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ANALYSING THE GOVERNANCE, RISK AND COMPLIANCE (GRC) IMPLEMENTATION PROCESS: PRIMARY INSIGHTS

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Abstract

Governance, Risk and Compliance (GRC) as an integrated concept has gained great interest recently among researchers in the Information Systems (IS) field. The need for more effective and efficient business processes in the area of financial controls drives enterprises to successfully implement GRC systems as an overall goal when they are striving for enterprise value of their integrated systems. The GRC implementation process is a significant parameter influencing the success of operational performance and financial governance and supports the practices for competitive advantage within the organisations. However, GRC literature is limited regarding the analysis of their implementation and adoption success. Therefore, there is a need for further research and contribution in the area of GRC systems and more specifically their implementation process. The research at hand recognizes GRC as a fundamental business requirement and focuses on the need to analyse the implementation process of such enterprise solutions. The research includes theoretical and empirical investigation of the GRC implementation within an enterprise and develops a framework for the analysis of the GRC adoption. The approach suggests that the three success factors (integration, optimisation, information) influence the adoption of the GRC and more specifically their implementation process. The proposed framework followed a case study approach to confirm its functionality and is evaluated through interviews with stakeholders involved in GRC implementations. Furthermore, it can be used by the organisations when considering the adoption of GRC solutions and can also suggest a tool for researchers to analyse and explain further the GRC implementation process.

Keywords: Governance, Risk and Compliance (GRC), Enterprise Systems Implementation, IS Adoption.

1 Introduction

The Sarbanes – Oxley Act of 2002 is particularly notable for its wide-ranging IT impacts and responsibilities for governance expectations and compliance requirements (Dittmar, 2006). Recently, legal and regulatory requirements made many organizations to invest on risk and control functions. This fact has resulted in expansion of areas such as compliance, legal, internal auditing and enterprise risk management (Frigo and Anderson, 2009). These concerns fostered the creation of governance, risk and compliance (GRC) initiatives for the organization's risk and control improvement.

Cangemi (2008) refers to implementation of GRC strategy as a very demanding one, in terms both of complexity and cost. For many organizations GRC challenge was facilitated by people resources to monitor the performance (Cangemi, 2008). Since that approach was not applicable in terms of cost and efficiency, a new solution could be to adopt automation technology in order to reduce the cost and drive more consistent processes. GRC software is a term applied to products that help companies dealing with areas as far as Sarbanes – Oxley compliance, risk management and IT governance (Kelly, 2009). Furthermore, 'since GRC technology comprises three separate activities, companies naturally emphasise different reasons for investing in it' (Edwards, 2009). Another important characteristic of GRC tools is that this software is independent from ERP systems and can therefore provide 'a singly companywide platform for control and compliance, even when multiple ERP systems are in place' (Cangemi, 2008). Scientific research on the integrated GRC initiative is lacking although its significance for the organizations (Racz et al., 2010). Existing literature about GRC implementations indicates that researchers have more ground to cover in this field as a lot of aspects haven't been extensively investigated yet.

The research at hand recognises GRC software as a fundamental business requirement and focuses on the need to analyse the implementation process, while the other business requirements as presented by Hunt and Jackson (2010) could be: reducing compliance costs, strengthening of the control environment and reducing the risk of unintentional errors or fraud. Therefore, the study herein indicates the necessity of supporting an integrated governance, risk and compliance environment within the organisation which can be accomplished by a successful GRC adoption. The research will follow an in-depth study of the GRC implementation process following a stakeholder perspective and will indicate the critical success areas of such implementations. The stakeholder perspective will provide a better insight for this newly developed business solution. Thus a clear view of the whole implementation process of such initiatives will help for the understanding of this complex and not adequately researched area.

2 Prior research

2.1 Research frameworks for GRC systems

Recent studies on GRC have remarked the lack of scientific research on the integrated governance, risk and compliance (Racz et al., 2010). While the area of GRC implementations has been an emerging one, especially within the last few years, most of the frameworks developed so far cannot give a clear view of integrated GRC and specifically the implementation of it. Furthermore, these frameworks cannot provide a roadmap for the organizations with regard to the GRC implementation process and how they can strategically benefit by aligning GRC technological infrastructure with their business objectives. A few frameworks were identified presenting models with reference to integrated GRC solution.

The Open Compliance and Ethics Group (OCEG) presents the OCEG Capability Model GRC360 which consists of nine categories and 29 sub-elements for each of which sub-practices are listed (OCEG, 2009; Racz et al., 2010). The model gives an insight to GRC practices and activities; however

it does not distinguish between operative and managerial processes (Racz et al., 2010). Mitchell (2007) also proposes a framework to drive “principled performance” which is basically the very early stage of GRC360 Capability Model. The OCEG Capability model is also discussed by Rasmussen (2009) who refers to the “Enterprise view of Risk and Compliance” and proposes OCEG Capability Model as an Enterprise Architecture for GRC.

Paulus (2009) on the other hand, describes “GRC Reference Architecture” with a model which consists of four major phases: a. requirements modelling, b. status investigation, c. situation improvement, d. crisis and incident management. Although this model is easy to understand, it does not include in-depth analysis and basis to the implementation of GRC. The “Strategic Framework for GRC” (Frigo and Anderson, 2009) describes the ‘risk policies and appetite’ and these set overall common goals for adding value and protecting the common processes associated with GRC practices. It can strategically help organizations to manage their GRC initiatives; however the framework mixes processes with organizational entities and objectives and sometimes can be difficult to follow especially for enterprises not very familiar with the GRC landscape (if they are at their early stages of risk management).

Tapscott’s (2006) approach to GRC gives four core values for the enterprises to achieve the ‘trust’ expectation, which is their main aim when they take an integrated approach to GRC. This approach although it is easy to follow, does not translate its four core values into a process model that would help enterprises take a wider view of their GRC activities. Another research, conducted by PricewaterhouseCoopers (2004) develops an Operational Model for GRC; however this model also mixes in each of the four steps which it is consisted of, the organizational entities, activities and the relationships involved within these steps. This Operational Model (PricewaterhouseCoopers, 2004) combined with the four core values as presented by Tapscott (2006) could develop essential tools for the GRC implementation process analysis.

Wiesche et al. (2011) presents a GRC framework by linking GRC to Accounting Information Systems the result of which is the “Framework for GRC IS Value Drivers”. This framework is mostly about the accounting perspective of GRC and not an enterprise-wide approach. Furthermore, Racz et al. (2010) translated the GRC definition to a “Frame of reference for GRC Research” which depicts the definition into a figure and is the basis for the research in the GRC field.

A framework for GRC is also presented by Gericke et al. (2009). The core aim of this framework is to analyse the GRC implementation with situational method while identifying the method fragments. The method fragments are divided into five categories: conceptual, strategic, organizational, technical and cultural. The basis for this research is the GRC solution rollout, rather than the successful implementation of the GRC software. This framework will be used for the development of the analysis framework for the integrated GRC implementation. More recent research in the field of integrated GRC includes the “Conceptual Model for Integrated Governance, Risk and Compliance” by Vicente and da Silva (2011) which presents the concepts and the key functions of GRC by using OCEG Capability Model (2009). The Conceptual Model can be used for the better understanding of GRC integration and as a tool for structuring the analysis framework of integrated GRC implementation process.

The framework for the analysis of GRC implementation process that will be developed at this study will be based on outputs and insights from the previous frameworks, as these were presented above, and will propose a step further for the analysis of this not well researched area. The main aim of this research is to provide information about the GRC implementation process following a stakeholder perspective and will indicate the critical success areas of such implementations.

2.2 Theory-driven thematic analysis of the data – the research framework

The enterprise system implementation success is a very important part of their adoption. Although the research about enterprise systems like ERP has developed and analysed thoroughly the implementation frameworks for ERP and has evaluated their success; GRC implementations lack an analysis of their success factors and the value they give to enterprises. Therefore, a framework that can help with the analysis of the GRC implementation process is proposed here. More specifically, the enterprise value factors, proposed by Davenport et al. (2004) will be used as keystones for developing the framework. These three value drivers are developed in three categories (Davenport et al, 2002): (1) Integration, (2) Optimisation, (3) Information. These value drivers will be applied through the whole implementation process, to help structuring the analysis framework by dividing the themes into three categories. However, these drivers-themes will be applied through different phases of the implementation process, as these were identified after the analysis of the data from the interviews.

There are various experience cycles proposed by researchers in the literature of enterprise system implementations (Bancroft, et al., 1998; Ross and Vitale, 2000; Markus and Tanis, 2000). In most cases, the enterprise system projects share the same implementation process concept (Robey, et al., 2002). The basic difference is in the way researchers divide the implementation process in different steps, the most common implementation cycles including five (Bancroft, et al., 1998; Ross and Vitale, 2000) and four steps (Markus and Tanis, 2000) respectively.

The experience cycle used in this study is the one developed by Markus and Tanis (2000). This choice is based on the fact that this specific model is easier to use for predicting or explaining an organisation's actual enterprise system achievements and success in a systematic way (Teoh et al, 2008). Markus and Tanis (2000) have identified the following four phases in an enterprise experience life cycle. These four phases are the following: 1) Phase I: Project Chartering, 2) Phase II: The project (configure and rollout), 3) Phase III: Shakedown, 4) Phase IV: Onward and upward. The three drivers of enterprise value (as described previously) will be used in the four phases of enterprise system experience cycle presented by Markus and Tanis (2000).

This framework will be employed in the case of GRC implementation and will aim to provide a way of organising the investigation of the main topics in GRC implementation. It will provide a tool for the analysis of the main aspects of GRC implementation and how the implementation can be successful. Therefore, the implementation of GRC will be analysed in all the four phases, in order to understand these three drivers throughout the whole experience cycle.

3 Research methodology

3.1 Interpretive case study approach

The philosophical research stance that was followed for this specific study is interpretivism. The reason for following interpretivism stance is that there are a lot of social, political and cultural issues related to the GRC implementation experience. Therefore, the study of the GRC implementation experience cannot be separated from its organisational and cultural context. Another reason is also the fact that interpretivism allows concepts to emerge from field data rather than using preconceived theories from the field (Miles and Huberman, 1994). The factors mentioned in the previous sections (integration, optimisation, information) cannot be separated from the GRC implementation as they are influencing the whole GRC implementation process and should be considered in order to analyse it effectively.

3.2 Case description and data collection

The research was conducted in two phases and aimed to get insights about the implementation and the adoption process of GRC software initiatives. In more detail, the first phase of the investigation involved the development of a project plan and the building of semi-structured interviews based on general information about the GRC implementations. The GRC implementation project stakeholders were identified by Gericke et al. (2009) as: a) Project Manager, b) GRC Expert, c) Top Management, d) IT Consultant. These GRC stakeholders were interviewed (four stakeholders as presented in Figure 1) in general aspects of GRC implementations and any possible issues that could arise throughout the whole implementation process. Furthermore, this phase included literature investigation about the enterprise system implementations and their success factors.

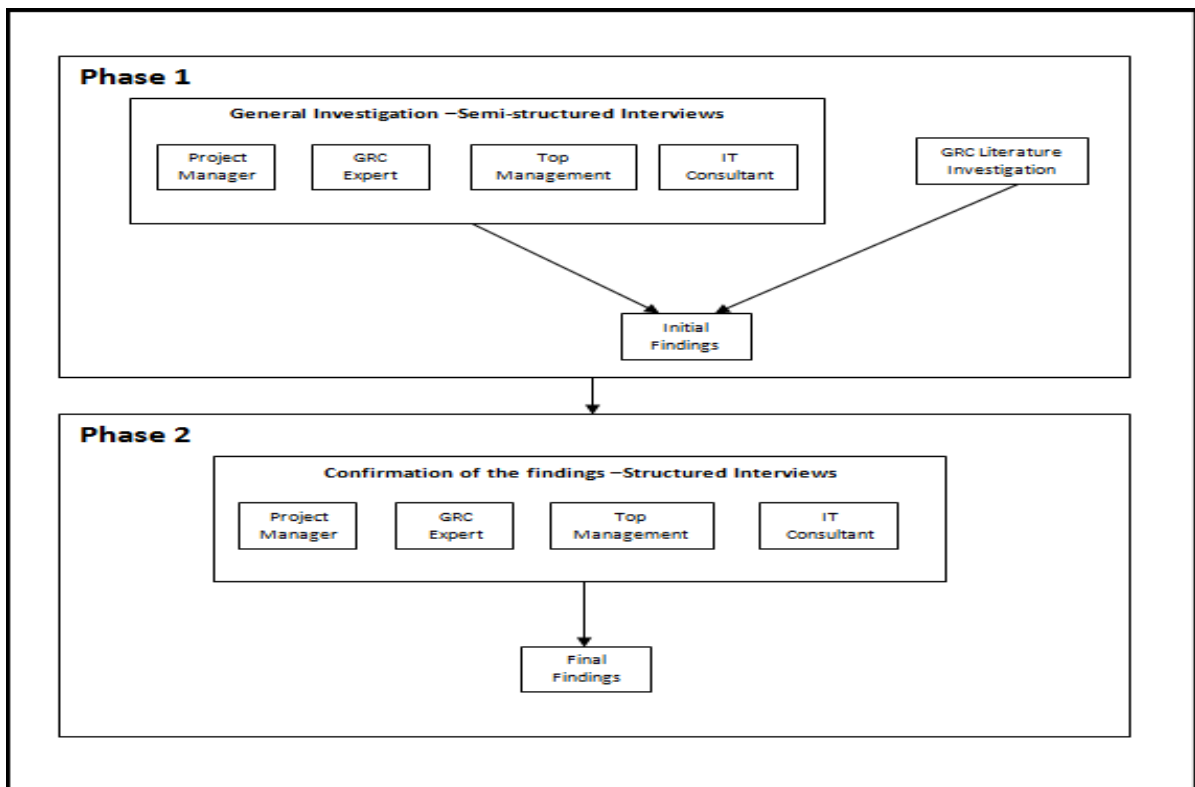


Figure 1. The two phases of this research

The case study was a GRC implementation project in UK within a global group of companies (retail sector). The case will be named as ‘GRC Case’ for reasons of confidentiality and anonymity. The interviews with the project stakeholders (lasted about an hour each) were transcribed. The secondary data from the organisation’s web site and publically available sources as well as from the implementation/consulting company’s publically available resources also contributed to the data collected from the interviews at this stage. The method used for the analysis of the semi-structured interviews at the first stage was thematic analysis as proposed by Boyatzis (1998) and Braun and Clarke (2006). The analysis framework will be developed through the coding of the interview data (the semi-structured interviews conducted in the first phase of the investigation).

The second phase involved structured interviews with the GRC stakeholders (four stakeholders as presented in Figure 1), in order to confirm the initial findings and the analysis framework was developed from the information provided through semi-structured interviews coupled with the literature sources. The final findings of this phase comprise the evaluation of the analysis framework and the results of the GRC implementation analysis.

4 Analysis of the GRC implementation process

4.1 Data themes and sub-themes from primary data

The data from the interviews were analysed through the various phases of Table 1 and initial codes were generated from the data, leading to themes. Further thematic analysis was carried out to indicate the sub-themes of these three themes and divide them into more defined sub-groupings. The first five phases will be analysed at this section and will help in building the framework for the analysis of GRC implementation process. The sixth phase will comprise the analysis of the implementation process. Table 2 depicts the themes and sub-themes identified by the interview data. The semi-structured interviews were conducted as an initial stage and dealt with general aspects of the GRC implementation, the next stage involved more focused structured interviews to confirm the themes and sub-themes as these were identified in the previous step of the data analysis.

Phase 1:	Familiarizing with the code
Phase 2:	Generating initial code
Phase 3:	Searching for themes
Phase 4:	Reviewing themes
Phase 5:	Define and naming themes and sub-themes
Phase 6:	Producing the analysis

Table 1. Phases of thematic analysis (Braun & Clarke, 2006)

As it is presented at Table 2, the data from the interviews were analysed through three theory-driven themes. The sub-themes of the table include the key areas discussed by the stakeholders for each phase as they were interviewed about the GRC implementation process. The GRC implementation process was commonly divided in four stages by all the interviewees (as it is also divided in the previous section).

The ideas discussed about the integration theme included mainly sub-themes as the ‘clear view for an integrated GRC system’ as this was initially expressed by the GRC experts involved in implementation projects. This idea was also highlighted by the rest of the stakeholders, as well as other subjects. The ‘strategic fit of the business processes with the IT systems’ which was initially identified as a key area from the IT consultants was also pointed out by the rest of the stakeholders and mostly the project management.

The top management of GRC implementation projects gave also great importance at the ‘optimisation’ theme, where the key idea was expressed about the project chartering phase when the ‘organisation searches for proactive ways in terms of user access, process automation and improving processes’ as it was addressed in the interviews. The necessity of an ‘optimised GRC system’ with ‘stable functionality’ and ‘updated versions’ was noted also as crucial mostly at the later stages of the implementation process.

The third theme discussed was about the information required for the implementation process. At this point the GRC experts involved in implementation projects agreed with the idea ‘the control framework exists already in the organisation before the implementation’, but the ‘stakeholders seek for an integrated GRC technology for these controls’. The IT consultants referred to the importance of ‘the information from the control framework’ that needs to be ‘plugged in the new technological solutions’ when they implement the systems. Also, regards the information required the common idea expressed was about the ‘data about information risk, user provisioning and business process ownership’ as these should be available by the IT basis team of the organization. The table below (Table 2) summarises the themes and sub-themes of the interviews conducted with the GRC implementation stakeholders.

	Theme 1: Integration	Theme 2: Optimisation	Theme 3: Information
Phase I: Project Chartering	the organisation has a clear view for an integrated GRC system	the organisation searches for proactive ways in terms of user access, process automation and improving processes	key stakeholders had a control framework and seek for a GRC technology for these controls
Phase II: The project (configure and rollout)	the GRC system fits the business processes	'end to end' optimised GRC system up and running	all the information from the control framework was plugged in the new technological solutions
Phase III: Shakedown	people and GRC technology are working harmonically	eliminating problems of the GRC system, stabilising of its functionality	data about information risk, user provisioning and business process ownership are available from the IT basis team
Phase IV: Onward and Upward	new technological solutions can be embedded to the current GRC systems	the new patches and versions of the GRC system function well	information about what can be improved can help emerging issues

Table 2. Interview data themes and sub-themes

4.2 Four-phase analysis of the GRC implementation process

The research aims to demonstrate the use of Enterprise Experience Lifecycle (Markus and Tanis, 2000) as a foundation for the implementation phases, coupled with the Enterprise Value Drivers (Davenport et al, 2004). Therefore, the framework introduces the baseline of the research of integrated GRC implementation process and adopts both these phases and drivers in a single tool. The themes and sub-themes were identified by the interview data at the previous section. The analysis framework as it was presented before will be used in this section for a further analysis of the data collected from both the semi-structured and structured interviews. The section is divided in four parts; each part includes the analysis of the implementation process phases (observations, stakeholders' interests and challenges for each phase). The analysis of each phase describes the key aspects as these were described by the implementation stakeholders.

4.2.1 The project chartering phase

At this phase of the GRC implementation project, it was observed that the organisation had a clear view for an integrated GRC system. There was also a common understanding that the organisation cannot further work without an integrated tool that can monitor and analyse the risks which are in the systems. The organisation had already a framework for controls to plug in the new technological solutions, however driven by an audit, the need of the IT system accountability is necessary and therefore the implementation of an integrated solution for GRC is one of the enterprise's aspirations.

The key stakeholders of the organisation were interested for an integrated GRC solution and shared a common understanding about the need of this solution. Other stakeholder interests included:

- Optimised and standardised processes with the help of GRC practices.
- The need of a tool for monitoring and analysing the business processes as the system accountability plays an important role in the organisational development.
- The focus continuously on the development of a total solution for identifying and informing the organisation about the risks.

In chartering phase also, there were a few concerns coming from the GRC project stakeholders related to more proactive ways in terms of user access, process automation and improving processes. A challenge that also has to be highlighted is that the scope for the GRC implementation project should be defined early and agreed; what is going to be delivered and by when. An additional concern that should be accounted before the implementation is the compliance with internal and external standards and the risk identification that requires immediate mitigation and reactive action. These challenges are presented at this phase as the organisation had as a basic business goal to continuously control and monitor the systems with the help of the GRC solution.

4.2.2 The project (configure and rollout) phase

At this phase the implementation of the GRC results in the integration of the key business processes. Roles are successfully assigned; who controls their content and who approves their risks is defined at this stage. All the systems related to GRC are connected to it and the user-access and authorisation levels are defined. The implementation team examines if the GRC fits successfully to the existing business processes and the existing technological solutions and if it results in the integration of key business processes.

The interests at this stage are stemming mostly from project management areas, as the project is at the initial stages and the stakeholders make the best efforts to make the whole implementation process successful. With this aim the project team should have full information about the existing systems and the users of them. There should be common understanding of the key stakeholders of the ongoing process introduced by GRC - 'Clean - Stay clean- Monitor'.

Key challenges of this phase include

- The organisation should operate a standard model of authorisations for business processes through the GRC implementation.
- The project should be supported fully by the finance team; as well as the IT team and the project manager.
- The project should have a strong project manager who could bring all the teams (finance, IT etc) together.
- All the project teams should communicate well together and have a common understanding of the project objectives.

It is also crucial for the success of the implementation that the organisation provides full information about improving functions such as: risk information, user provisioning and business process ownership. Also, full information about the roles that would be assigned and what systems will be connected is necessary. People within the company should know the system and understand how it works as well as the IT basis team does the configuration part of the GRC implementation themselves and they don't rely on consultancies for that part.

4.2.3 The shakedown phase

This phase includes the part where all the processes are highly standardised and embedded in the systems after the GRC implementation. Also, all controlling and financial transactions are processed automatically; the controlling processes are completely electronic and streamlined. The systems are directly linked to the GRC solution effectively. The system is up and running with the users having the access they need. The systems are agile enabling them to continually adjust to any change of the users or the clients.

The stakeholder aspirations at the shakedown phase include mostly areas where the optimisation of the GRC system and the information these systems provide is automated and streamlined. The

stakeholders try to ensure at this phase: a) if the systems provide information for the segregation of duties and the IT controls and b) if all information in the systems can be accessed and viewed quickly and easily. Optimisation areas of interest are: a) if the organisation can get customisable workflows through the GRC tool and b) if the systems function well without problems after implementation.

This phase includes challenges as:

- The systems should be compliant with internal and external standards and can give complete information about the IT risks in the organisation
- The systems should 'force' the stakeholders to introduce new controls at a high frequency.
- User helpdesk staff has to be continuously trained on the newest controlling and IT auditing services
- The system-users should use online GRC training tools through the systems.

Another necessary part of this phase is the IT basis team to be supported with state-of-the-art technology to be able to help the users with their GRC training and any questions.

4.2.4 The onward and upward phase

During this last phase the IT basis team is highly motivated to satisfy system-users. People of the IT basis team share the GRC view of the enterprise and everyone is committed to continuous service improvements and updating the GRC systems with new upgrades and patches. Furthermore, everyone is committed to reducing costs and IT risks.

The interests for this phase involve areas of information about what can be improved regards the risk management and controls of the enterprise (which can help emerging issues). Also, IT basis team is highly motivated to avoid inconsistencies of the system and everyone from the team is committed to finance office and controlling- auditing team's satisfaction.

Challenges of this phase include

- The new patches and versions of the system should function well.
- IT basis team should be highly motivated to continuously develop new ideas.

The onward and upward phase includes challenges regards new technological solutions that can be embedded to the current systems and the motivation of the IT team of the enterprise regards the GRC systems.

5 Discussion

The purpose of this section is to develop an interpretation of the GRC implementation process drawing from the case dataset. The interviews were analysed through three value drives as these were suggested by Davenport et al (2002). The key areas discussed by the stakeholders for each of these drivers/ success factors were presented in four phases (in the previous section). The case study revealed that the expected benefits from a GRC implementation can be achieved if the implementation process is successful. With this aim, the organisations should target for three core areas when they implement such systems. These three areas and the expected success factors related to each of them will be discussed here.

The integration area for a GRC implementation describes the whole view of the enterprise for an integrated GRC environment. This integrated GRC environment comprises a common understanding of the GRC processes from the key stakeholders involved. Hence, the whole organisation has to work

with the new integrated GRC tool that monitors and analyses the risks which are in the systems, although each of the stakeholders may have different interests for each business process. This system should fit harmonically to the business processes and the roles should be successfully assigned from the start, in order the system to deliver the best business value for the enterprise. If these are followed, the controlling and the financial transactions will be processed automatically and the goal of streamlined transaction processes will be achieved. The integration concern is mostly observed at the first two phases of the implementation process (chartering phase and configure-rollout phase) and therefore it should take great attention from the implementation team when they launch the project.

The optimisation area of the GRC implementation involves proactive ways in terms of user access, process automation and improving processes. In other words, the enterprises try to prevent the risk of not having a stabilised GRC environment, with the use of optimised GRC systems. A basic challenge the implementation team has to overcome in order to achieve this level of optimisation, is the fact that all teams (finance team, IT team etc) have to be together to support the implementation project as well as to communicate and understand fully the project objectives. The necessity of optimised GRC systems with stable functionality can also be crucial for the system optimisation during and after the implementation process. The project team focuses highly on the optimisation objective at the second and third phase of the implementation process (configure-rollout and shakedown phase).

The information area includes all the information associated to the implementation of the GRC. The control framework exists already in the organisation before the implementation; however the stakeholders seek for an integrated GRC technology for these controls. The information from the control framework needs to be plugged in the new technological solutions throughout the implementation process. Also, the data about information risk, user provisioning and business process ownership should be available by the IT basis team of the organization for the successful implementation of GRC. The information required for the project is a key aspect for the two most crucial phases of the implementation process (configure-rollout and shakedown phase) and also for the last phase (onward and upward phase) where information is also highly required.

6 Conclusion and future research

Through the investigation of GRC implementation project success and with the help of enterprise system theories, the study above has presented a framework for the research of integrated GRC implementation process. The study has shown that critical success factors can be identified through the analysis of the GRC implementation process and the results can be used for achieving successful implementation plans for the GRC strategy.

From a practical perspective, the framework and the analysis will help enterprises to avoid silo-ed approaches of GRC and further risks that these include. Furthermore, they can develop and improve their GRC strategy for their competitive advantage and identify the critical success areas for their GRC implementation. From a theoretical perspective, the research contributes to the knowledge about GRC systems and their implementation within the enterprises, as an attempt to gain a better insight of this new and not adequately explored area of enterprise systems. Secondly, it addresses missing parts of the existing GRC frameworks by focusing on their implementation process.

The research gives an insight of the implementation process of these systems and their critical success areas that should take more of the stakeholders' attention throughout the whole implementation process. The future research in the field can use this framework as it is proposed here for a further analysis of the GRC implementation regards the ways of improving and enhancing the enterprise performance and how they can deliver the best results by identifying the benefits and barriers of these projects.

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Appendix

Author	Year	Description	Focus
Open Compliance and Ethics Group (OCEG)	2009	Presents the OCEG Capability Model GRC360 which consists of nine categories and 29 sub-elements for each of which sub-practices are listed	Insight to GRC practices and activities
Mitchell	2007	Proposes a framework to drive “principled performance”	The very early stage of GRC360 Capability Model
Rasmussen	2009	Refers to the “Enterprise view of Risk and Compliance” and proposes OCEG Capability Model as an Enterprise Architecture for GRC	The Enterprise Architecture for GRC
Paulus	2009	Describes a model which consists of four major phases: a. requirements modelling, b. status investigation, c. situation improvement, d. crisis and incident management.	GRC Reference Architecture
Friigo & Anderson	2009	Describes the ‘risk policies and appetite’ and these set overall common goals for adding value and protecting the common processes associated with GRC practices	Strategic Framework for GRC
Tapscott	2006	Gives four core values for the enterprises to achieve the ‘trust’ expectation, which is their main aim when the take an integrated approach to GRC.	Four core values approach
PricewaterhouseCoopers	2004	Develops a model consisted of four steps, as well as organizational entities, activities and the relationships involved within these steps	An Operational Model for GRC
Wiesche et al.	2011	The “Framework for GRC IS Value Drivers” which is mostly about the accounting perspective of GRC and not an enterprise-wide approach.	A GRC framework linking GRC to Accounting Information Systems
Racz et al.	2010	Depicts the definition into a figure and is the basis for the research in the GRC field.	Translated the GRC definition to a “Frame of reference for GRC Research”
Gericke et al.	2009	A framework for GRC with the core aim to analyse the GRC implementation with situational method while identifying the method fragments. The method fragments are divided into five categories: conceptual, strategic, organizational, technical and cultural	The GRC solution rollout
Vicente and da Silva	2011	Presents the concepts and the key functions of GRC by using OCEG Capability Model (2009)	“Conceptual Model for Integrated Governance, Risk and Compliance”

Table 3. Existing Frameworks for GRC