# Implementing Data Governance within a Financial Institution

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**Abstract:** Data Governance is an essential part of an overall Corporate Governance strategy as an equal sub-discipline alongside IT Governance. The goal of Data Governance is to govern and manage data and information by organizing the proper usage of data and defining the responsibilities for data and respective data quality. This paper discusses a practical realization approach of a Data Governance strategy within a financial institution's Chief Financial Officer (CFO) organization and outlines the impact on organizational structures as well as current topics to be addressed by Data Governance.

## 1 Introduction

In the globalized and interconnected world of today, market players are facing significant challenges to their business. For a long time, the focus on the creation of shareholder value was the main driver of managing the business, however, during the last two decades further stakeholder groups have gained in importance, such as the interests of employees, customers, suppliers, creditors, as well as public interests coming from government and regulatory bodies. Therefore, a holistic functional approach is necessary to handle this pressure and to manage external and internal business forces.

These business forces were not only defined informally but more often specified in national and international regulations. The main goals of these regulations are to encourage the transparency and accountability of business activities. The resulting need to change business processes to become more transparent and accountable seriously effects the whole company/organization. In this context, the term *Corporate Governance* has been established to manage and control a company in such a way. Since information and communication technology is an essential part within a company's structure, senior management has to ensure Corporate Governance compliance of its Information Technology (IT) systems, thus, disciplines such as *IT Governance* have been established. [JG11]

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However, the scope of IT Governance does not include the data itself and the respective management of data life cycles. *Data Governance* broadens the scope of IT Governance by considering data quality aspects and processes especially defined to clarify the life cycle of data [Th11].

Figure 1 shows an overview of external and internal business forces companies have to fulfil in a complex market environment with ever increasing requirements, very often formally set in regulations.

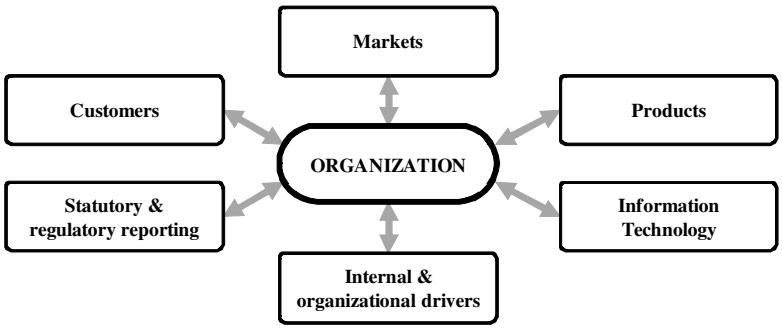


Figure 1: External & internal business forces

Within the *customers'* area, business processes and underlying customer related activities must be linked to the organizational strategy. With respect to *markets,* organizations must be able to rapidly adapt to changing market conditions. Regarding *products*, organizations need to have a complete understanding of their customers and products across functional boundaries. Therefore, organizations need the right *information technology* in place to be successful in their business model while considering *internal & organizational drivers,* such as the changing nature of the workforce (e.g. new role of knowledge & intangible assets, new low cost technologies), increased organizational scale and complexity, as well as quality and service orientation. Ever increasing changes in *statutory and regulatory reporting* in frequency and in quality have to be adapted quickly and cost effectively.

This market environment is especially valid for the financial services industry. Due to the recent financial crisis and the importance of the financial sector within the economy, financial institutions have to meet many different requirements. The information needed to fulfil these internal and external requirements is very often stored in distributed IT systems. These very heterogeneous IT landscapes with a lot of interfaces and technologies are a result of several decades' organic growth or mergers and acquisitions without consequent landscape planning from the beginning. Especially, partial IT integrations due to mergers and acquisitions and silo responsibilities for different IT systems are the main drivers of such IT landscapes. On the one hand, a distributed IT landscape allows the companies a modular approach to handle the business complexity and supports the requirements for scalability and performance, but on the other hand such distributed landscapes are more complex to ensure the consistency of data against the information stakeholders who expect the information in time and in quality.


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The information needed to be compliant with all regulations has dramatically increased due to more and more detailed regulations. As consequence, the requirements regarding IT systems have increased as well. The regulations to be met by the financial institutions are thereby documented in several laws, supervisory authority publications, generally accepted accounting principles, as well as in "codes of conduct" or statements of self-commitments.

For example, the German Banking Act (Kreditwesengesetz, KWG) requires in section 25a particular organizational duties from institutions and amongst others the necessity of an adequate technical and organizational infrastructure [KWG11]. These generally formulated law definitions are substantiated in the minimum requirements for risk management published by the German supervisory authority BaFin [Ma10] as part of the banking supervisory regulation process originally requested in pillar two of Basel II. The banking supervisor requires in section AT7.2 of the MaRisk [Ma10] current standards of IT systems and IT processes which must ensure the integrity, availability, authenticity, and confidentiality of data.

These generic but complex regulations implicitly claim a kind of IT and Data Governance structure, otherwise current and especially future compliance is hard to achieve. For instance, upcoming Basel III regulations will require new or changed information, therefore IT systems providing this data need to be calibrated and changed.

External financial reporting according to international accounting standards IFRS (International Financial Reporting Standards) is another area of continuous increasing and changing regulation. One of the principles of IFRS is a true and fair presentation of the financial situation of a company. Therefore several accounting standards have been developed – and re-developed in the light of the financial crisis – to align externally disclosed figures for accounting purposes with internally used managerial figures for steering the business.

Again, the companies can hardly fulfil the requirements of delivering consistent and correct data over time from different IT systems, different data owners, and processed for different purposes in absence of a proper IT and Data Governance structures.

In the light of external and internal forces and to ensure the fulfilment of all requirements faced especially by financial institutions, it is necessary to implement a comprehensive *Corporate Governance* structure. Within this structure the "asset" information and the technology to provide the information have become more and more relevant in the last several years and the set-up of an *IT Governance* structure institutionalized this development. By implementing of *Data Governance* structures the right usage of data is organized and the responsibilities for data and the respective data quality are defined.


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This paper describes the necessity of Corporate Governance as prerequisite to set-up more detailed governance structures, especially according to IT and the information and data itself. Basis is an already implemented Data Governance structure within a financial institution's CFO organization. The implications to the organization and the current topics to be addressed by CFO Data Governance will be outlined to summarize the current status of Data Governance and to point out areas with potential for further improvement in the field of Data Governance in general.

The remainder of this paper is structured as follows: Section 2 of this document classifies Data Governance in the context of an overall Corporate Governance structure. Section 3 shows a practical realization of a CFO Data Governance structure in a German full service bank (UniCredit Bank AG) and Section 4 highlights current practical topics to be handled by the CFO Data Governance unit. A summary of the presented topics including an outlook on future work is given in Section 5.

## 2 Data Governance as an Essential Part of the Overall Corporate Governance Structure

This Section introduces Corporate Governance as a necessary way to manage and control a company. Data Governance and IT Governance will be outlined as equal and essential sub disciplines of an overall Corporate Governance structure before Section 3 depicts a practical realization approach of a CFO Data Governance structure in a financial institution.

Over the last decade, Corporate Governance has become more important as a result of a series of corporate collapses and public examples of bad corporate behaviour (e.g. Enron, WorldCom), and Corporate Governance related topics will continue to be a top priority going forward. Following these events, a number of organizations devoted significant resources towards these topics and have subsequently published guidelines for good Corporate Governance. For instance, the United Nations Conference on Trade and Development (UNCTAD) published a "Guidance on Good Practices in Corporate Governance Disclosure" in order to rebuild investor confidence, and to improve corporate transparency and accountability. These practices should support the facilitation of investment flows and mobilization of financial resources for economic development as overall goals to be achieved. [Un06]

Under this umbrella of defined standards it is necessary to implement different governance areas to achieve the goal of a good and responsible Corporate Governance structure. Weill and Ross propose a framework for linking Corporate Governance with six key assets of a company which are the basis of generating business value and for realizing the company's strategies [WR04]. Figure 2 is based on Weill and Ross' understanding of Corporate and key asset Governance and depicts the dependencies between these areas.


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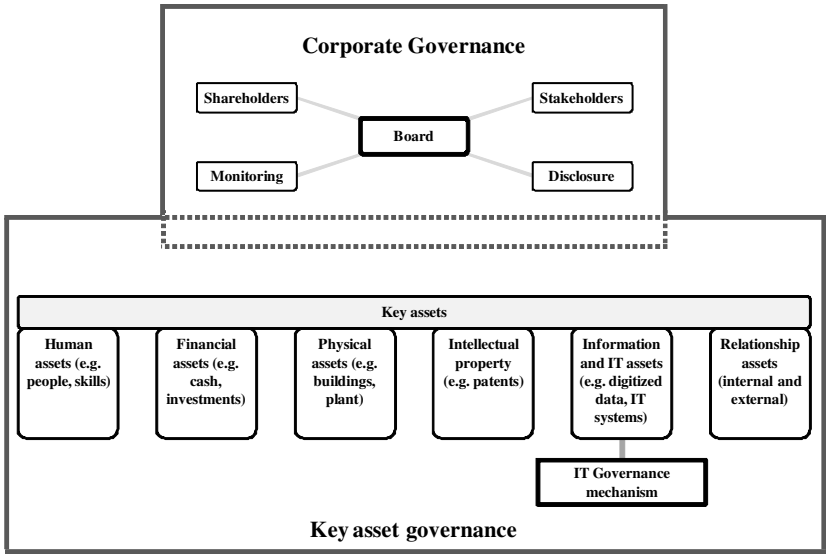


Figure 2: Corporate and key asset Governance (based on [WR04])

For Weill and Ross the IT Governance has the goals in specification of decision rights and accountability frameworks to encourage a desirable behaviour in the IT usage. In addressing of the following three questions, effective IT Governance will be set-up: (1) What decisions regarding the use of IT must be made, (2) who should make these decisions, and (3) how is the decisions and monitoring process. [WR04]

IT Governance concentrates its activities on handling of technology and its usage within the company. In this context, IT Governance relates to the management of IT life cycles and IT portfolio management. This scope does not include the information itself, its value, and its life cycle management. The necessary examination of the relevance and the value chain of information should be part of an *Information Governance*. [Jo10]

Information Governance or *Data Governance* broadens the scope of IT Governance by considering data quality aspects and processes especially defined to clarify the life cycle of data (creation of data → storage → usage → deletion) with focus on *"who can take what actions with what information, and when, under what circumstances, using what methods"* [Th11]. Although, the terms *data* and *information* have different meanings in detail, they are often used synonymously in publications [We07]. In this article the term Data Governance will be used.

Data Governance provides a framework for data related management decisions and is not a subset of IT Governance. Both are seen as equal as both are sub elements of a Corporate Governance structure. Main areas of action can be categorized in data quality strategy, data management processes, data standards and policies, data architecture with the goal of control over the processes and methods. Figure 3 is based on Wende's interpretation of Data Governance and should illustrate the scope of this discipline. [We07]

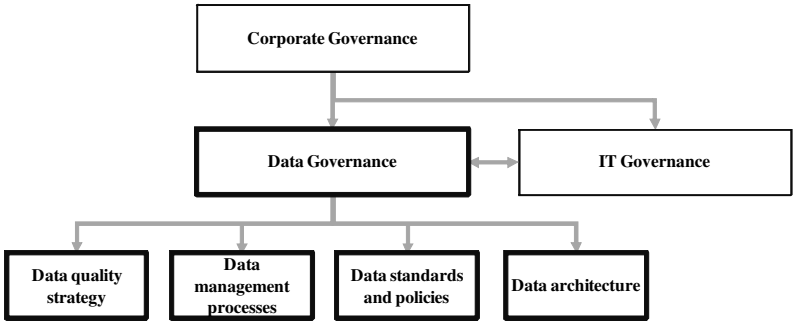


Figure 3: Scope of Data Governance (based on [We07])

In this context, Data Governance ensures the quality and consistency of data with respect to timely access and availability to the data and promotes proper upgrades of IT systems and data management processes.

## 3 Data Governance Structure at UniCredit Bank AG

This Section shows a practical realization of a CFO Data Governance Structure in *UniCredit Bank AG (UCB)*. After a short introduction of the bank and its business scope, Section 3.1 outlines the link of the realized CFO Data Governance target role model to the academic research. Section 3.2 describes the intention and mission aims of setting up this new structure and finally Section 3.3 illustrates the organizational implementation of the Data Governance structure within the bank's CFO organization.

*UniCredit Bank AG* is one of the leading German full service financial institutions and is part of the pan-European banking group *UniCredit*. Amongst UniCredit Bank's core competencies covering retail banking, corporate banking and private banking, the bank is the corporate competence centre for all UniCredit capital market operations. [UCB11]


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Good Corporate Governance is essential for UniCredit Bank AG. Despite, the bank's delisting in 2008, the Management and Supervisory Board decided that UCB will continue to comply with the regulations of the German Corporate Governance Code as far as these regulations can be applied to a non-listed company with one shareholder UniCredit. Activities regarding Corporate Governance are regularly reported in a detailed manner as part of the Annual Report. [UCB11]

### 3.1 CFO Data Governance Target Role Model

To institutionalize Data Governance aspects within UCB, the Chief Financial Officer (CFO) organization set-up a dedicated Data Governance department in 2010. The CFO Data Governance target role model is based on academic research carried out by the Institute of Information Management at the University of St. Gallen. Especially the contingency approach to Data Governance from Weber, Otto, and Österle from 2009 [WOÖ09] inspired the senior management of UniCredit to set-up the CFO Data Governance target role model shown in Figure 4.

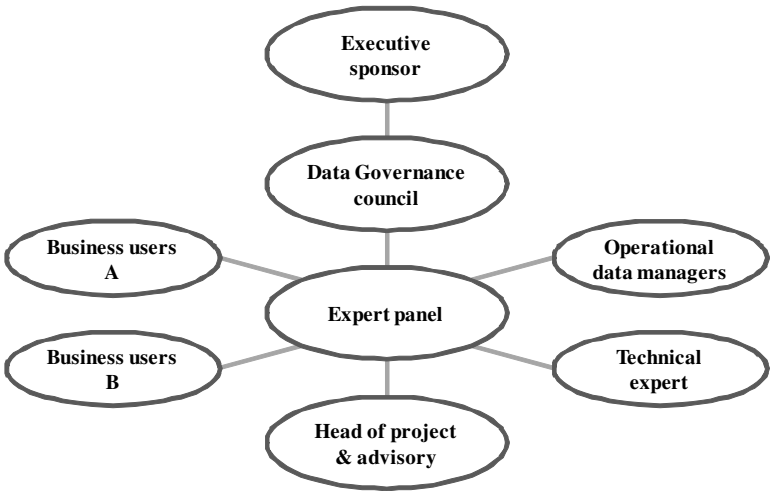


Figure 4: CFO Data Governance target role model (based on [WOÖ09])

The main tasks and responsibilities within the role model described in Table 1 are based on Weber, Otto, and Österle [WOÖ09]. This model was identified by the bank as a useful basis to specify the practical needs of the bank's potential Data Governance structure. Special areas of this model have been customized and detailed by the bank to ensure proper consideration of the bank's specific requirements.

| Role | Tasks & Responsibilities |
|---|---|
| Executive sponsor | • Provides sponsorship, strategic direction, funding, advocacy and oversight for data quality management<br>• Is the Group CFO function<br>• Provides support from top management, which is crucial for corporate data quality initiatives<br>• Supports Data Governance and data quality initiatives<br>• Labels parameters |
| Data Governance council | • Sets top-down strategic goals and ensures that they are in line with the competence line's mission and objectives<br>• Chaired by the head of Data Governance function, members are head of project & advisory and head of IT function. Temporary participants depending on topic possible<br>• Authorizes and prioritizes projects<br>• Provides mechanisms for coordination, communication, information sharing, prioritization, and conflict resolution<br>• Supports escalation process from head of project & advisory |
| Expert panel | • Develops and directs corporate-wide standards, rules, policies, processes, and guidelines to ensure the on-going improvement of data quality<br>• Chaired by the head of project & advisory, members are business unit leaders, IT leaders, business and technical professionals. Temporary participants depending on topic possible<br>• Defines the Data Governance framework for the whole enterprise and controls its implementation<br>• Decides, how business users and technical experts are assigned in line with the company's structure and objectives |
| Head of project & advisory | • Head of project & advisory is the program manager of the expert panel, and puts the expert panel's decisions into practice<br>• Appointed by head of Data Governance function<br>• Chairs the expert panel<br>• Enforces the adoption of standards, helps establish data quality metrics and targets, and ensures that regulatory, privacy and information sharing policies are followed<br>• Coordinates all business users and technical experts, but also helps them to enforce their mandates |
| Business users | • They are professionals from a business unit or functional department<br>• They detail and recommend corporate-wide data quality standards, policies and processes from a business perspective<br>• They document business requirements and assess the impact of new business requirements on data quality |


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| Role | Tasks & Responsibilities |
|---|---|
| Operational data manager | • Is the key interface to IT service provider for data quality and for new requirements produced by expert panel<br>• Is a data expert for applications or warehouse<br>• Defines data quality standards<br>• Guarantees the ordinary delivery of data to business users |
| Technical expert | • Is the counterpart of business user, with focus on data representation in IT systems<br>• They provide standardized data element definitions and formats, and focus on technical metadata<br>• They profile and explain source system details and data flows between systems<br>• They communicate IT-related requirements to the council |

Table 1: CFO Data Governance tasks and responsibilities within the role model (based on [WOÖ09])

### 3.2 CFO Data Governance Mission

Derived from the defined target role model, the CFO Data Governance department is especially responsible for providing and developing processes, systems and services for the CFO organization. Moreover, Data Governance is also responsible in supporting the CFO in project management, and for implementing various projects (e. g. Corporate Governance and data warehouse architecture). [UCB11]

Within the CFO responsibilities, Data Governance should guarantee timely access and availability of quality and consistent data, promoting proper upgrades of information systems and data production as well as management processes. In fulfilment of these tasks, Data Governance affect staff, processes and IT environment with the aim to:

- Create consistent "CFO-certified" data for the organization,
- Help to increase confidence in decision making,
- Minimize or eliminate re-work and processes,
- Help to focus on analysis instead of data maintenance,
- Reduce redundancies in interfaces and databases,
- Help to be compliant with internal and external regulations,
- Perform financial modelling aligned with group wide rules,
- Supply financial engineering of formulas for calculation engines, and
- Start initiatives to improve cross-CFO data quality along several metrics like accuracy, accessibility, consistency, and completeness.


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### 3.3 Functional Structure of CFO Data Governance

The CFO Data Governance department of UniCredit Bank AG as part of the overall CFO organization is split into the 4 functional areas: global rules & policies, global modeling and warehousing, regional business services, and projects & advisory. Figure 5 illustrates this functional structure.

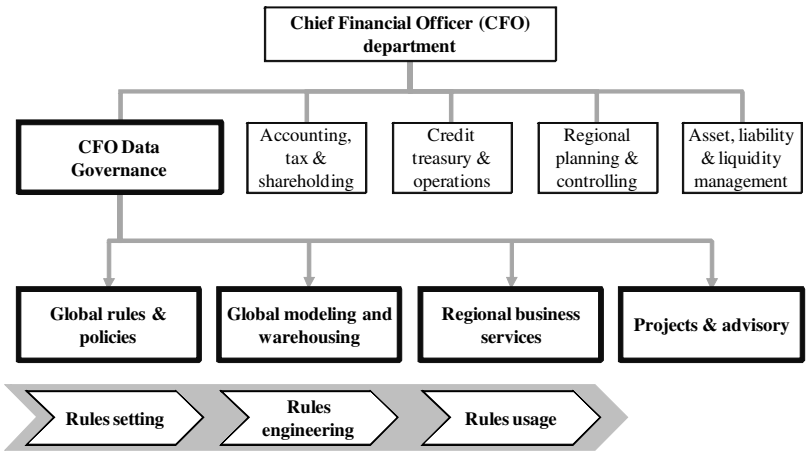


Figure 5: CFO Data Governance Functional Structure (based on [UCB11])

*Global rules and policies* is responsible for the definition and update of CFO area data rules and requirements. This function designs and maintains CFO calculation engines and functional data models for CFO systems.

*Global modeling and warehousing* develops and updates methodologies, rules, and analyses for production of data quality standards in data sources. Furthermore, this area is accountable for the management of data quality, data procedures and data marts in the Holding Company and Group-level systems.

The *regional business services* function manages the relationship with internal clients based on service level agreements. Therefore, this Data Governance function is charged with the responsibility to build and maintain the delivery tools for managerial, accounting and treasury reports towards the respective clients.

The management and status monitoring of main strategic CFO Group-level projects falls under the accountability of the *projects and advisory* function. Their responsibility includes analyzing business cases for initiatives and ensuring budget compliance. During projects they monitor project phases to guarantee intermediate deliveries.

This organizational structure for CFO Data Governance should enable the coherence of the CFO processes from 'thinking' to daily application.


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# 4 Practical Topics Handled by CFO Data Governance

CFO Data Governance faces several challenges in its daily work, starting from ensuring the production of necessary data up to the definition and development of the future set-up of the Data Governance environment. Every area of the Data Governance structure has a catalogue of tasks to be "checked off" and a presentation of all of these tasks would exceed the scope of this paper. Therefore, Section 4 introduces the work of the modeling and warehousing team with respect to its activities and services provided, with particular consideration paid to data quality aspects.

## 4.1 Roles and Responsibilities of Data Governance Area - Global Modeling and Warehousing

The global modeling and warehousing area has in its charge, the governance of two key environments within the global enterprise service program: the CFO data warehouse and CFO calculation engines.

The group has the responsibility to ensure the production of business requirements within the data warehouse. Data Quality aspects have to be ensured via predefined protocols within different structures. This area is accountable for the financial modeling of group wide rules in order to enrich the content with specific CFO metrics and to maintain the product and measures catalogue in order to acknowledge the bank's needs.

In order to successfully execute these tasks, the global modeling and warehousing area needs functional analysts who are able to translate business requirements into solutions, needs specialists with in-depth knowledge of the content managed on the data warehouse and legacy procedures, and needs financial engineers who are able to deliver formulas for the calculation engines.

## 4.2 General Framework of Modeling and Warehousing Team

Table 2 shows the modeling team's activities and services.

| **Modeling Team** | |
|---|---|
| **Activities** | **Services** |
| • Set-up financial models and related functional analysis delivery to face new initiatives coming from the CFO user community<br>• Functional analysis tuning to face new initiatives coming from "external" actors<br>• Back-testing of financial models on the datasets available on the CFO data warehouse<br>• Support the user community when detailed analysis needs arise | • Delivery of internal financial models<br>• Delivery of functional analysis for testing and streamlining the financial models on data warehouse<br>• Delivery of spot computations |

Table 2: Activities and services of CFO Data Governance modeling team


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The following Table 3, shows activities and services provided by the warehousing team.

| Warehousing Team | |
|---|---|
| **Activities** | **Services** |
| • Functional analysis to face new initiatives coming from CFO user community or "external" actors (e.g. IT, business users)<br>• User acceptance tests in the delivery phase<br>• Support the user community when detailed analysis needs arise<br>• Delivery and maintenance of the data quality model<br>• Performance of managerial data quality controls and set-up of troubleshooting process | • Delivery of functional documentation shared with user community<br>• Delivery of the documentation to support data quality<br>• Analysis of data quality controls<br>• Delivery of spot reports and analyses |

Table 3: Activities and services of CFO Data Governance warehousing team

### 4.3 Data Quality Process

The data quality mission is incorporated within the warehousing team as a key gateway between the origination processes and end users. A general approach exists to ensure and control data quality at two different levels:

- *Legacy Procedures*: Feeding procedures will guarantee, by the application of proper squaring logics, homogeneity of information sent from legacy procedures to different end environments (e.g. CFO data warehouse, accounting databases, regulatory reporting engines)

- *CFO data warehouse*: The CFO data warehouse will guarantee, by the application of proper squaring and reconciliation logics, the comparability of information produced by different environments. Moreover, managerial data quality controls will be performed regardless accounting figures.

Figure 6 illustrates the data quality controls within the data flow and processing.


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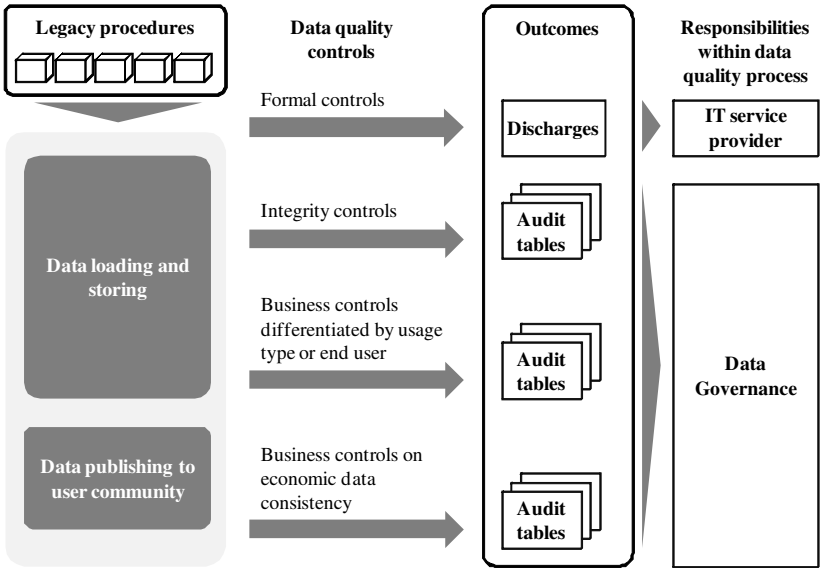


Figure 6: Data quality controls within data processing

By executing the described approach a proper data quality is ensured and end users can use consistent CFO certified data which allows the user community to focus their work on data analysis instead of data maintenance.

## 5 Summary and Outlook

This paper outlined an implementation of a proper Data Governance structure as an essential part of an overall Corporate Governance strategy. This strategy was driven by several external and internal forces that occurred especially in recent years, such as a series of corporate collapses, bad corporate behaviour, or the recent financial crisis. Based on resulting requirements and the related work, it was shown, how Data Governance as an equal sub discipline aside IT Governance will support and ensure the accountability of data and information by organizing the right usage of data and defining the responsibilities for data and the respective data quality.

UniCredit Bank AG implemented its CFO Data Governance structure based on an academic approach carried out by a central group function of UniCredit. Subsequently, it has tailored functions, tasks and responsibilities to the bank's needs, since no generic concept fits the requirements of an organization without customizing. Even though, this means additional work for an organization, it is the essential part of implementing such a new structure, because this approach supports the accountability of the organization with respect to its data and information. Furthermore, it is important to introduce the Data Governance model in all major subsidiaries of the organization to ensure alignment on Data Governance topics.

After implementing the Data Governance structure within the CFO organization of UniCredit Bank AG in 2010, a set of activities have been started to achieve the planned goals of Data Governance. Especially, the set-up of a central CFO data warehouse will allow the CFO organization to govern all CFO data and ensure the respective data quality.

In general, the implementation of a Data Governance philosophy in a complex and large-scale group of companies not only has implications with regard to processes and organizational changes, rather the whole IT landscape will be effected and most probably be changed. This means very often large and complex change management projects with high IT budget requirements. Some important topics to be considered in this context have not yet been sufficiently solved from a practical point of view, for example, where the limitations of IT and data integration within complex organizations will be or what a successfully implemented Data Governance organization structure will look like. Such questions need to be answered to properly institutionalize Data Governance as essential and living part of an overall Corporate Governance structure.

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