A Methodological Framework used for the Data Governance Assessment

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1 Context and goal

"*Investment in IT can save time for doctor and nurses*"[1]: the aim is to create a paperless service that is more convenient for patients and helps doctors to provide faster diagnoses

- Real Time Data: patients will have the opportunity to upload and send real-time data to medical professionals on long-term conditions such as blood pressure
- Data Sharing: different professionals involved in one persone's care can start to share information safely on their treatment
- Human Factor: using electronic prescribing and electronic patient records would also give staff more time to spend with patients

In 2013 Italian Supervisory Authority and Basel Committee on Banking Supervision introduce for the first time[2] a provisions regarding to Data Management and Data Governance as a tool for the Banks Management. The aim is to have available detailed, relevant and updated information in order to take decisions in an aware and timely manner and for the proper implementation of Risk Management Process

The goal of the document is describe the Methodological Framework used for the Assessment and applied to the informational areas within the Data Governance scope

Regarding to Data Governance and Management, the current Normative defines the required areas of implementation and the guidelines needed for a legally consistent development or adjustment:

1. Governance
2. Process and Procedure (Reporting, Registration and Aggregation System)
3. Infrastructure

1.1 Governance

Main aims:

- To identify Roles and Responsibilities in order to describe the presence of a defined and formalized data ownership and governance structure
- To define a Methodology that describes the consistency and completeness grade of the functional and technical documentation regarding to the data management and governance
- To define and calculate Key Quality Indicators in order to measure the cover grade of each functional areas included within the Data Governance Information Setting and related to the application of Data Quality controls

1.2 Processes and procedures

Main aims:

[1] www.bbc.com
[2] Banca d'Italia Circular 263 in July 2013 and BCBS 239 in January 2013

- To identify the presence of defined and formalized business owner
- To describe the consistency, completeness and presence of a shared and formalized documentation and guidelines regarding to data management processes and procedures

1.3 Architecture and IT Infrastructure

Main aims:

- To describe, the presence of functional and technical standard of management of the data architecture and IT infrastructure (e.g. data taxonomy, data modelling, etc.)
- To describe the presence of technical guidelines and plans regarding the adoption and implementation of data management and governance target tool

2 Methodology of analysis

The assessment requires to define a framework for each one area of Data Governance informational setting and the analyze of the As-Is state of the Bank vs framework.

The methodology approach of analysis used for the Assessment execution:

- Interview of internal reference people responsible for data architecture and processes for the informational areas in scope
- Collection of documentation regarding:
    - Architecture
    - Registration, aggregation, extraction and reporting data processes
    - Controls
    - Reports
    - Documentation provided from/to the Provider

Information obtained from the documents and interviews have been shared with the Person Reference of the relevant areas.

The evaluation was performed upon the combination of objective (documentation, number of checks, etc.) and subjective elements

- For each functional area we studied the application architecture
- For each functional area and application architecture within data governance scope, we mapped procedure and feeder sources

3 Information Setting

The Data sources are mapped, grouping the source systems by scope to define the Golden Source and delimit the scope of analysis.

For each Informational Area, “Architecture” and related “Department Contact” are identified in order to map the internal and external data sources, necessary for the following creation of the “Application Map”.

4 Organization and Ownership

A clear definition of roles and responsibilities should be applied to the corporate functional and organizational charts to structure an efficient Data Governance

4.1 Data Manager

Data Manager generally belongs to IT System.

Main activities:

- Defines, designs and governs the technology and architectural framework to comply to the Data Governance requirements
- Develops and guarantees the maintenance of the access, archiving and conservation standard of the Data of a corporate dimension in line with the policies defined by the Business Owner

4.2 Data Steward

Data Steward generally belongs to IT System or Organization Department.

Main activities:

- Writes Data Governance policies and the Data Quality standards on a corporate level together with the Data Governance Coordinator
- Manages the Data Quality Process: coordinates, monitors and addresses the corrective measures according to the Data Quality Policy and the functional requirements identified by the Business Owner

4.3 Business Owner

Business Owner generally belongs to Business Departments.

Main activities:

- Defines the Data Business requirements plus governs them together with the Data Steward and the Data Manager
- Defines together with the Data Steward the Data checkup activities and makes sure that those are performed correctly to ensure the Data quality and availability

4.4 Data Governance Coordinator

Data Governance Coordinator is general the Chief of Department (Chief Information Office, Chief Finance Office or Chief Organization Office).

Main activities:

- Coordinates and meets regularly the actors with a role in the Governance framework
- Outlines the strategies to guarantee the constant maintenance of the Data Governance crucial assets

5 Data Governance Guideline

It is necessary to define the guidelines for the enforcement of the cross-functional Data Management to activate the Data Governance Standard. Standard covers a wider range of areas, especially refer to the Regulation, Policy and Documentation and to the Data Governance Methodology

5.1 Regulation and Policy

The Data Governance requires that a Data Governance Standard is defined and issued. It defines the roles and responsibilities, the processed and the target data architecture
Regarding the Data Governance Standard it has to be stated clearly who is the owner, how often it is updated, from whom and with which hierarchical level

5.2 Data Governance Methodology

In order to make the understanding of the data base as easy as possible for the functional or technical users, it is necessary to define a “Exhaustive Explaining” taxonomy standardized for every category.

The Data Management can only be efficient and appropriate to the users requirements, if a prompt requirement collection method and database design (conceptual, logical and physical) are performed

6 Key Quality Indicator

Data Quality should be extended from a level of intrinsic quality of data to measuring the efficiency of the Governance processes by establishing Key Quality Indicators.

These are the main analytical dimension:

- Accuracy - Measure the degree of calculated information in respect of expected value
- Compatibility - Check that correlated data referred to distinct archives are not incompatible or inconsistent

- Consistency - Check that correlated data within one archive are not incompatible or inconsistent

- Stability - Check for any significant deviation of the values over time (eg. Significant changes with respect to expected trend)

- Automation Degree -Measure automation degree of procedures identifying those that require manual intervention that could be potentially eliminated (for instance: manual start of the procedure, manual controls, manual data entry)

7 Data Architecture and IT Infrastructure

The data management architecture must be adequate to support the different and specific business needs (e.g. volumes, response time, availability of information).

The identification of data sources that create, update and archive the information and their related ‘owners‘ is essential for Data Management.

Masterdata Management is the tool for the management of information at univocal level ("Single Source Of Truth"). Its use permits to identify and manage the "Golden Record" and who is the data owner, who updates it, who preserves it and who are its user.

The Metadata Management permits a logical and organized management of information about “metadata”.

The management of data security requires the adoption of processes and technologies that prevent the use, viewing, editing, and management of data by unauthorized users and consequently the loss of data in case of incident or crisis situation.

8 Conclusion

The Bank IT System is more complex than the one of a Hospital in terms of number of applications and data calculation (during the day and most of the time during nightime elaboration), but both “structures” need real time, accurate and direct access data *(no matter “where” and “how”)*

The Bank IT System is under Supervisory Authory control (Local and European) for 100 years (Italian Regulatory was founded in 1893). Health Service System uses “best practice” and only in the last 10 years it is starting to discuss “hospital digitalization”

Data Governance metholodolgy could support risk management decisions in order to identify, assess and prioritize risks. An analogue methodology, simplified and tailored to the health system scenario, could support patients to easily access their health condition, doctors to know their patient’s history and disease and, last but not least, health service management to save resources.

Good Data Governance can drive a good decision.