guide, which had been developed by one of the authors based on a prior literature review on risk management and accountability and company-specific information available in official documents, such as risk reports or group guidelines. Our Appendix B offers a detailed introduction to the interview guideline as used. All interviews were recorded and transcribed fully (324 pages) to facilitate our subsequent analysis.

We compiled our data using a "within method" triangulation (Blaikie, 1991; Jicks, 1979; Olsen, 2004). Primary data in the form of interviews were amended by secondary data, such as field notes, notes on inter-actor exchanges, notes from our archival studies, meeting observations and informal talks throughout the organization.

3.2.4. Case production

In line with Miles and Huberman (1994), we used our theoretical coordinates to differentiate and separate out particular insights from our data set defined by the seven theme categories addressed earlier (Table 2).

Our subsequent text analysis involved three rounds of work. In the first round of work, we differentiated the insights recorded in relation to each practice theme across the columns of the above table. This process helped us differentiate and link context, technologies, expertise and rationales thematically. Czarniawska (1997) referred to this phase of analysis as an *explication* process, where the researcher stands under the text. Having summarized this process for ourselves, we revisited the organization in order to test whether interviewees recognized their data input in our initial imaging of Company X.[6]

Czarniawska (1997) referred to the second phase of data analysis as the *exploration* phase, where the researcher enters her/his data set in order to research particular concerns. Our concern was to analyze, column by column, the contribution of the eight practice concerns to our knowledge about the context, technologies, expertise in use, and risk management rationales produced at Company X. Finally, in the third round of analysis, we studied and summarized the combined insights we had gained about the relationships of risk management, alignment work, and accountability. Czarniawska (1997) referred to this as an *explanation* phase, and by this mode of interpretation, we wrote our case, as presented in the following.

4. ERM at Company X

Company X is a German firm with annual revenues of more than EUR 14bn and more than 50,000 employees worldwide. For many years, Company X operated as a diversified business, but today, it is active in only two business areas. Presently, firm activities are organized in three divisions, a shared services unit and corporate headquarters. Headquarters assumes responsibility over strategic management and resource allocation. Moreover, it co-ordinates corporate risk management activities. This coordination role involves overseeing general processes as well as providing management methodology, technical support, and the group-wide time schedule. A Corporate Risk Coordinator (CRC) managed all of these activities on a day-to-day basis. In comparison, individual business divisions assume responsibility over all operating business activities, operative risk management, and the design and implementation of business units risk management. As discussed, our concern is to explore (A) the technologies of risk management used, (B) the way alignment is produced, and (C) the extent to which and the ways in which enactment of risk management procedure produces accountability. For this purpose, we focus on central headquarters' interaction with local business divisions.

[6] Participants at the meeting were: the CRC; the head of compliance/chief compliance officer; the head of controlling for business area A; the head of controlling for business area B; the internal control system-project manager; the head of corporate controlling; and finally the head of financial risk management.

4.1. Context: from conglomeration to integration

4.1.1. Internal context

Throughout its history, Company X has never emphasized corporate alignment to any particular extent. For decades, it had been a conglomerate firm, which allowed business divisions a maximum freedom to run things their own way – as long as they were profitable. Recently, certain divisions have spun off and the firm has consolidated its focus on core activities. Company X introduced ERM by the name IRM standing for *Integrated* Risk Management. Using this abbreviation, Corporate Headquarters wanted to signal that they intended to get involved with the management at a divisional level. Three factors framed their risk management initiative. First, divisions understood risk management in very different ways. Second, a recent business scandal had required the re-organization of the central compliance function. Third, Company X still had to follow new regulations requiring the implementation of further risk management procedures. Nevertheless, management motivated IRM mostly with its intention to become involved more actively in corporate business activities following its business consolidation. Headquarters required the business divisions to appoint a DRC, assign Risk Owners (RO), report quarterly risks and opportunities in "Risk-2-Chance" (R2C) – the IT-based risk management system – and to host quarterly Divisional Risk Board (DRB) meetings. At the time of our research, all this had been translated into practice. Nevertheless, Corporate Headquarters remained critical of business units. As one respondent stated it, "*business divisions hardly ever do more than what we ask them to do*".

In comparison, we found that people across the organization did a lot more than they were given credit for and that much of this work was done using supplementing tools and technologies beyond the central R2C technology by which Corporate Headquarters monitored divisions. Some had defined steering circles to explore product quality, environmental issues, compliance, and IT security. Others discussed operational risks in so-called management effectiveness meetings. Monthly reporting on "critical orders" involved various risk management activities. Officially, these activities were thought of only as supplements to ERM, even though ROs often depended on them to work with R2C – the formal risk management system.

4.1.2. External context

Concerning Company X, recent "bad press coverage" reporting a "business scandal" had been grossly out of proportion with the legal dimensions of a recent compliance breach. In response, Corporate Headquarters had declared it a top management priority to re-organize the compliance organization. Through press releases, it was communicated that a new full-time chief compliance officer would report directly to the CEO. Further, a group compliance department was created and additional labor was provided to all divisions, so that each division had a full-time compliance officer and several compliance managers within their divisional hierarchy. Officially, the aim was to foster uniform group-wide integrity and compliance. However, as one respondent critically reflected, "*Honestly, you do not really emphasize risk management in order to optimize corporate risks and opportunities trade-offs. It's just that you do not want to be held liable... we must be careful not to over-formalize everything we do*". This liability point referred specifically to BilMoG[7] and KonTraG[8] – legislative initiatives emphasizing board members' individual responsibility for corporate activities.

Recent changes to national corporate governance regulation defined the oversight duties of boards. The 2008 BilMoG emphasizes that supervisory boards are responsible for the oversight of internal controls and risk management systems (cf. §107 Section III Corporation Law). In response to these legal changes, Company X restructured and documented internal control systems uniformly across the company. At Company X, BilMoG was seen as an attempt by the regulator to increase the board's legal responsibility for corporate practice. Prior to BilMoG, legislators had sought to strengthen corporate governance through KonTraG which requires firms to include a risk report as part of their annual financial statements. Moreover, this act requires that executive board members of public German firms implement early warning systems to detect existential threats (cf. §91 Section II Corporation Law). KonTraG was introduced already in 1998 and BilMoG in 2008 – years before our research. Nevertheless, we noted that respondents still perceived KonTraG and BilMoG as reasons for adapting risk management.

4.1.3. Integrated Risk Management

Given KonTraG, BilMoG and recent compliance breaches, we expected that Company X's risk management approach would emphasize particularly legal compliance. To our surprise, this was not the case. Compliance and auditing functions remained functions at the corporate level, and they were placed next to risk management and internal control rather than being considered central to the new IRM.

According to one respondent, prior to IRM, risk management had been handled as if "*it were a one man show*". Risk management had never been seen as important before and had never been given more than rudimentary attention in the past. Suddenly, the intention was to make IRM a platform for performance management and enterprise-wide co-ordination. When asking about the purposes of these activities, we were given a very particular response, "*It's required by law*". In fact, KonTraG and BilMoG required only the presence of early warning systems and description of the risk and internal control system, as mentioned above. As one respondent introduced, "*We* [headquarters] *want to bring risk management to the level that the group can really work with it. What we mean is that we do not see risk management only as something to fulfill legal requirements – we want to work with risk management. It is a tool for management. Otherwise risk management makes no sense*". For Corporate Headquarters, the point was not whether to engage with risk management, or not. To them, risk management was a

[7] BilMoG in translation: Accounting Law Modernization Act.
[8] KonTraG in translation: The Corporate Sector Supervision and Transparency Act.

vehicle by which they would become involved in divisional business practice. In the words of a respondent, "*You know, the most difficult part of it is actually not the activity – ERM – itself. Actually, here at headquarters, our biggest challenge is to make people realize that this is a good thing*".

Effectively, Corporate Headquarters had used externalities to promote IRM along with the idea to make Company X an integrated enterprise rather than just a conglomerate. In the following, we explore how IRM was mobilized between headquarter-based and divisional risk management work. Accordingly, we focus on the activities performed by the risk management section of the IRM center and the divisions at Company X.[9]

4.2. Technologies of enterprise risk management

Company X had implemented a data warehouse system called R2C for its risk management. The implementation was motivated by the hope that providing corporate-wide visibility R2C would help facilitate the standardization and coordination of risk management activities. Soon, we learned that it was necessary to understand the "technology of risk management" in broader and more composite terms.

4.2.1. Network organization of risk management

Around R2C, we found various groups or social networks, which debated the meaning of its risk management documentation. Fig. 1 illustrates the way we came to understand risk management technology as an ec-centric system. Whereas R2C reflects the representations by which managers would debate risks, surrounding networks would debate the ways of making risk count. Nevertheless, R2Cs role as a host was taken very seriously. Actors not only pulled out risk reports from R2C, they also fed the outcome of their negotiations back into the system in order to engage with and sometimes change the ways in which R2C aggregated risk data.

4.2.2. R2Cs configuration of risk management work

R2Cs database structure replicated the organizational segmentation of responsibilities. Its design stemmed from the idea that managers throughout the company could use R2C to document risks, opportunities, deadlines, necessary actions and ongoing progress. In return, R2C would provide an outlook on the current state of affairs in ways that could be segmented according to rank and responsibility. We refer to Appendix C for a detailed description of the technology.

[9] We acknowledge, of course, that also the Compliance, Internal Control and Internal Audit functions work with risk management. Nevertheless, we excluded them from our exploration, because they mostly work by themselves – without the involvement of divisions. By legal requirement, an "internal control" function must test and document legally binding procedures. For these purposes, a standardized documentation system is offered. Likewise, an internal audit function is required to audit specific procedures randomly within the breadth and depth of the company. Finally, the compliance organization had in the past given a certain level of discretion of rights to the divisions. Now, after the scandal and with the introduction of the IRM center, the plan was to coordinate all compliance questions centrally.

Headquarters was enthusiastic that R2C would help simplify the process of documenting risks, and that it would also help people focus on what to do about the documented risks. Previously, such work had often been based on improvised Excel sheets, and it was commonly perceived that the organization was spending too much time compiling, formatting and aggregating risk information. It was thought that R2C could eliminate much of this because the new information would enable the organization to work based on quantified information rather than on qualitative reports.

In order to work, Company X segmented managers into particular organizational roles, which in a bottom-up order included ROs, DRCs and a CRC. In addition, DRBs and GRB members were assigned. Within the business units, ROs were able to see all the information that concerned their particular area of risk management responsibility. One step up, at the divisional level, DRCs and respective members of the DRBs could access all information recorded for their division. Finally, at the corporate level, the CRC and GRB members were able to extract and compare information laterally in order to compare divisions. For GRB meetings, the CRC would prepare reports on all divisions, reporting to the board on their risk portfolios and their risk management actions. DRCs prepared the risk board meetings at the divisional level. For these purposes, R2C was able to represent its data in the form of both visual risk-maps and numerically ranked lists ranging from disaggregated individual risk assessments to aggregated reports, as requested.

A corporate risk management guideline had been developed to help structure the process by which ROs had to document and assess risks. It stipulated that all ROs had to record and report on both risks and potential chances in the following pre-defined dimensions: (1) finances, (2) employees, (3) processes, (4) products and (5) markets. In return for data input, R2C would calculate the expected value of risks and chances. This calculation involved a comparison of risk likelihood and impact before and after managerial action. To our surprise, R2C did not restrict data entry. Furthermore, the internal risk management guideline did not specify how to record operational day-to-day risks. The following section introduces the documentation practices we encountered.

4.2.3. Intended and unintended mobilizations

R2C provided functionality that allowed users to document the measures they wanted to take in relation to reported risks. At the time of our research, the documentation of these measures was not yet mandatory. According to DRCs, it was a desirable feature, because it would enable them to focus better on risk management progress instead of the documentation of risks. Moreover, the GRB members started to monitor whether actions were initiated and progress was made. As one DRC stated, it was in their interest to find a way in which they would not be required to remind people about the availability of R2C and the ways it was to be used for the documentation, definition of deadlines, and response to risks, among others. However, reality was that R2C did not mobilize managers in the way that DRCs wanted them to be mobilized.

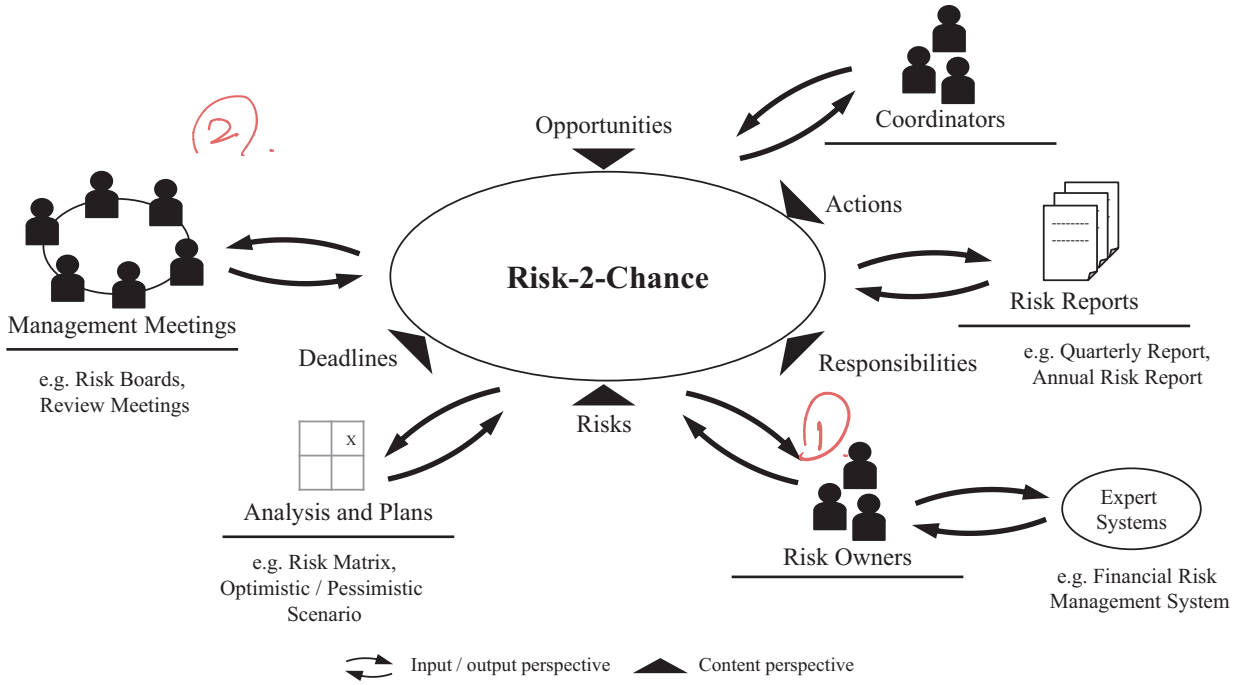

Fig. 1. Counting risks and making risks count at Company X.

In principle, users should "interact" with R2C in order to clarify action vis-à-vis documented ambiguities. Users, however, did not (yet) mobilize technology for those purposes; instead, they maintained a two-way correspondence with technology on the one side and other users/managers on the other side. Social relations were used to negotiate the man-machine "communication". Within divisions, managers mobilized risk management by involving more people at Company X. Before implementing R2C, managers rarely discussed their risk records. Since the implementation of R2C, managers had started recording risks systematically, but at the same time, they had started to take "their data recordings" and discuss their significance, appropriate action, and similar issues both on a formalized and on an informal basis. However, R2C showed that the identification and recording of risks was not as uniform across the organization as was foreseen by the risk management guideline.

We also observed diversity in the ways that ROs documented risks in R2C. Some would only document risks and actions about which they felt certain; thus, meaning that uncertainty had already been reduced. Other respondents refused to record anything that they by experience interpreted as generic uncertainties that contextualized their managerial responsibility. While some estimated "risks" in terms of their estimated maximum financial effect, others attempted to describe the financial effect only for a 12-month period. The R2C system categorized the severity of reported risks by the forecasted 12-month EBIT. Some respondents felt that they therefore had to document risks accordingly to match R2C's scaling. Other respondents ignored this feature of technology.

The diversity of practices provoked us to ask when a risk was really a risk. DRC's views on this question varied considerably. According to one DRC's interpretation, risks were real once it was possible to account for them in the divisions' rolling forecasts. Another DRC took a different position, arguing that any type of event or potential incident for which one could already account was more like an accrual than a risk, "*this should be in the accounting (bookkeeping) system*". In their view, a risk manager no longer documented these events/incidents because forecasters could account for anything that had already been estimated to have a high likelihood. As indicated by a respondent, "*risks above 90% likelihood should be included in planning*". However, in response, another DRC pointed out that many factors could complicate such "rule of thumb" – even simple issues such as the difference between gross (before counter action) and net (after counter action) figures.

Similar multiplicity in reporting practices concerned the assessment of risk effects and likelihood. Some assessed risks as a process by first calculating risks as a gross figure and then qualifying the meaning of the net risk. Others performed this exactly the other way around, meaning that their point of departure was their subjective idea of the net risk, which they then reverse engineered in order to produce a quantitative gross figure. During our research, we came across numerous examples illustrating that practice variability can be much more profound and at the same time more obvious than sometimes reflected in popular risk management discourse. At Company X, this variability produced one major – and in a sense – paradoxical consequence. It was difficult to use the key functionality in R2C by which the system was designed to aggregate risk data and develop risk management scenarios. At an aggregate level, data about risks and chances were ambiguous and uncertain because of the practice variability by which they had been documented. This fact made it difficult and even "risky" to attempt to produce a consolidated view of Company X's risks and chances.

When confronted with such observations, respondents acknowledged that practice variations resulted from the constellation of networks within which various people defined their risk management practices. At Company X, it was as difficult to count risks as it was to make them count. In recognition of this problem, most risk representations and associated action lists documented in R2C were negotiated in networks beyond R2C's scope of visibility and action automation. This observation provoked us to ask whether R2C had made any positive difference for Company X. One manager phrased his answer this way, "*[Well...] before R2C we had a huge excel sheet, which nobody could really handle... and therefore risk management was never really discussed in any productive way*". At the time of our research, R2C served two productive purposes. It documented risk management work and facilitated, as we say in Germany, "eine ständige Aus-ein-ander-setzung", or something like an ongoing discursive (de-)reconstruction of Company X's risk portfolio.

4.2.4. Practice variations and qualculations

At the beginning of our research, we were curious to find out whether Company X's use of R2C was turning risk management into what Knorr-Cetina (2006) referred to as a "scopic system" – or an environment in which the performativity of reality is based on the "*electronic and informational mechanisms of observing and contextualizing market reality and of back-projecting this reality onto computer screens*" (p. 555). Based on her work in financial services organizations, Knorr-Cetina (2006) found that "scopic systems" tend to replace the inter-subjectivity of human relations with man–machine interactions. In comparison, our observations at Company X point more toward a hybrid of scopic systems and competing actor-networks. R2C had helped Company X formalize risk documentation and reporting. However, in parallel, a system had developed by which actors feed data into the system in order to export them to their actor-networks only to bring them back once re-formatted and/or supplemented by the discussions of various user groups. On a relational basis, actors negotiated their sense making of the representations drawn together by their risk management technology.

Instead of standardizing, the ERM-technology produced a creative articulation of ambiguities, which oscillated between technical and social networks and in so doing produced ERM at Company X, just as a "qualculation machine" (Callon and Law, 2005; Cochoy, 2002). Practice variability created a boundary between the types of calculative and discursive actions that the R2C system and various users' groups produced, respectively. In return, calculative and discursive actions co-constituted each other and the mobilization of IRM at Company X. At Company X, the enterprise-wide risk management agenda was constituted by ongoing problematizations of risks and risk management in local user groups. IRM did not materialize because of a deconstruction of responsibilities cascading from the top to the bottom of the organization. Moreover, IRM at Company X did not *reduce* uncertainty, as popular ERM conceptualizations promise. On the contrary, it articulated and amplified the ambiguities that in a variety of ways and dimensions contextualized Company X as a divisionalized firm of many different practices and perspectives.

4.3. Expertise and subject–object relations

At Company X, the risk management guideline emphasizes that everyone should accept risks as an outcome of their business practice. Specifically, it mentions that, "*entrepreneurial activities are constantly faced by risks.* [Company X] *consciously and willingly assumes risks when exploiting market opportunities, where these trade-off against the prospects of a sufficient increase in enterprise value*". Seeing this statement, we became interested in finding out how the organization handled risks in practice. This section reports on the design of the risk management procedure and explores its practice. We draw attention to the knowledge circulation and projection component involved in the process. The circulation amended Risk Ownership with inter-reflexivity in ways that separated risk knowledge from so-called ROs. This separation allowed other subjects to challenge the risk objects, and the resulting interactions crafted reflexivity and vice versa. Reversing this process in such ways that reflective interaction promoted action, however, had turned out problematic. Compound risk projections failed to mobilize ROs. More specifically, in spite of their increasing organizational accountability and commitment to risk management overall, stakeholders did not take responsibility for any particular action.

4.3.1. Risk management procedure

In order to facilitate risk management via R2C, Company X had designed a process by which risks, chances and actions recorded throughout the firm would be reviewed by designated panels, which according to their capacity had different types of access to data-drill with R2C. Fig. 2 offers a drawing of the formal and hierarchical risk management process.

A prime risk management principle at Company X was to "manage risks where they occur". In principle, almost anyone could become a RO. This role designates a particular type of IT access, which allows one to document a risk in R2C. In the various business units, production staff became ROs, for example, meaning that their job now included also the task of transferring data from production management systems into R2C. Being a RO, one had to provide a commentary on all quantitative data logged.

DRB had been assigned the responsibility for reviewing ROs data-entry. On a quarterly basis, DRBs had to extract this information and review the properties of the database compiled by R2C. Across Company X, four different types of committees[10] shared this responsibility jointly for a database that was growing rapidly because of the compound number of data-entries made across production, logistics, sales, finance and human resources. It became

[10] These are DRBs, GRB, meeting of the DRCs, and oversight boards (i.e. management board, supervisory board, and the audit committee).

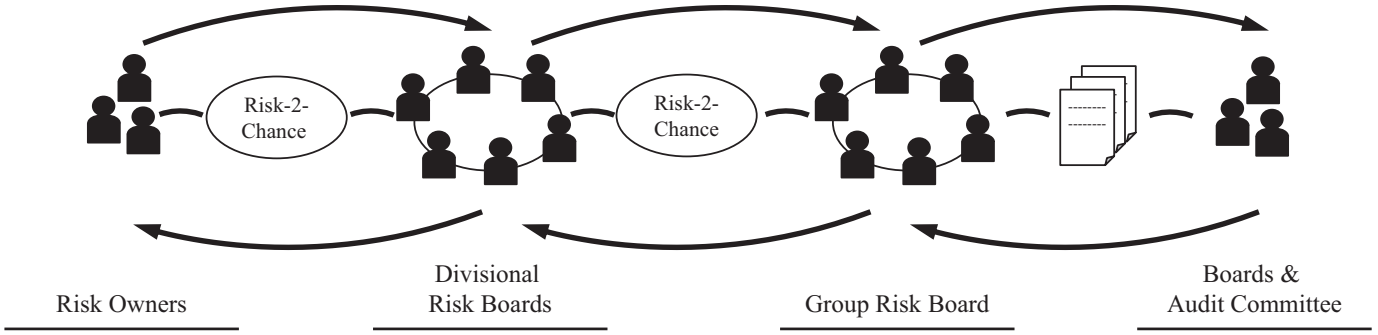

Fig. 2. Risk management as a discursive process at Company X.

difficult to decipher numbers and text because in combination, they required a very broad base of functional and business specific knowledge. Every DRB was staffed with divisional management, including the CFO, the risk coordinator, the internal control system coordinator, managers for strategic planning, legal affairs, operations and so forth. In relation to his DRB-role, one respondent emphasized pragmatically, "*I believe that it is important to observe and maintain a sense of efficiency when doing risk management. Otherwise, after two hours you're still in the middle of discussing – basically, the first number in a risk report to be discussed in its entirety*".

The GRB reviewed all of Company X's business units on a quarterly basis. Chaired by the corporate CFO, other permanent members included the CRC, the corporate internal control systems coordinator, and corporate senior managers of accounting, compliance, controlling, auditing and finance, respectively. Occasionally, corporate senior managers of investor relations, strategy and information technology would also attend. Divisional CFOs attended every 2nd and 4th meeting of the year. In comparison, DRCs (managing the DRBs) attended every 1st and 3rd annual meeting of the GRB. The purpose was to emphasize the cross-divisional risks and chances exchanges. Respectively, they were invited to offer to ROs in their respective divisions individual feedback and suggestions regarding their (proposed) actions recorded in R2C.

Once the GRB had finished its work, the outcome of discussions would be communicated to the executive level, that is, first to the management board and subsequently to the supervisory board and the audit committee. As illustrated in our drawing above, the executive board relied on paper-based reports and had no access to R2C. They did not want to "mess with the system". The imagery that R2C represented a complex calculation machine was upheld. Consequently, it had been decided that only the GRB would gain global access to R2C via the CRC. DRBs had divisional access via DRCs. Finally, ROs had system access to the area, for which they were responsible.

4.3.2. Risk management practice

During our interviews, the CRC emphasized that members of the risk boards would regularly challenge the presentations by ROs who were several hierarchical levels below them, particularly concerning the actions that ROs proposed. This was done in order to reassure the divisions that Company X with R2C pursued an open communication and critical discussions of (counter-)actions. Other respondents confirmed to us that DRBs and/or even the GRB frequently reversed and/or changed decisions made by ROs. In the view of one GRB respondent, "*Risk boards often have a task that causes altercations with decision makers in and across divisions. However, the point is of course not that ROs do not understand risks and risk management themselves, but that a risk board consisting of several members will often come up with a better solution than one person can*". In comparison, others emphasized that cross-functional teams tackled problems and challenges better than did individuals based on the belief that "*in the end we reach consensus based on the "purposeful" input to a discussion between several people*".

As emphasized repeatedly during the interviews, risk boards should be involved in decision-making activities. In particular, they did not want long reports on their discussions of risks and opportunities within the various business units or across the divisions. Nevertheless, one participant stated, "*All participants need to come prepared and they need to speak with their people – the ROs – to know about the risks and chances observed in their respective areas*".

In effect, the risk management system could easily be used to place and send agendas throughout the organization. It depended on rivalry for insightful arguments. But, the system did not offer any means for controlling whether, how and to what extent the discursive production of risks and chances clustered around themes that suited agendas, which certain parties might want to either emphasize or repress for various political reasons. Indeed, the CRC – the official ERM guardian – even acknowledged that corporate headquarters used GRB meetings every now and then to introduce and place topics, which they wanted divisions to appropriate. This example became illustrative to us because of the ways in which risk management practices worked. At an enterprise-wide level, they separated risks from owners – the object from the subject – by allowing many different parties at both a cross-hierarchical and cross-divisional/functional basis to comment on documented risks and chances. This separation of subjects from their objects made it possible for corporate headquarters to feed the organization with particular agendas simply by interpreting presented documentation on risks and chances. R2C was used to promote empowerment while empowerment was counter-balanced by a top-down reinforcement of hierarchy exercised through corporate

headquarters interpretation of documented risks and chances.

4.3.3. Knowledge circulation and object–subject separations

In our understanding, the introduced procedure and the practice represent a semi-formalized knowledge circulation process, which connects hierarchical levels in the organization through the circulation and cross-functional interaction with data at several hierarchical levels of the organization. At one end, ROs facilitate this circulation by their documentation of potential risks and chances observed either with point of departure in experience of other available information from customer satisfaction surveys, production error reports, treasury management systems, and the like. At the other end, Corporate Headquarters would direct this circulation by their interpretation of documented eventualities.

Corporate Headquarters maintain that risk management empowers people throughout the organization. Employees became "ROs" and by rule, became responsible for the documentation and handling of risks and chances that they observed. In principle, everyone had been invited to contribute with their expertise by documenting and/or commenting on risks and/or chances. In effect, everyone could propose themselves as stewards of the enterprise. By design, however, empowerment could easily be bracketed through the review role that had been assigned to cross-functional teams along the hierarchy of the firm. The process made it possible to separate eventualities, expertises, and experts. Someone without the right expertise might have spotted a relevant problem, just as someone without formal status could offer relevant expertise and solve an eventuality that someone else had documented, for instance. By design, knowledge circulation could be local and global at the same time, yet maintain hierarchy in that someone in a higher-ranking position could instruct subordinates about what to do and how in order to manage risks.

In parallel, risk documentation could take on an *intellectual* dimension to the extent that a risk document travels beyond the level of ROs and DRBs to the GRB. As stated, the GRB could choose to interfere, but mostly did only do so in order to reiterate symbolically the possibility of cross-functional and pan-hierarchical communication. Nevertheless, even when the GRB chose *not* to interact directly with ROs, it had to interact with the object – the potential risk or chance reaching the GRB level. In principle, a document could thus travel all the way from bottom to the top of the organization, although it would typically be challenged, amended and changed on its journey to force reflection and engagement at different levels of the organization without disabling the hierarchy.

In principle, the R2C-based risk management process was designed as a filtering process. In practice, it works as a circulation process by which the relationship between risk object and subject owner loosened as a result of the number of reviews a document underwent by different ROs and risk boards. Moreover, to the extent to which a risk or chance documentation would pass through the entire system of ROs, risk coordinators and risk boards, it would end up becoming re-contextualized for planning purposes.

At Company X, Corporate Planning department had been charged with this translation. They used R2C documentation to map scenarios for two reasons. Corporate management wanted to show that scenarios could be traced back to the risks and chances observed by individual ROs. Moreover, they also wanted to project the compound effect of risks and chances on performance. A corporate headquarters respondent introduced this point to us:

> "*. . .it's about the big picture. Paradoxically, big businesses are often preoccupying themselves with naming and segmenting responsibilities in such ways that everyone begins to separate "their own" from the enterprise overall – irrelevant is what it is. Without a consolidated picture of the "Gesamtsystem*[11]*", how can I know what assignments to distribute? With this process, we ensure that no one can keep his or her head down and forget about the issues that we face as an enterprise. Our various committees force everyone to engage, to think, to act and to talk!*"

The "Gesamtsystem" picture was pieced together in terms of two alternative scenarios, optimistic and pessimistic. R2C provided the data-basis and helped to project a bandwidth for key financial figures, EBIT, by means of indexed protocols of risks and chances, for example. The only unforeseen obstacle to these projections emerged when divisions did not accept them as valid. In spite of the engagement and interaction of multiple persons and networks in the realms of ERM, including ROs, the respective DRCs, various DRBs, the CRC, the GRB, and the oversight boards, divisions did not accept the scenarios that Corporate Planning presented. Making the risks in R2C count for Corporate Planning challenged what had been discussed previously across the enterprise-wide risk management process. For us, this reaction led us wonder whether common understanding of risks and chances existed at Company X.

4.3.4. Irreducibility of risk interactions to individual responsibility

Recently, Corporate Planning had compiled divisional reports on high impact risk and chances and projected these onto the 12 months EBIT rolling forecast. These resulted in two undesirable outcomes, which the organization rejected as utopian. As a respondent pointed out, "*of course the graph projected was not valid, as it is illusory to think that all risks will materialize and cumulate over a period of 12 months*".

Disagreeing with the scenarios presented, participants started a new discussion on *what risks were real.* The parties involved reviewed R2C documentation leading to these scenarios and in the end, the divisional CFOs along with Corporate Planning agreed on the "real" risks that needed to be considered and rejected others as implausible. Examples mentioned to us included a sudden drop in production volumes and a concurrent product margin loss. While both risks were part of R2C and thus injected into the scenario

[11] i.e. overall system.

planning, the divisional CFO remarked that both risks could not occur in combination. Following their discussion, they settled on the agreement that a marginal decrease was to be considered a real risk. Subsequently, they decided to track margin development.

Indeed, the example suggests that management accounting and risk management are becoming intertwined (Bhimani, 2009), although more so in coincidental ways than by rational strategic intent. Across corporate headquarters and divisions, viewpoints on this example differed greatly. Recalling the situation, one respondent stated, "*It was the first time we really had a qualified discussion about risks*". In comparison, others emphasized the ways in which the entire process illustrated the potential flaw of averages in the quest to represent risk management activities on an enterprise-wide basis. Discussions had prevailed that in order to end these, Corporate Planning offered to reduce the "risk of data uncertainty" by drafting planning scenarios only on the Top-5 risks and chances addressed in R2C.

As such, this approach did not change the ways in which R2C allowed almost everyone to record anything that s/he could think of as a risk or a chance. Consequently, none of our respondents paid any particular notice to the scenarios developed and presented by Corporate Planning. In their view, the scenarios did not synthesize the discussions that facilitated common identification of risks and chances. Moreover, stakeholders did not see how their responsibility for any particular action would make a difference vis-à-vis these scenarios. In other words, on a bottom up basis, the qualculation process – involving both calculative and noncalculative documentation – enabled knowledge circulation. This circulation separated the experts from their expertise and their assessment of eventualities and it made them challengeable and changeable. However, once changed into a scenario mapping, for example, it was no longer possible to disaggregate and re-assemble eventualities labeled as risks and chances from particular roles and responsibilities. From the bottom of the organization, ROs could see the risk and chances that they had logged into R2C and their compilation and aggregation into one or two planning scenarios. However, an effect of the qualculative translations produced for the purposes of planning was that these risk and chance documents became "boundary objects" that no one knew how they could own (Star and Griesemer, 1989). In effect, at Company X, we saw that subject and object relations changed in such dynamic ways that the outcome of the risk management process was a communalized risk and chance identification rather than a common and shared understanding.

4.4. Rationales: compliance or performance focus

Previous research has stressed that organizations tend to mobilize risk management for either compliance or performance purposes (Arena et al., 2010; Mikes, 2009, 2011). Accordingly, we were curious to explore whether the logics and rationales at Company X emphasized compliance, performance or something else. Since the corporate risk management guideline emphasized risk as an inevitable effect of management practice, we asked respondents to what extent and in what ways risk management had a practice implication.

Some interviewees would offer a short official statement saying that risk management was now an integral part of daily operations or, for example, that "*risk management is nothing special, it's included in day-to-day operations*". Others again were more nuanced but nevertheless irritated with the attempt to use risk documentation for planning purposes, particularly given the inaccuracy of the resulting scenarios. As one respondent stated, "*We should not attempt to mix risk management and planning. They are two separate activities*". The latter statement reflected how the attempt by headquarters to synthesize group-wide risk and opportunities in scenarios did not suit divisional focus on the management of risks and chances in their local business. Some commented that, "*We do this scenario planning only for headquarters. For our division it makes no sense*". In contrast, headquarters emphasized positive effects of its discursive potential. As respondents highlighted, "*We have a "real" discussion on risks . . . based on our optimistic and pessimistic planning scenarios*" and "w*ith pessimistic and optimistic scenarios, we force people to think about the risk profile when they prepare the forecast. Additionally, we force them to link planning and risk management*". Thus, our study is not consistent with previous studies, which found that ERM is clearly rationalized with reference to either compliance or performance. We were introduced to many different rationalizations but none of them focused distinctively on performance or compliance. Instead, we observed a process that produces a knowledge circulation and that in the course of its discursive process unfolds the possible meanings of eventualities labeled risks and opportunities, respectively. For some of our interviewees, this process produced little but a ritual serving headquarters' idiosyncratic self-interests. For others, the risk management process opened discursive spaces in which contexts, expertises, and technologies were mingled at more or less formal roundtables. With point of departure in specific eventualities, stakeholders could enter this space and reflect with others on their own individual understanding of risks and opportunities and/or the scenarios that headquarters presented. Sometimes, co-reflections would lead to immediate solutions while at other times, they would lead to an amendment of the original data documented in R2C. Consequently, risk management at Company X served no specific compliance or performance. It served a purpose of perspective taking and reflexivity about interpretive differences – for example, between headquarters and divisions, among divisions and among local explanations of differences between risks and chances. In our understanding, possibility of problematization drives risk management at a divisional level. By their documentation of differences, subsequent problematizations and explanations stakeholders pursued desirably documentable accountability.

From the coordination meeting of the DRCs, we observed that perspectives on ERM's purpose and role differed. In that sense, different reactions to scenario planning presented above do not only judge this endeavor, but also more fundamentally unfold the different understandings of ERM among DRCs. As mentioned, some respondents

opposed the integration of risk management and corporate planning. In the words of one DRC, "*We should not attempt to mix risk management and planning. They are two separate activities*". Other DRCs were enthusiastic about headquarters' endeavor to link risk management and financial planning. Another respondent thus counter-argued the first DRC's comment, claiming that, "*risk management and financial planning belong together*". Somewhere between the two, another DRC proposed that, "*we do this scenario planning only for headquarters. For our division it makes no sense*". He observed the extra workload critically, although he could see it justified in terms of corporate headquarters information needs.

As mentioned, Corporate Headquarters introduced IRM in order to mobilize Company X, as an integrated enterprise, with an active headquarter parent. In actual practice, R2C allowed corporate headquarters some involvement in divisional activities. However, overall, the risk management process facilitated by R2C did not enable corporate headquarters to represent and manage the firm as one integrated enterprise. In effect, accountability at the local level was challenged by corporate headquarters' attempt to anchor risk management at the enterprise-wide level. Mistakenly, but in line with the rationale motivating the R2C technology use, headquarters assumed that documents logged into R2C throughout the organization offered information potential. This did not work. At large, the organization used R2C for its most obvious purpose – a data warehouse that allows stakeholders to document and display differences in interpretation and perspective that they wanted and/or needed to bring to the attention of their local social networks. In reality, the subsequent risk management process separating risks from their owners produced only a set of boundary objects that no one knew how to manage.

Risk management as a global process did not make actors synthesize their differences on an enterprise-wide basis or in such ways that would make global risks and opportunities mean anything specifically in the local context. Beyond the immediate local environment, circles of trusted experts, individual level ROs, frequently found themselves corrected by cross-functional teams "knowing better" than any individual how to address Company X as a "Gesamtsystem". They "helped" making risks and opportunities representable in ways that disassembled the object from its subjects. However, in effect, their representations made the reassembly of objects and subjects increasingly inaccessible to the organization at large because the objects had been rendered increasingly common and easy to identify globally, yet at the same time, increasingly difficult to understand and handle locally. At a global level, the risk management process produced a paradoxical information disaggregation. The more eventualities were deconstructed, the more accessible they became for planning at the same time as they became in-actionable generalized information on the current state of affairs that no one on the local level know how to take responsibility for. Still, although the data outcome was useless, the data-processing leading to this outcome served a series of "Aus-ein-ander-setzungen" throughout the organization by which managers in a variety of ways had to engage critically with Company X as a bricolage of eventualities observed and documented as risks and chances. At one level, divisional objection to the global planning scenarios by Corporate Planning does illustrate something about the complexity and possibly impossibility of IRM. At another level, however, the friction observed also attests to the extent to which managers across the hierarchy and various functions already engaged reflectively with big challenges and chances that Company X faced. In that sense, what we observe is that IRM worked in wicked ways. It did not produce intended outcomes but had enterprise-wide effects that we so far have not seen addressed in the ERM literature.

5. Discussion

The case of Company X illustrates a number of contrasts. Management introduced risk management to integrate divisions within a firm that had for many years acted only as a conglomerate. Rather than integration, the case illustrates a multiplicity of local risk management circles throughout the firm. In principle, these were integrated by means of a specific technology – R2C. Documentations throughout the firm, however, did not facilitate integrated management of risks and chances.

On a global scale, risk management separated objects and subjects through an elaborate process of cross reviewing the documents logged into R2C at several hierarchical levels of the organization. Due to the multiplicity of the logged data, documents were often challenged and/or changed as several types and ranks of experts reviewed them. The longer a document would travel, the more clearly the object would be separated from the subject – the RO having logged an eventuality. In this context, this clarification of documentation led to a situation in which risks and chances became so clean (boundary objects) that no one knew how to take responsibility for them in their individual managerial roles and capacities.

On a local scale, risk management worked in significantly different ways. Although subjects documented risks in R2C, they managed these in their local realms by means of local systems and input from cross-functional steering-groups. In other words, as long as documents did not travel great distances but remained within a local context, knowledge circulation developed different properties. Here, it did not separate objects from subjects. It was used by the ROs to improve their understanding of the former through the cross-functional interaction with other ROs, risk board members, and the like.

Common to both the global and the local risk management practice, risks and chances are qualculated in relation to the data logged into R2C. As mentioned, IT logged both quantitative and qualitative records. However, R2C did not by itself facilitate interpretation and action. Practice communities did. Risk management work, in that sense, involved a combination of scopic and network systems. Cross-functional teams would review the documentation logged into R2C as well as monitor and discuss to what extent R2Cs comprehensive picture of risks and chances was correct. Given practice variation and variation in documentation, R2C was regularly interpreted as

Table 3
Explaining risk management at Company X.

Theoretical coordinates	Company X observations	COSO concept	Explanation		
			RM	Align	Acc
Context – Internal – External	Integration of a conglomerate Multipolar inversed information hierarchy	Performance/Compliance Segmented			
	Incident based and cross-functional Co-incidental bottom-up	Cascading hierarchy Systematic top-down			
Technology – Scopic – Network	Qualculation – Challengeable – Changeable – Complex Knowledge circulation	Calculation – Stable – Mobile – Combinable Flexible specialization			
Expertise – Subject – Object	Shared Problematizing Pragmatic solution or change of meaning Separation and boundary object production	Specialized Execution Reduction of uncertainty Volatility management			
Rationale – Performance – Compliance	"I"/risk/accountable Common identification	Responsibility/risk/role Common understanding			

being incorrect in its estimates, depending on the ROs, DRB, GRB, etc., who amended data records in R2C. The effect was that unstructured data became structured to clarify the risk and/or the chance but inapproachable for any one particular party because it no longer related to their particular areas of responsibility. Table 3 summarizes our observations from the case in relation to our theoretical coordinates and in comparison to the COSO concept introduced initially in the paper.

As discussed, COSO ERM conceptualizes organizations as homogeneous and coherent entities, which define their risk management program consistently while being anchored with top management. However, as our case illustrates, at Company X, headquarters, divisions and last but not least different ROs throughout both firms mobilize risk management in different ways. Practice variation led to data-inconsistencies by which R2C information produced ambiguity and uncertainty. In turn, data-inconsistency evidenced considerable practice variation throughout the divisional use of R2C, and these characteristics show how Company X translated ERM in very different ways than conceptualized by COSO. Instead of a systematic decomposition of responsibilities and tasks cascading top-down throughout the organization, Company X managed risks almost in co-incidental ways and with point of departure in an inversed information hierarchy by which eventualities become increasingly uncertain in terms of their documentation the further up in the hierarchy they were promoted. The following three subsections discuss the consequences of these observations in relation to our interest in the technology of ERM, alignment, and accountability.

5.1. Technologies of enterprise risk management

In current literature, ERM is often portrayed as a simple and perhaps even simplistic response to wider societal demands for accountability (Power, 2004, 2009). In line with this position, it has been argued that, "*demands precede the account to be given ... and are constitutive of the social situation even before any answer is given*" (Messner, 2009, p. 928). Following this line of reasoning, one could expect that enterprise risk managing organizations pursue an implementation that mimics COSO's cubic data-representation, hierarchical organization, and cascading accounts of information. However, recent research illustrates that ERM technologies are hardly ever implemented with generic properties (Arena et al., 2010; Mikes, 2009, 2011).

In line with these findings, our research at Company X illustrates how this organization produces "untraditional accounts" using various ERM technologies. We did not find a traditional information hierarchy in action that would successfully summarize risks and chances into a few numerical figures such as "EBIT", for example. In principle, the R2C technology foresaw this calculation. Local ERM practice did not allow Company X to add up figures. Instead, it created what one can think of as an inverse hierarchy of unresolved information issues by which many different parties throughout the organization started questioning the real risks and chances at Company X. Our research suggests that the technology of ERM creates a bottom up process with one particular important characteristic. The longer the process extends, or the more enterprise-wide it is, the more it leads to a mutation of information objects and the production of increasingly abstract representations of concerns. While the documents were specific and hands-on at their point of origination, they have become complex, awkward, and difficult to handle for anyone at their point of destination.

The technologies of ERM have paradoxical effects in terms of their consequences for the organization. These take point of departure in the ways that organizational actors in many different places and at many different hierarchical levels of the organization engage with documentation of risks and chances produced internally. This process resembles knowledge sharing, except that it distributes information on uncertainties only. As our case illustrates, the process was designed for many different

parties to share their perspectives both via the R2C technology and socially within and across different user groups. An effect of the sharing process supported by the R2C technology, Company X communalized the idea that risks and chances had been identified (with certainty) although mainly the absence (of certainty) was problematized in multiple ways.

By design, the risk management process engaged people with the identification part of the risks and chances. However, the risk management process itself did not necessarily produce a common understanding of current affairs, risks and chances because many different parties attempted to engage with these. The risk management process designed around R2C demanded engagement with the documentation identifying risks and chances. Nevertheless, it did not foresee any particular work approaches or data handling. In effect, ROs, DRC, DRBs, CRC and GRBs, among others, spent most of their risk management work time on the problematization of the risks and chances that had already been identified and documented. By this mobilization, it became logical that just about any absence of certainty – documented as either a risk or a chance – mattered enough to the organization that it warranted their attention. Whenever ambiguities of organization were brought out into the open, further risks and chances could be identified, documented, and debated.

Other research has questioned the efficiency of such processes, as the one we documented at Company X. Various surveys reported that corporations often fail to see that they reap the benefits of ERM (e.g., Beasley et al., 2010). Our research suggests that this could be because ERM does not produce "factual outputs" generated by stable, mobile, and combinable accounting information (Robson, 1992). In comparison, ERM produces information objects that grow more and more complex (i.e. objects that are challengeable and changeable the longer they travel through the organizational risk management process). These observations suggests to us that the significance of ERM relates to the way in which this technology points out the practical limits of organization-wide coherence, which has traditionally been shaped and projected by means of accounting systems (Ezzamel, 2009). Such multiplicity does not produce anything per se, as the case also suggests. Nevertheless, respondents at Company X explained their enthusiasm for ERM by their ability to intervene and to interfere on a cross-functional basis and bring back into discourse certain ways of documenting risks and chances that implied an absence of alternative perspectives to current practice. So to speak, the inbuilt and obvious incompleteness of risk and chance documents allowed users to craft and enter reflective spaces in which they could legitimately work with the question whether the things were necessarily so. In paradoxical ways, R2C allowed users to use documented uncertainty as a "performative" justifying critical reflection on Company X.

By our observations of the enterprise-wide process at Company X, we found that the technology of ERM unfolds a "semi-scopic system". In the organization, risk and chance identifications became significant primarily because there was a technology that facilitated their transportation out of local areas onto both a divisional and a group level. At both of these levels, the R2C technology created an electronic and informational mechanism of observing ongoing problematizations at lower levels of the organization. Moreover, R2C back-projected local discussion of risks and chances "onto the screen" and transported these in their semi-structured form to other areas and hierarchical levels of the organization where other people would engage with R2Cs compilation of numericals and narratives rather than with the practices in local areas. R2C was used as the central ERM technology, but the technology of ERM included a wide range of other devices. In particular, we think it is important to emphasize different groupings of more and less formal ROs and co-ordinators. In principle, their interaction was coordinated via R2C. However, practical risk management work unfolded based on the ways in which various user groups discussed, made sense, and problematized the documentation entered by different ROs throughout the organization.

These processes took their point of departure in the informing mechanisms offered by the R2C technology. Because of R2C, risk boards could now permeate local territories and follow the debates on as well as work with risk management. Vice versa, local ROs were now also able to follow via R2C how their documentation of risks and chances was handled, altered and compiled on its journey from a local to a divisional and finally to a group level. To the surprise of Company X's Corporate Headquarters, this facility enabled even ROs at the lowest levels of the official risk management chain to question explicitly the inferences and projections that the Corporate Planning function drew from the technology at a group-wide level. As a result of R2Cs technical visibility and the ways that the associated risk management processes crafted actuality around the documentation of risks and chances, the alignment of expertises, eventualities and experts developed on the local and global planes of organization. Both of these ways differed from the alignment between different types of functional and hierarchical responsibilities conceptualized by COSO.

5.2. (Dis-)alignment of expertises, eventualities and experts

Our review of the COSO conceptualization reveals that this approach is based on radical assumptions. Summarized briefly in three points, COSO supposes that (1) risk management is organized with its point of departure in the strict alignment of functional and hierarchical responsibilities, which enables a systematic top-down information flow; (2) flexible specialization and individual execution focus can be accomplished through a rigorous focus on organizational segmentation; (3) an (implicit) understanding of the wider scope of volatility management helps coordinating corporate risk management activities. This conceptualization implies an alignment of expertises, eventualities and experts that we did not find reproduced in practice. In comparison, our case documents two alignment processes unfolding respectively at a local and a global level at Company X. They differed as much from the COSO conceptualization as they differed from each other.

At the local level, or in the context of individual ROs, we observed a close association between the risk documentation and the ways in which experts individually exchanged expertises. Via their problematization of current practices, they either developed specific pragmatic solutions or contextualized their learning about local practices more widely. In the local context, local experts would both challenge and supplement each other with different insights, but as an object, risk management was never separated from the subjects doing it and debating it. However, when solutions were not found in the local context, then the remaining risks or chances would "travel" to wider circles of experts, such as the DRC, his or her DRB, the CRC, the GRB, and the like, on a quarterly basis when Corporate Headquarters requested risk and chance progress reports. To create these reports, ROs at the lowest level of the organization would have to release their documentation and data-logs for reporting purposes.

Even at the global level, local ROs could still participate. The R2C based risk management processes never removed risks and chances out of the hands of local ROs. Only the character of the process we had observed in local contexts changed once the wider circles of the risk management organization became involved. Increasingly abstract information objects resulted out of the problematizations of current practice. As more and more parties engaged with the documented risks and chances, these documents changed character because specific concerns were amended repeatedly in such ways that their origins in a local context were rendered increasingly opaque in the documentation. As already addressed in the previous section, the paradoxical effect of this process was that in general, it did not serve a common understanding of risks and chances, at least not as much as it served a common and communal identification. The organization recognized that certain types of risks and chances were important to observe. In practice, however, no one knew how to take responsibility for these "information objects". They turned risks and chances into a type of "boundary object" (Star and Griesemer, 1989) that many recognized and even engaged with at a global level, but which no one took any particular ownership for any longer within a local context.

In a sense, Company X's assignments of Risk Owner(ship) had a symbolic complexity attached to it. At Company X, it was difficult to own risks because risk management was by design an enterprise-wide activity. R2C facilitated risk management embedded in a process that made people produce commentaries and assess risks. People extracted documents from R2C in order to discuss them in informal circles or at formal board meetings, but the process did not entail a design that forced them to appropriate, receive or take over Risk Ownership. In a paradoxical sense, Company X's risk management process isolated risks and left them in R2C. One example of this paradox was illustrated by the scenario – eventually discovered by a divisional CFO – by which ROs had decided to list the eventuality of a drop in production volumes and product margins as a risk to be monitored. In practice, everyone agreed that this scenario was not plausible. Nevertheless, all risk coordinators and all risk boards from a local and divisional level had signed of this particular risk as something to be monitored.

Given R2C, almost everyone could engage with risks – to the extent that they were ROs. In reality, however, Risk Ownership did not have to imply anything but a title – or a responsibility for the data entry of unstructured and unresolved information bites. In other words, at Company X, enterprise-wide risk management did not align experts and expertises around eventualities documented as risks and chances, respectively. It allowed many different parties throughout the organization to claim expert status (as ROs) by virtue of having documented eventualities in relation to which others then could – but did not have to – add their expertise. In a local context, this was not a problem because the sender and the receiver often remained the owner of a risk object. At the global level of the enterprise-wide affair, it was a problem because R2C did not produce information receivers – people who had to act on the compiled information. Both at the DRBs and at the GRB levels, people had to *inter*act only with the information. However, as our case shows, the interaction with the information that the object produced – the risk and chance documents logged into R2C – required less effort than action vis-à-vis an object itself because the duty to interact required mainly that people (re-)interpret, assess and/or amend the documentary on risks and chances already established. The information objects merely documented an absence of certainty. This made it difficult to know exactly if, when and what type of action might or might not apply.

By these insights, our case suggests that the alignment of risk management activities in practice is challenged by the differential mobilization of expertises that unfolds respectively at local and global – or enterprise-wide – levels of an organization. It may be that COSO addresses exactly this challenge in its conceptualization of alignment as a question of the fit between hierarchical and functional responsibilities. Nevertheless, this conceptualization only superficially addresses the complex work of making risk management work on an enterprise-wide basis. As discussed, alignment work was unproblematic within the local context because risk management work integrates subjects (people) and objects (eventualities) documented as either risks or chances. However, at a global level, risk management work appears to do exactly the opposite. Objects become separated from subjects. At Company X, this happened both because of the R2C technology by which risk and chances were transported from local to global contexts and the risk management processes that did not design(ate) particular recipients of these documents. Losing their owner, objects are subjected to discretionary commentaries and treatments by many different parties. Whereas, one would think that this allows them to get richer both in terms of content and context, our case suggest instead that this process rendered the objects more abstract. Our case suggests that this happens because the separation of expertise and experts creates variability in the ways in which the organization handled eventualities – possible risks and chances.

From a traditional situation, where experts were defined by the expertise by which they should handle routines and eventualities alike, the ERM initiative at Company X created a situation, where employees became expert ROs by virtue of documenting potential risks and chances. In parallel, eventualities that they documented and others amended ended up as abstract information objects reflecting the types of expertises by which they had been handled at arm's length on their journey from a local to an enterprise-wide concern. Rather than to serve the alignment of divisional work practices within company-wide realities, the risk management processes globalizing local concerns created potentialities to be considered and to be worked with.

Our insights do not challenge these potentialities, suggesting that ERM is implemented in order to produce "presentability" in response to public calls for more "auditability" (Power, 2009). Our insights, however, illustrate that this aim does not necessarily associate itself with clarity in the roles and responsibilities in the enactment of ERM. At Company X, the misalignment between the global and the local was perfected to an extent that it was difficult to trace, and for that matter to audit, how the *enterprise-wide* risk management or the Gesamtsystem constituted itself out of the sum of its parts. Our research suggests that this is because of the unaccounted complexity in maintaining the integration of risk objects and owners at an enterprise-wide level. Popular conceptualizations – such as COSO – assume that the object itself can travel independently of subjects as an immutable mobile with stable, mobile and combinable properties in similar to certain types of accounting data. Our case suggests that this is difficult in practice.

Hereby, our research adds to the previous insight that ERM is always implemented in local ways (Arena et al., 2010; Mikes, 2009, 2011). Our case suggests that this observation results from the *fact* that popular risk management concepts – such as COSO, for example – are never real, except when left in their conceptual ideal state where one does not have to engage with the practical challenge of aligning expertises, eventualities and experts. Stated differently, it is not surprising that all ERM implementations are localized. This is because they use risk management processes to actualize – or make present in some shape and form – the absence of such certainty, which popular conceptualizations take for granted in order to make themselves real (management concepts).

To an extent, the alignment challenges discussed above may explain why ERM in practice often does not appear to produce the desired effects (Beasley et al., 2010). However, our research suggests also that the alignment complex discussed above is coupled with a so far unaccounted for accountability complex. At Company X, we observed that accountability became an object of desire rather than an effect of their practice. This development runs counter to the idea of COSO. However, more importantly, it also suggests that ERM can constitute very different logics than those previously documented in terms of a performance and compliance (Arena et al., 2010; Mikes, 2009, 2011).

5.3. Accountability: stewardship of everything and nothing

Our case illustrates that along with their local sense making of risk and chance uncertainties, actors also engaged with risk management by assuming stewardships of everything and nothing, in particular. In general, they did not "bring back" abstract figures from the various risk management technologies in order to change work in specific social contexts – except when the problem and/or the uncertainty they encountered concerned their specific area. So to speak, risks were counted, but little was done to make risk management count within specific responsibility domains (see also Mikes, 2011). Frequently, respondents preferred explicitly the corporate view when being interviewed about risk management. However, our dialogs would stop short of specific examples when we asked how these concerns related to and or materialized themselves in their own responsibility area (as ROs). As also reported in our case, one respondent had even suggested that ERM was meant to signal to everyone in an organization that it was time to focus on the wider issues rather than on the individual responsibilities, "the way large organization often do". In line with this representation, it was a general characteristic of most of our respondents that they would not illustrate or exemplify specific relationships between their "big thoughts on the enterprise overall" and their individual responsibilities and/or particular responsibility area.

This insight surprises by the extent to which it contrasts, what popular risk management conceptualizations foresee. Our COSO reading made clear how this conceptualization refers to the idea that organizations exist within a certain accountability regime that defines the overall codex for managerial behavior. Following this assumption, COSO represents risk management as a task that one can specify in terms of managers' individual responsibilities and tasks that, through proper execution, will boost performance, safeguard compliance and in effect reproduce the accountability regime defining the organization. In comparison, our research at Company X showed us a practice that differed significantly from this conceptual representation. Here, accountability had become an object of desire – something that managers explicitly had on their agenda when documenting and commenting on risks and chances – something they would even talk about as being important. Stated differently, accountability did not only illustrate itself in the effect on management actions, or by particular logics in use. Accountability was being pursued by a particular use of logic, which is that it was important to document and comment on risks and chances in order to do right. ROs would find themselves overruled in their identification of risks and chances on a regular basis and would be asked to change their documentation of potential risks and chances. Typically, correction work was motivated by the argument that cross-functional and/or cross-sectional groups of staff assess "real" risks and chances much better than any individual could. However, as the case illustrated, only the process by which risks and chances were processed throughout the organization was clear.

The observation that the respondents' accountability took its point of departure in a stewardship of everything

and nothing does *not* suggest that risk management at Company X was simply a symbolic simulation of little relevance with no reference to reality (Macintosch et al., 2000). Risk board respondents understood their work in terms of the ability to engage with "the firm" on a cross-divisional, cross-functional and cross-hierarchical basis. Asking questions, having a discussion and producing an "Aus-ein-ander-setzung" was seen as the important mission and outcome of risk management. Given a commercial context involving past compliance problems and new corporate regulation, Company X employees produced problematizing activities to deliberate Company X's pursuit of accountability and to ensure the production of the accounts to be given in response to demands for a particular social practice. In a contemporary variation of a similar observation by Burchell et al. (1980), risk management meetings were used to extend the digitalized but incomplete documentation in R2C into the realms of a communal domain. Cross-divisional, cross-hierarchical and cross-functional meetings were produced as a way to address and possibly overcome the limits of individual opacity, exposure and mediation (Messner, 2009) and to appropriate the perspective of the unspecific "other" by which one could monitor Company X and offer alternative accounts "Y" in context Z.

At one level, the process by which employees reacted to being pushed beyond the limits of individual accountability looks as pure escapism (Messner, 2009). At another level, however, our case also suggests additional effects. At many different levels of the firm, employees had started engaging with Company X in terms of "its other". When risk boards engaged with ROs about their documentation of risks and chances, interaction would focus critically on the ways in which their documentation framed risks and chances simultaneously with clarity and opacity. Doing so, conversation has shifted to focus on whether something might be missing in current representations. Our case study does not assess in any way whether this interaction resulted in an outcome that was better or worse. However, qualitatively, it addresses how these interactions brought about ontological reflection on what "otherness" might constitute in relation to the ways in which current realities were framed in terms of risks and chances. Stated differently, round-table meetings among ROs, risk coordinates, and risk boards, among others, did not only extend incomplete digitalized documentation; instead, they enabled individuals to use risks and chances as devices for questioning "business as usual". To us, this enabling resembles what Butler (2005) refers to as "*ec-static movements*" (p. 115[12]) – the process where the (organizational) self reflects outside itself in ways that prevents a return to the status quo from taking place. But, is that intelligent? (Roberts, 2009).

Certainly, when making these movements, subjects constructed recognition of themselves as accountable. To the extent that this is all we see, Company X's risk management was probably about "nothing" (Power, 2009). However, from the perspective that these movements could also serve knowledge circulation and sense making beyond current practice, we can begin to understand that risk management, as unfocused as it may be, may actually construct reflective potentialities or be able to "look beyond current realities". At Company X, we studied only whether and how risk management was mobilized in the pursuit of performance and compliance. Because we did not find any such mobilization, we cannot identify the extent to which the pursuits were intelligent in effect. However, our case suggests that Company X by their ERM approach constructed shared spaces for reflection, correction and conformation that challenge conventional images of "knowledge management systems". Regardless of the role that individuals' self-serving motives will play, these spaces represented a craft that made accountability appear as a desirable object of practice. In spite of the ways in which these processes may bring about problems of their own, this approach appears by far more intelligent than the approach by which COSO (2004) continues to portray accountability as a manufacture of functional and hierarchical responsibilities.

6. Conclusions

Previous research on ERM has found that ERM is typically implemented in ways that differ from popular conceptualizations (Arena et al., 2010; Mikes, 2009). Furthermore, it has documented differences between firms that count risks and make risks count (Mikes, 2011) and reported that firms often find it difficult to reap anticipated benefits (Beasley et al., 2010). By three distinct insights, this study complements previous studies and helps explain their findings through its comparative study of an ERM conceptualization (COSO, 2004) and a firm's practice.

It suggests that past discrepancies between concepts and practice may have resulted from assuming more or less implicitly that ERM somehow mimics accounting's creation of information hierarchies that one can both decompose in stable, mobile and combinable information units as well as assign to individual responsibilities given hierarchical and functional characteristics of an organization. Due to this assumption, we may have overlooked the ways in which ERM differs fundamentally from accounting. Compared to accounting, ERM documents primarily the absence of certainty. ERM accounts do not add-up, and they do not make reality appear coherent and homogenous. ERM systems draw out that uncertainty creates organizational space for heterogeneity, potentiality and otherness that otherwise is rendered opaque in daily business operations.

The second insight is that ERM processes produce a nearly continuous re-alignment of subjects and objects by which they effectively become separated from rather than integrated with each other. This effect makes it difficult to manage risks on an enterprise-wide basis. ERM processes do not ensure a common understanding of risks and chances. At best, they produce a communalized identification process. This is particularly relevant to observe because it means that ERM, instead of reducing uncertainty, helps clarify and amplify organizational ambiguities through facilitating and enabling knowledge circulation.

[12] As quoted by Messner (2009, p. 930).

The third insight is that ERM allows people to assume stewardship of everything and nothing at the same time. At the individual level, accountability has turned into a desirable object – something that has been perceived as important to expose even if the concerns, commentaries and perspectives introduced would be of little immediate consequence. At the organizational level, however, this behavior served actors in overcoming (some of) the limits of individual accountability (Messner, 2009) whenever discourse and reflection was used to augment formal risk management procedures. An example of this process was addressed in the case of the divisional rejection and modification of headquarters' planning scenarios. Specifically, ERM can facilitate these spaces or social processes because ERM systems produce awkward, incomplete, yet complex information objects that require users to engage critically with the ways in which risk and chance documentation concurrently produce clarity and opacity.

In sum, the three findings produced in this study suggest that ERM creates inverse information hierarchies pushing complex, unresolved and abstract information to the top of the organization. This feature offers new possibilities for work around the limits of individual accountability (Messner, 2009) while requiring attention to the ways in which ERM contributes to the creation of attention – or communalized identification – of particular issues of concern, which, however, does not, facilitate a common understanding of such issues. In no way does our study suggest that ERM ensures intelligent accountability per se (Roberts, 2009). However, it suggests that the idea of enterprise-wide risk management processes allows organizations to construct social spaces in which it is possible to overcome the limits of *individual* opacity, exposure and mediation (Messner, 2009) by ecstatic movements through which organizational actors reflect beyond current practices.

6.1. Practical implications

First, we suggest that the implementation of ERM does not ensure organizational risk management. ERM concerns itself with the multiplicity of ways in which individuals across an organization approach and act in the absence of certainty. Moreover, risk management processes do not reduce uncertainty. Mainly, they bring about and actualize the ambiguity and heterogeneity of organizational practice. This suggests that it is important to design processes in ways that would help people structure and focus their interactions with the technologies used for risk management purposes.

Second, when approaching ERM technology, it is important to observe that ERM is unlike accounting. ERM does not produce information hierarchies based on stable, mobile and combinable units of information. Like accounting systems, ERM can provide transparency to an organization. However, IT-based transparency and visibility does not ensure process efficiency. Mainly, IT helps different hierarchical and functional communities bridge their boundaries and interact on a cross-functional basis with information objects because they address the absence of certainty that is bound to be complex, incomplete and awkward.

Third, when structuring peoples' work with risk management, it is important to differentiate local from global processes. In their local contexts, people work with risk management processes as if they constituted quality circles for learning and pragmatic solution building. In comparison, people quickly disengage with specific characteristics of risks and chances that are transported out of their local contexts at the enterprise-wide level. In comparison, people engage with risks at the enterprise-wide level by reflecting on the nature of big issues that appear to challenge their organization. Because people likely perceive and approach ERM in a strategic matter, it may be in firms' explicit interest to guide their ERM work with an outline of the most relevant strategic issues, concerns and trade-offs.

In sum, these practical implications suggest that organizations experimenting with ERM must consider their expectations carefully. Our study suggests that risk management does not help reduce uncertainty. Actually, it amplifies organizational engagement with uncertainty in various ways. This process offers great potential because the articulation of risks and chances can accelerate the processes of organizing. This acceleration may not be worthwhile unless it is managed as a creative experimental and explorative reflective process. Paradoxically, such management easily takes on a "Gestalt", which counters and challenges those who prefer to think of risk management as a calculation, a representation and a procedure of elimination. In practice, risk management is risky business.

6.2. Future research

Much more research is needed on the processes by which organizations use otherness and incompleteness to account for their own practice. We can think of three areas of research, of which the first one concerns itself with the continuing exploration of the insights developed in this study. For example, it would be relevant to explore if and how the oscillation between digital representations and social sense-making processes changes longitudinally once organizations gain experience with their own ways of documenting risks and chances. Do monitored information objects stabilize? Over time, do we see an assimilation of ERM and accounting? How does the stewardship of enterprise-wide strategy identified in this study develop and change properties over time? By no means do these questions generate an exhaustive research agenda. Merely, they indicate ways in which to develop future research, incrementally.

In addition, our study suggests that there is also a need for research that explores the divide between the ways that risk management is respectively portrayed conceptually and enacted in firms. Our study suggests that risk management practice takes on a Gestalt, whose properties are more creative than they are necessarily easy to control. Is our study perhaps thereby indicative of new ways in which institutions reach beyond current practice, in order to appropriate knowledge and make it organizational? Or, does this finding simply uncover ways that firms react to commercial re-framings of recent past knowledge

management approaches? In any case, research is needed that explores the Gestalts of risk management in local practice, and moreover reflects on the (un-)commercial agenda of these Gestalts.

This study has suggested that the creative properties of local risk management practices may help firms to overcome (some of) the limits of individual accountability. Nevertheless, the question remains if long-lasting positive effects can outlast negative side-effects? Imagine a situation, where interpersonal exposure has been replaced by intentional self-exposure; individual opacity has been dissolved in a collegial quest for accountability; and ongoing local proactive interpersonal mediations are challenged by reactive, system-supported ad hoc interventions crossing time and space? Quite possibly, these limits are not insuperable. But, they grant organizations with the appearance of markets. In our view, research is therefore needed that begins to explore economic citizenship "*after*" risk management.

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Appendix A. List of interview partners

List of interview partners at Company X
01: Head of corporate controlling
02: Corporate controlling, responsible for corporate planning
03: Corporate controlling, responsible for internal control system
04: Head of controlling for business area A
05: Corporate controlling, responsible for performance management
06: Corporate controlling, responsible for reporting
07: Head of financial risk management
08: Head of corporate audit
09: Chief financial officer in business area B
10: Head of controlling in business area A
11: Head of controlling for business area B, managing internal control system-project
12: Corporate risk coordinator
13: Divisional risk coordinator in business area A
14: Head of accounting
15: Head of compliance and chief compliance officer

Appendix B. Note on the semi-structured interview guideline

The developed guideline comprises four parts. Question about the responsibilities of the interview partner are asked in the first part. This allowed to facilitate the interview environment, to capture the background of the interview partner, and to understand most importantly his accountability sphere. The second part led the interview toward the topic of risk management. Here broad and principal questions about the organizational structure and process organization as well as its development and change over time and its understanding are asked. The reason for this is to gain multi-facets description of risk management. Furthermore, the purpose was to learn about changes and drivers of change in the risk management work and gain inside knowledge into the risk management rationale of the interview partners. The third phase links the responsibilities of the interview partner with risk management at the organization. By doing so, insights on overlaps between the interview partner's functional role and risk management as well as influences from risk management on the functional responsibilities can be examined. Furthermore, this part provides in-depth information on interview partner's responsibilities in the area of risk management (given that the interview partner is aware of this). The last part introduces for the first time the notion of ERM. This is done by asking, whether the interview partner is familiar with the concept and by showing a visual illustration of COSO ERM with its definition and target. We decided to mention ERM in general and COSO ERM in particular at the end of the interview in order to not lead the discussion toward ERM. It is important to gain risk management insights from the perspective of the interview partner, without being directed from the beginning toward a specific concept. Alternatively, when presenting ERM at the beginning, the challenge is to avoid that interview partners solely reproduce what the concept says. An alternative to presenting COSO ERM in the beginning or at the end is to not at all mention the framework. One drawback of this alternative is that valuable insights from the interview partner on whether interfaces between the framework and practice exist would be missing. Some interview partners even asked about a chosen framework for comparison.

Appendix C. Description of Risk-2-Chance

The following description provides a general introduction to the risk software used at Company X. R2C entails three basic functionalities: data entry, data aggregation, and data reporting and visualization. For data entering and amendment several standardized forms exists for various purposes, such as recoding single risks and opportunities or entering counter actions. In order to enter new risks or opportunities the following steps are carried out: first one selects the organizational unit and the related risk category. The different risk categories are: 1: finances, 2: employees, 3: processes, 4: products and 5: markets and entail several subcategories. Second, the RO selects the assessment criteria of either qualitative (i.e. assessment classes, such as high or low) or quantitative. Third, the assessment form is filled in, which mainly asks for a description of the risk, an assessment of the risk based on either short-term or long-term, impact and likelihood and potential development over time as well as a definition of a responsible person. Fourth, a counter measure can be entered with the help of the standardized counter measure form. This form asks among others for a description of the counter measure, a selection of the status of the counter measure (examples for these pre-defined status are initiated or completed), a deadline for completion as well as an assessment of the impact and/or likelihood reduction by the counter measure. However, not all fields

are mandatory to be filled in at Company X. Having entered the counter measure, the software calculates the net risk or opportunity position based on the entered information about brut risk and impact of counter measure on the risk.

The aggregation function of R2C is automated according to Company X's pre-defined risk categories and its organizational structure as R2C replicates the organizational structure of Company X. Based on the entrance of single risks they are aggregated via two dimensions: Single risks are pooled via subcategories and categories as well as single risks are attached to the organizational structure. Therefore, based on the aggregating level users of R2C can draw out the risk and opportunity situation of Company X.

For reporting and visualization purposes the software offers various reports on a single risk level as well as on an aggregated, respectively user-right level. The single risk level comprises the following reporting functions: summary profiles of single risks and opportunities as well as short and long descriptions of single risks and opportunities. For the aggregated level Company X can draw on a risk report, which includes summary possibilities for counter actions, risks and opportunities, risk maps for visualizing the severity of risks and opportunities and changes of the risk or opportunity situation between previous assessment periods (i.e. longitudinal view). Furthermore, risk statistics can be retrieved showing for instance the amount of risks in the different severity classes or the risk or opportunity profile according to the different risk categories. The user-right level entails the previous mentioned reports and visualizations. But from the aggregation level they are limited to the user's access rights. Besides this, R2C offers also an overview of entered counter measure, including deadlines or status information.

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