

Results of an assessment of data management maturity of
medium-sized companies per data management capability

DATA MANAGEMENT MATURITY ASSESSMENT REVIEW

2019



DATA
CROSSROADS

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FOREWORD

Data Crossroads prepared a review of the data management (DM) maturity of medium-sized companies. This review is based on the results of the data management maturity survey performed by participants on an anonymous and free basis at datacrossroads.nl. The results were obtained during the period of January–October 2019.

The maturity scan applies the “Orange” data management model developed by Data Crossroads.¹ The general overview of the methodology of maturity assessment can be found in the “Introduction to the “Orange” maturity assessment methodology” chapter. It is recommended that you familiarize yourself with the methodology upfront.

The goals of this review are to:

- Demonstrate the current status of data management among medium-sized companies worldwide
- Assist companies in comparing their performance with peers
- Inform about the available maturity scan that allows assessing your company performance effortlessly and quickly
- Share information about the data management model that will ease implementation of data management at your company.

ABSTRACT

There are a few general conclusions made within this study:

1. 100% of respondents declare having formal data management in place.
2. The analysis shows the distribution of participants per maturity level:

Level 1 (lowest) :	0%
Level 2:	16%
Level 3:	43%
Level 4:	37%
Level 5 (highest):	7%
3. The most developed data management capabilities are a data management framework (data governance) and information systems (data and application) architecture.
4. Less-developed capabilities are the data and information value chain, data modeling, and data quality.
5. Companies put forth great effort into developing data management-related documentation and implementation of tooling. They also have enough resources to move on with data management.
6. Additional attention is required for the implementation and usage of data-related business processes and the delivery of formal artifacts.

The detailed description of the maturity scan and analysis of the results can be found in the main chapters of the review.

BUILDING PRINCIPLES OF THE MATURITY SCAN

TERMINOLOGY

Data management capability (DM capability) is the ability of a company to safeguard data and information resources as well as optimize data and information value chains to ensure the effective conduction of business.

DM capability consists of five sub-capabilities (DM sub-capability) as shown in Figure 1:

- data and information value chain
- data management framework
- data modeling
- information systems architecture
- data quality.

The following dimensions (DMC dimension) enable DM (sub)-capability:

- role
- process
- data
- tools.

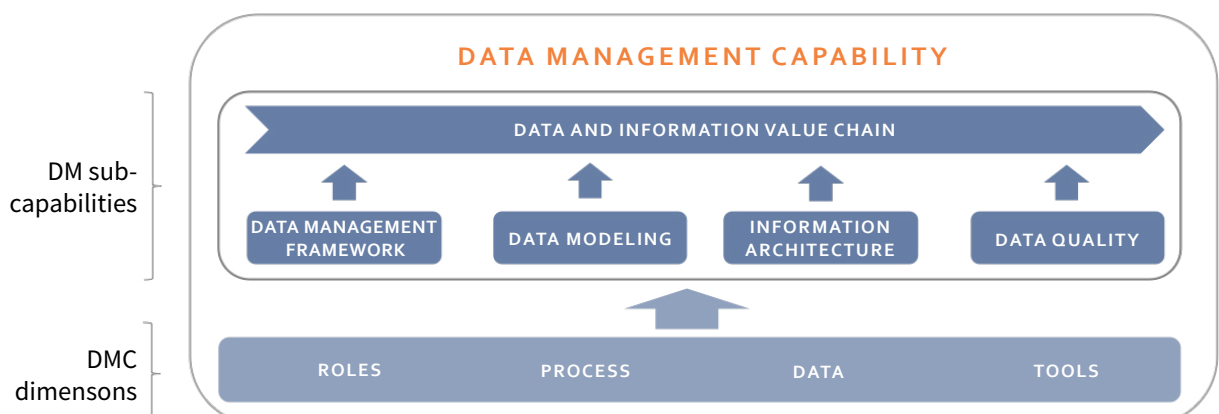


Figure 1. The structure of data management capability.

STRUCTURE OF THE MATURITY SCAN

The scan consists of 20 questions. Each question has five possible answers. Each answer corresponds to one of five maturity levels. Each answer is linked to one of the data management (DM) sub-capability and one of the data-management capability (DMC) dimensions as shown in Figure 2. Such a measurement structure allows measuring maturity levels of DM capability, DM sub-capability, and DMC dimension. Each is measured independently.

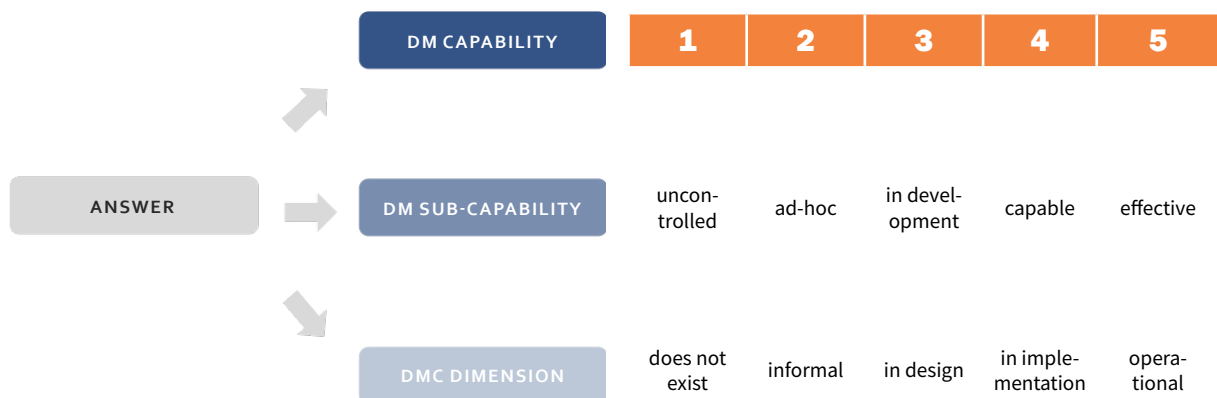


Figure 2. The maturity measurement approach and corresponding levels of maturity.

WHAT DOES THE MATURITY SCAN MEASURE?

The maturity scan allows measuring per participant the maturity level of:

- overall DM capability
The maturity of DM capability allows estimating the overall readiness of a company to safeguard data resources and deliver required information.
- each DM sub-capability
The maturity of DM sub-capabilities demonstrates the level of development of different business functions. For example, data quality and data modeling require different skills and are performed by diverse business functions.
- each DMC dimension
Each DM (sub)-capability requires a set of corresponding roles, processes, tools, deliverables, that are named as “DMC dimensions”. The measurement of maturity of each dimension allows assessing weaknesses in the functioning of a business capability and focusing on its improvement.

MATURITY LEVELS

The “Orange” model considers five levels of maturity. The levels of maturity for DM capability, DM sub-capability, and DMC dimension are measured independently. Therefore, maturity levels get independent names. For example, the maturity of DM capability measures the overall readiness of data management. Therefore, its maturity levels are numbered from one (lowest) to five (highest).

Maturity levels of DM sub-capability employ widely used names for categories of maturity: uncontrolled, ad-hoc, in development, capable, effective.

DMC dimension indicates the status of readiness (i.e., presence of a process or a policy): does not exist, informal, in design, in implementation, operational.

The names of the maturity levels can be reviewed in Figure 2.

PRESENTATION OF RESULTS

The presentation of results elaborates on the independent measurement of maturity levels of DM capability, DM sub-capability, and DMC dimension. It allows identifying dependencies and correlations, for example, between maturity levels of DM capability and DM sub-capabilities.

This review demonstrates the following results:

1. Summary analysis

Summary results present aggregated scores per maturity level of DM capability, DM sub-capability, and DM capability.

2. Analysis per DM sub-capability

This analysis shows the dependencies between maturity levels of DM capability and DM sub-capabilities.

3. Analysis per DMC dimension

This analysis demonstrates the dependencies between maturity levels of DM capability and the aggregated results per DMC dimension.

1 | SUMMARY OF RESULTS

1.1 MATURITY LEVEL OF DATA MANAGEMENT (DM) CAPABILITY OF PARTICIPANTS

Each participant admitted the existence of data management (DM) capability within their company. 16% of participants claimed that DM capability still was at the ad-hoc stage. 77% of companies are at the design or implementation stage. 7% of participants enjoy the fully operational data management function.

The graphical representation of results can be seen in Figure 3.

DISTRIBUTION OF MATURITY LEVELS

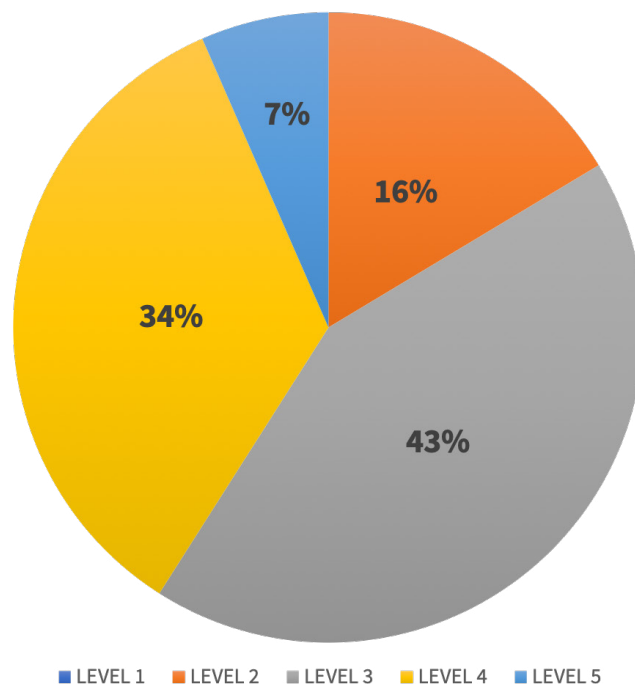


Figure 3. Distribution of DM capability maturity levels among participants.

1.2 THE AVERAGE MATURITY OF EACH DATA MANAGEMENT (DM) SUB-CAPABILITY

As demonstrated in Figure 4, all data management (DM) sub-capabilities are fairly well developed compared to the targeted fifth level.

AVERAGE ACTUAL VS TARGETED MATURITY LEVEL PER DM SUB-CAPABILITY

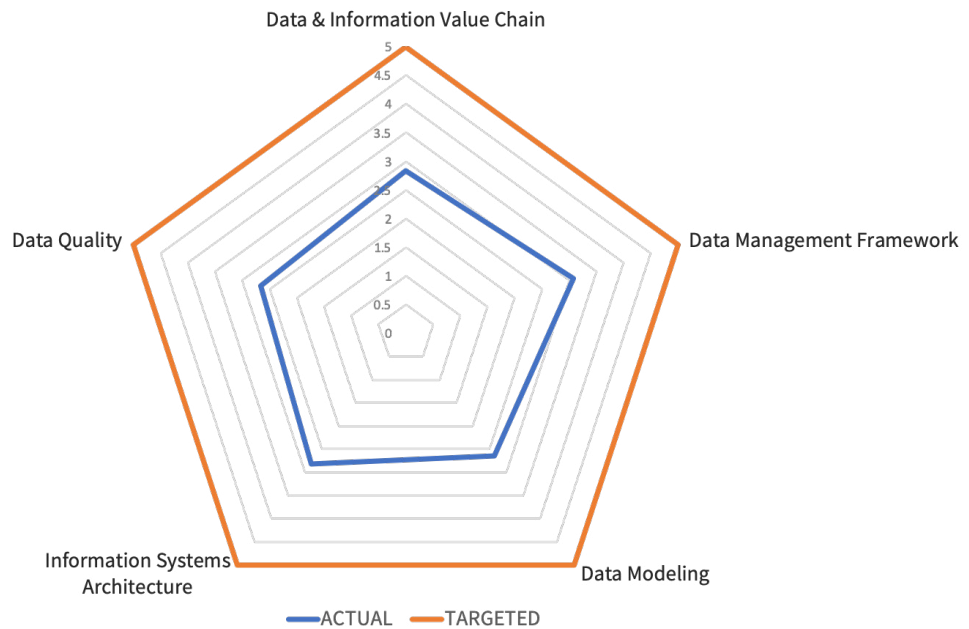


Figure 4. Average actual vs targeted maturity level per DM sub-capability.

More granular analysis demonstrates the advanced development of data management framework and information systems architecture compared to the rest of sub-capabilities as shown in Figure 5.

AVERAGE ACTUAL MATURITY LEVEL PER DATA MANAGEMENT COMPONENT

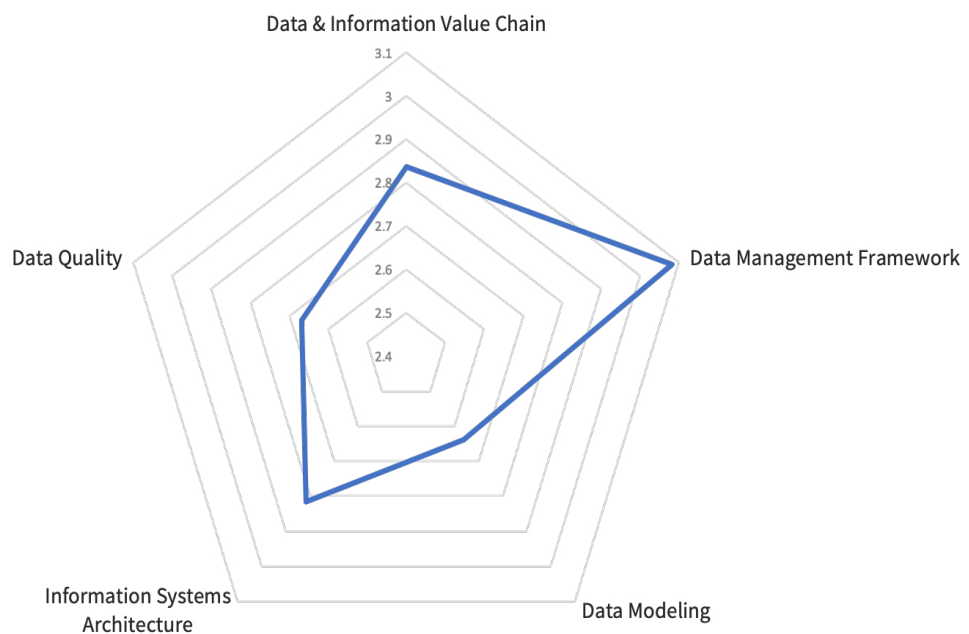


Figure 5. Average actual maturity level per DM sub-capability.

1.3 THE AVERAGE MATURITY OF EACH DATA MANAGEMENT SUB-CAPABILITY (DMC) DIMENSION.

DMC dimensions “role” and “tools” represent organizational roles and tools, as well as resources required for operational activities of data management. The results presented in Figure 6 show that companies have developed organization roles and use tools to support data management. They also possess enough resources like budgets to move on with data management.

Yet, practical implementation of data management expressed in terms of operational processes (“process”) and formal deliverables (“data”) stays behind.

AVERAGE ACTUAL MATURITY LEVEL OF DIMENSIONS OF DATA MANAGEMENT CAPABILITY

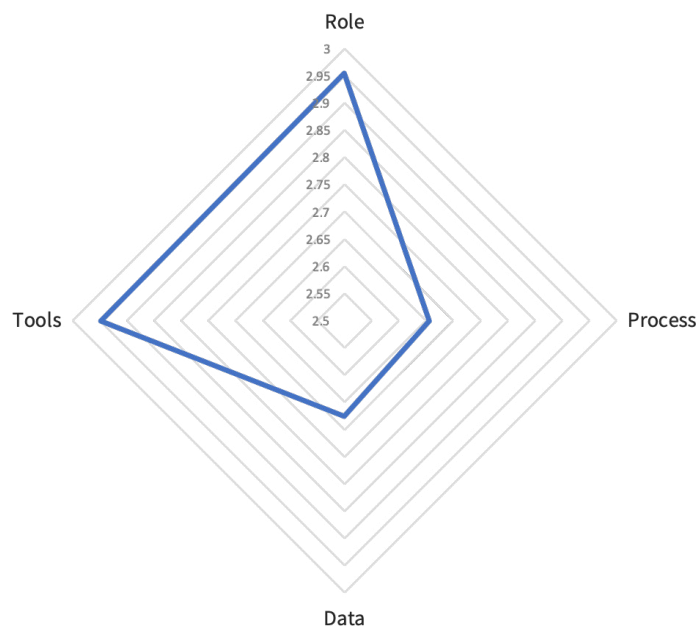


Figure 6. Average actual maturity level per DMC dimension.

2 | ANALYSIS PER DM SUB-CAPABILITY

2.1 DATA AND INFORMATION VALUE CHAIN

Data and information value chain is a set of actions to transform raw data into meaningful information.

The set of indicators measure the data and information value chain maturity. These indicators demonstrate the ability to:

Indicator 1: document data and information chains (data governance tool)

Indicator 2: find and include new data

Indicator 3: follow and explain data transformation

Indicator 4: coordinate the activities of different stakeholders.

2.1.1 DISTRIBUTION OF MATURITY LEVELS

The graphical representation of the distribution of maturity levels of data and information value chain can be viewed in Figure 7.

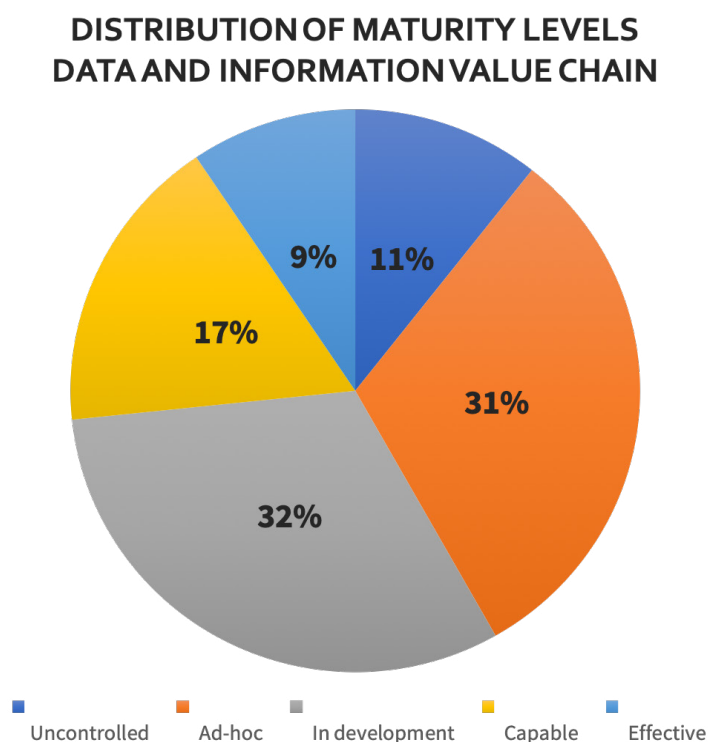


Figure 7. Distribution of maturity levels of the data and information value chain.

The situation with the maturity of data and information value chain looks less optimistic than the overall maturity of data management (DM) capability shown in Figure 3. A lot of companies experience difficulties with data availability and delivery.

42% of companies can hardly manage the situation with data transformation. They have data and information value chain at the levels “uncontrolled” and “ad-hoc”. 32% of companies are at the stage of development. Only 22% can manage the value chain. Their maturity levels are “capable” and “effective”.

2.1.2 RELATIONSHIPS BETWEEN MATURITY LEVELS OF DM CAPABILITY AND DATA AND INFORMATION VALUE CHAIN

Below in Figure 8, the distribution of maturity of data and information value chain per DM capability maturity level is presented.

The higher maturity level of DM capability, the higher the maturity level of the data and information value chain. For example, the major part of Level 4 companies have reached three highest maturity levels of data and information value chain.

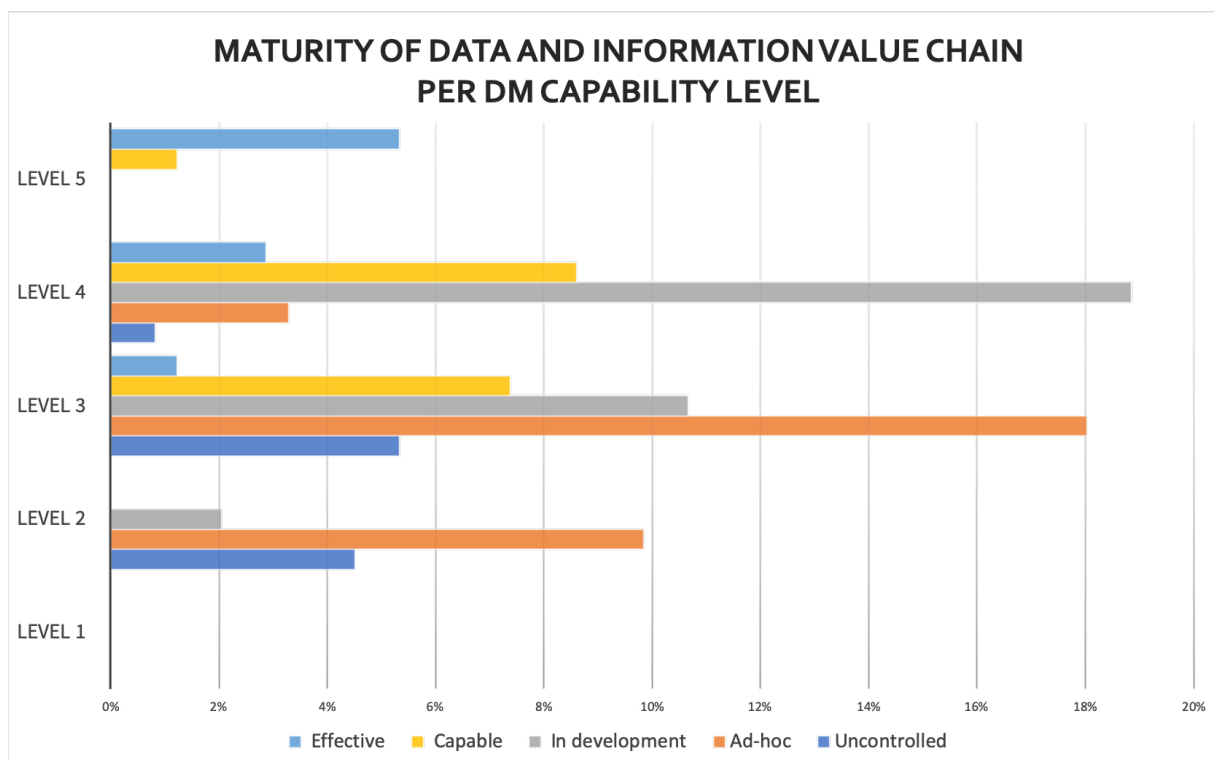


Figure 8. Maturity of data and information value chain per DM capability maturity level.

2.1.3. RELATIONSHIPS BETWEEN MATURITY LEVELS OF DM CAPABILITY AND INDICATORS

Distribution of the maturity level per each indicator mentioned above can be seen in Figures 9,10,11,12 correspondingly.

INDICATOR 1: TOOLS TO DOCUMENT DATA AND INFORMATION VALUE CHAIN

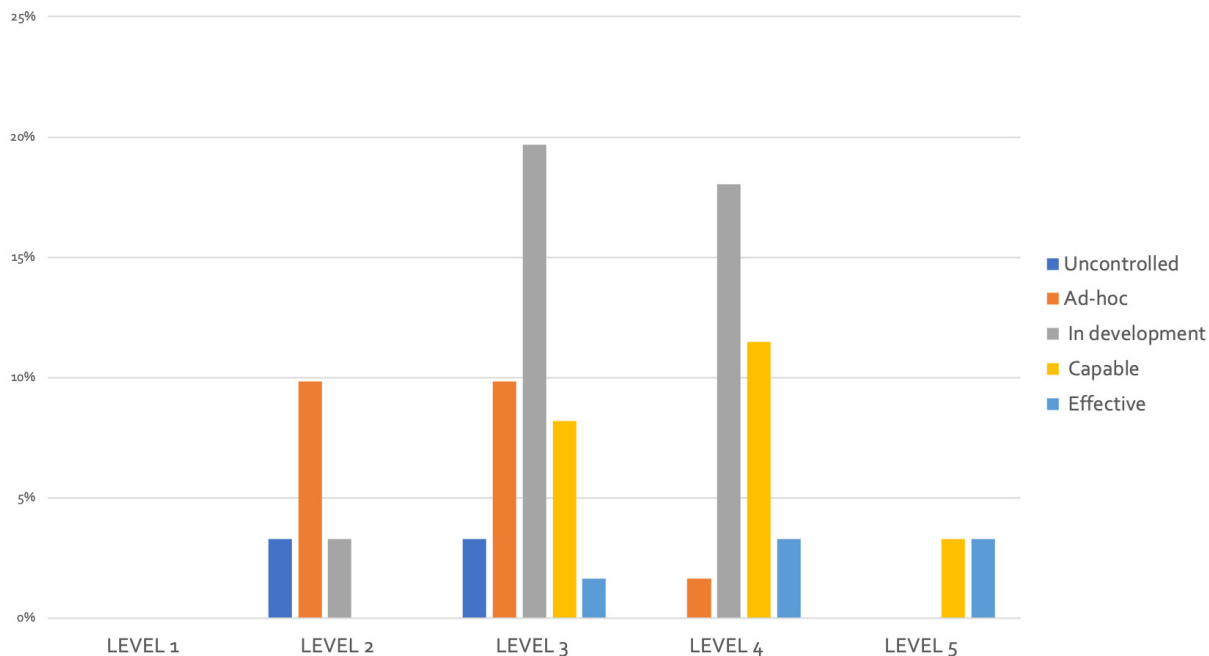


Figure 9. Maturity levels of tools to document data and information value chain.

INDICATOR 2: ABILITY TO FIND AND INCLUDE NEW DATA

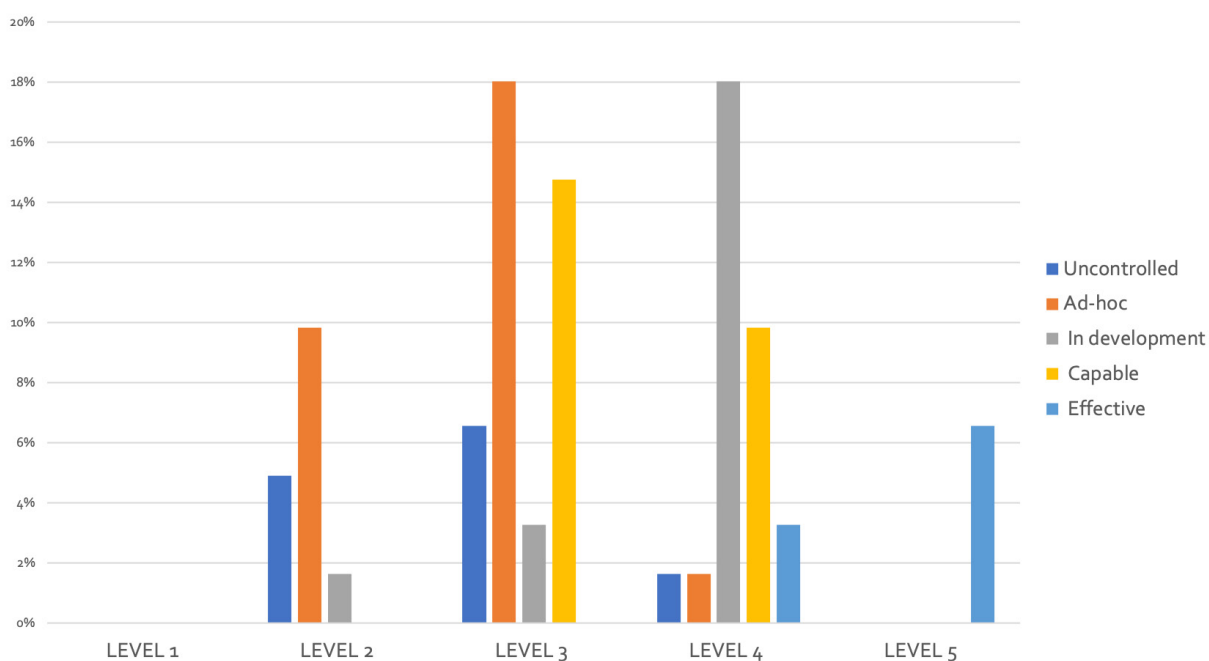


Figure 10. Maturity levels of the ability to find and include new data.

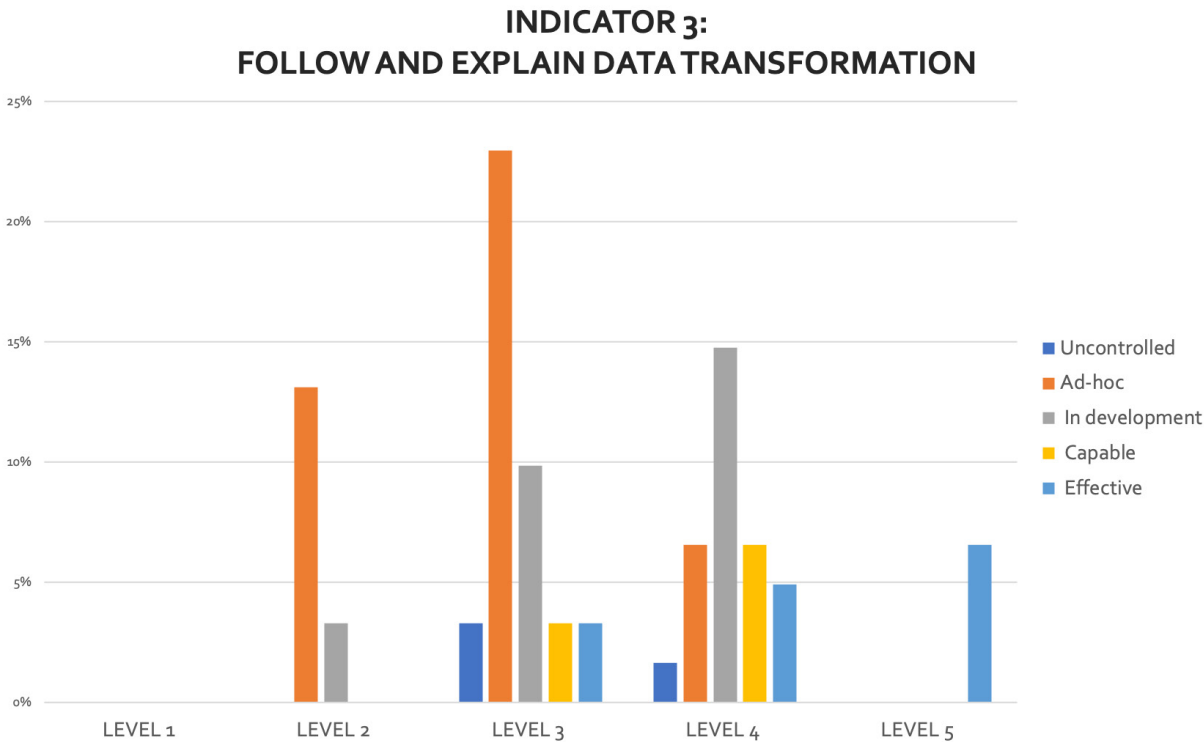


Figure 11: Maturity levels with the ability to follow and explain data transformation.

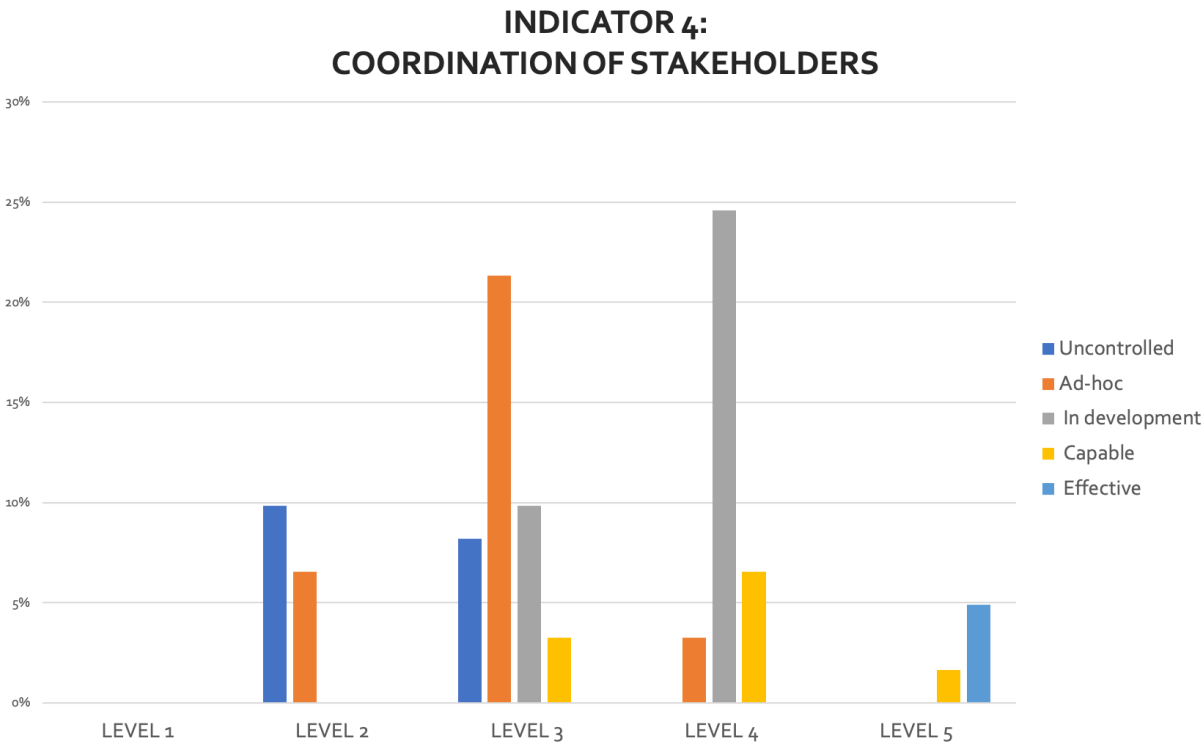


Figure 12: Maturity levels with the ability to coordinate activities of data management stakeholders.

2.2 DATA MANAGEMENT FRAMEWORK

The data management framework is a business capability that delivers the structure in which all other data management sub-capabilities operate². Rules (strategy, policy, process, etc.) and roles are the core components of the framework.

The set of indicators measure the data management framework maturity. These indicators demonstrate the ability to have:

Indicator 5: a data management function in place

Indicator 6: an information/data policy and -processes in place

Indicator 7: a dedicated budget for data management initiatives

Indicator 8: awareness and support of the top management.

2.2.1 DISTRIBUTION OF MATURITY LEVELS

The graphical representation of the distribution of average maturity of the data management framework per maturity level can be viewed in Figure 13.

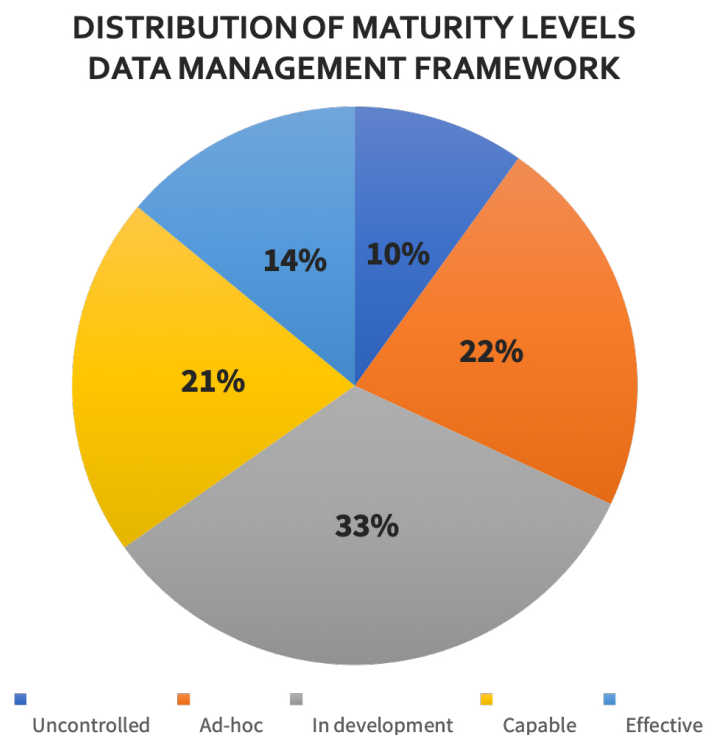


Figure 13: The distribution of maturity levels of the "data management framework".

Surprisingly enough, 10% of respondents have no data management framework in place. The analysis of the general maturity of data management (DM) capability did not rank any company with such a low level of maturity.

32% of companies either can hardly manage the situation or manage it on the ad-hoc

level. 33% of companies are only in the “development” stage. Good enough that 35% have this capability in place. Statuses “capable” and “effective” indicate it.

2.2.2. RELATIONSHIPS BETWEEN MATURITY LEVELS OF DM CAPABILITY AND DATA MANAGEMENT FRAMEWORK

Below in Figure 14 you can see the distribution of maturity of data management framework per DM capability maturity level.

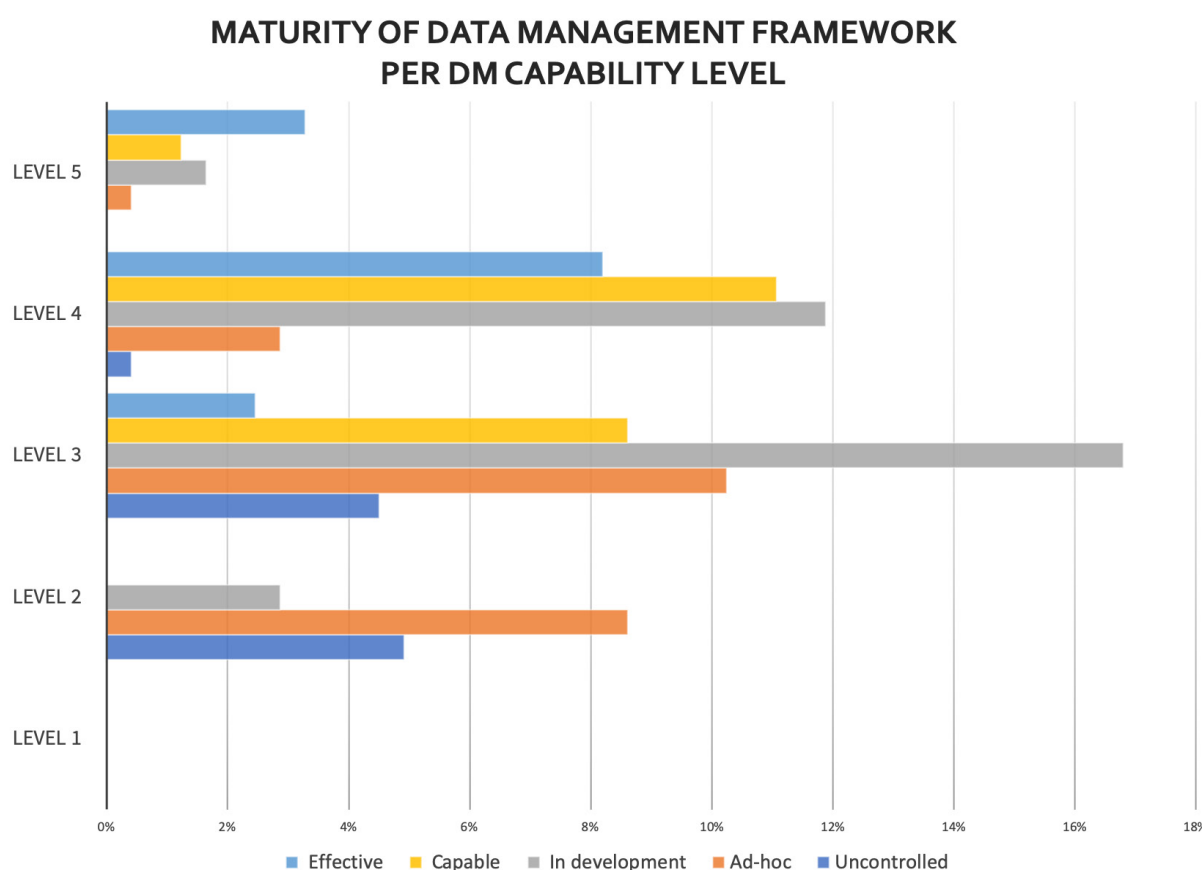


Figure 14: Maturity of data management framework per DM capability maturity level.

There are some warring results regarding the “uncontrolled” level of maturity. Even some Level 3 companies have no data management framework in place. The positive result is that a lot of Level 4 companies have reached the highest “effective” status of the data management framework.

2.2.3. RELATIONSHIPS BETWEEN MATURITY LEVELS OF DM CAPABILITY AND INDICATORS

The distribution of the maturity level per each indicator mentioned above can be seen in Figures 15,16,17,18 correspondingly.

INDICATOR 5: DATA MANAGEMENT FUNCTION IN PLACE

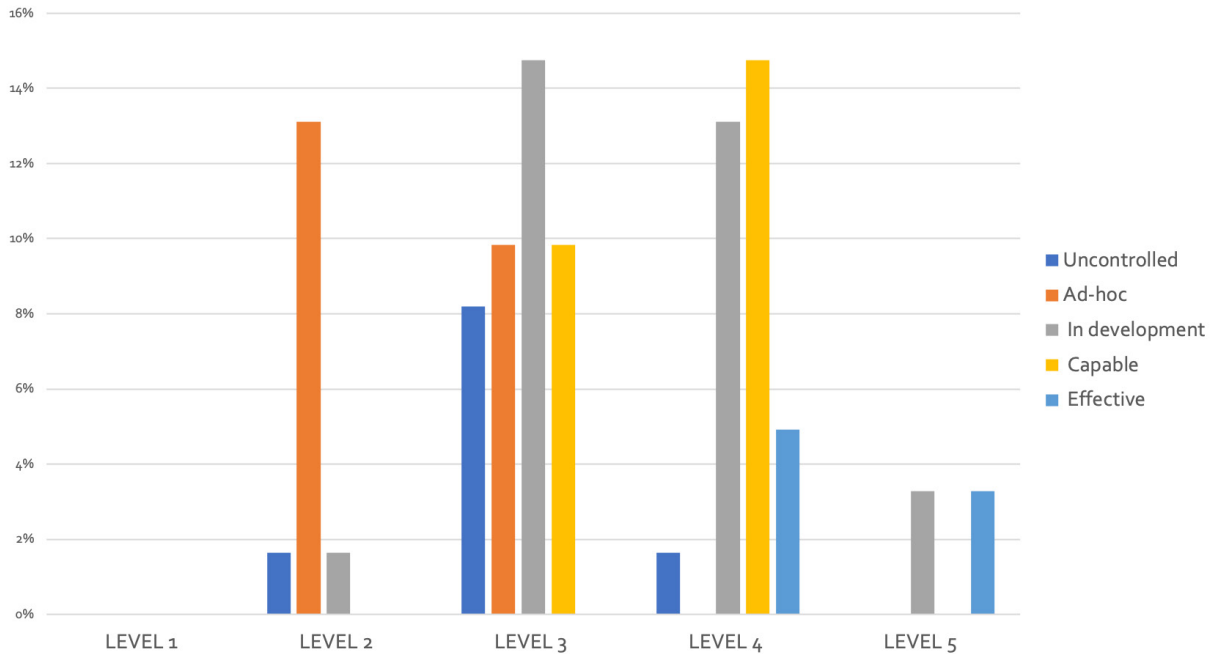


Figure 15: Maturity levels of the presence of data management function.

INDICATOR 6: INFORMATION/DATA POLICY AND -PROCESSES

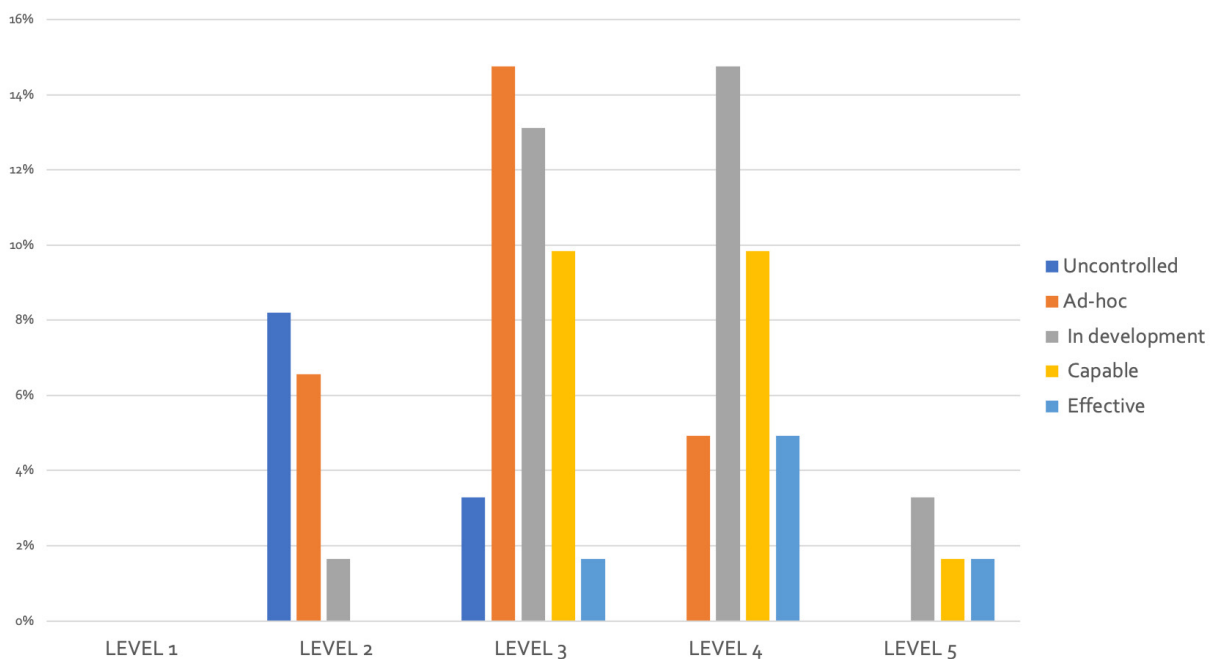


Figure 16: Maturity levels of the presence of an information/data policy and processes.

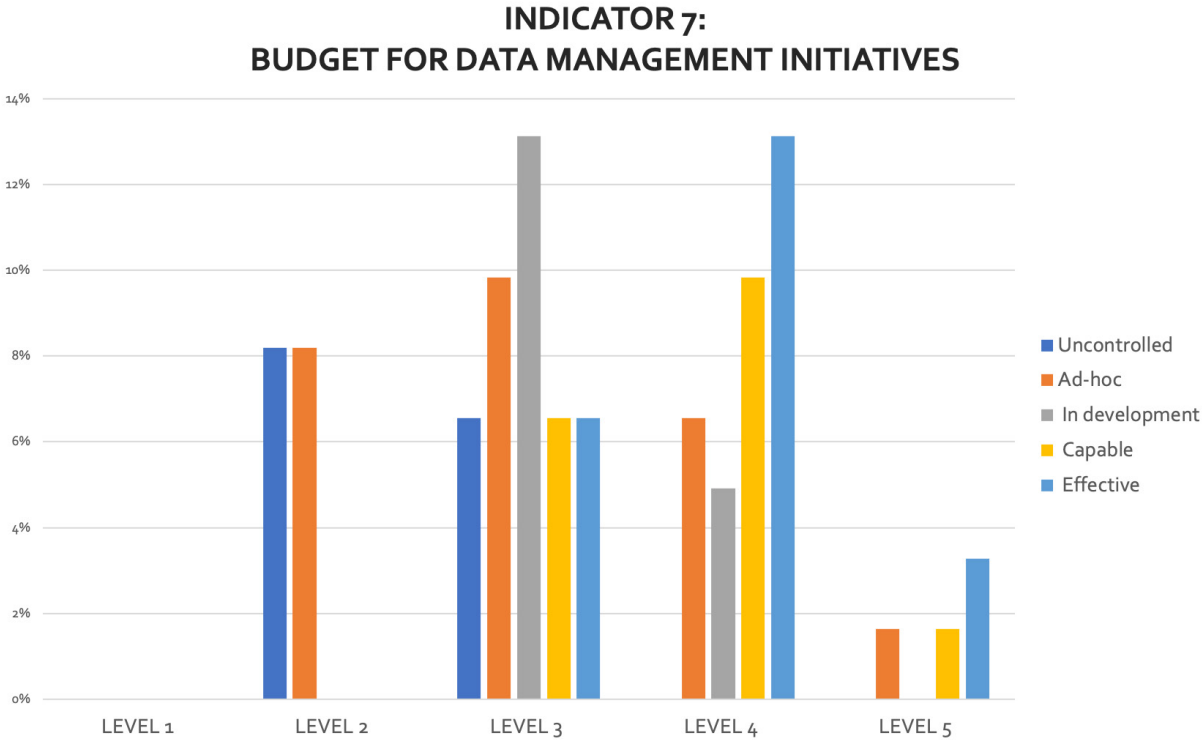


Figure 17: Maturity levels of the presence of a budget for data management initiatives.

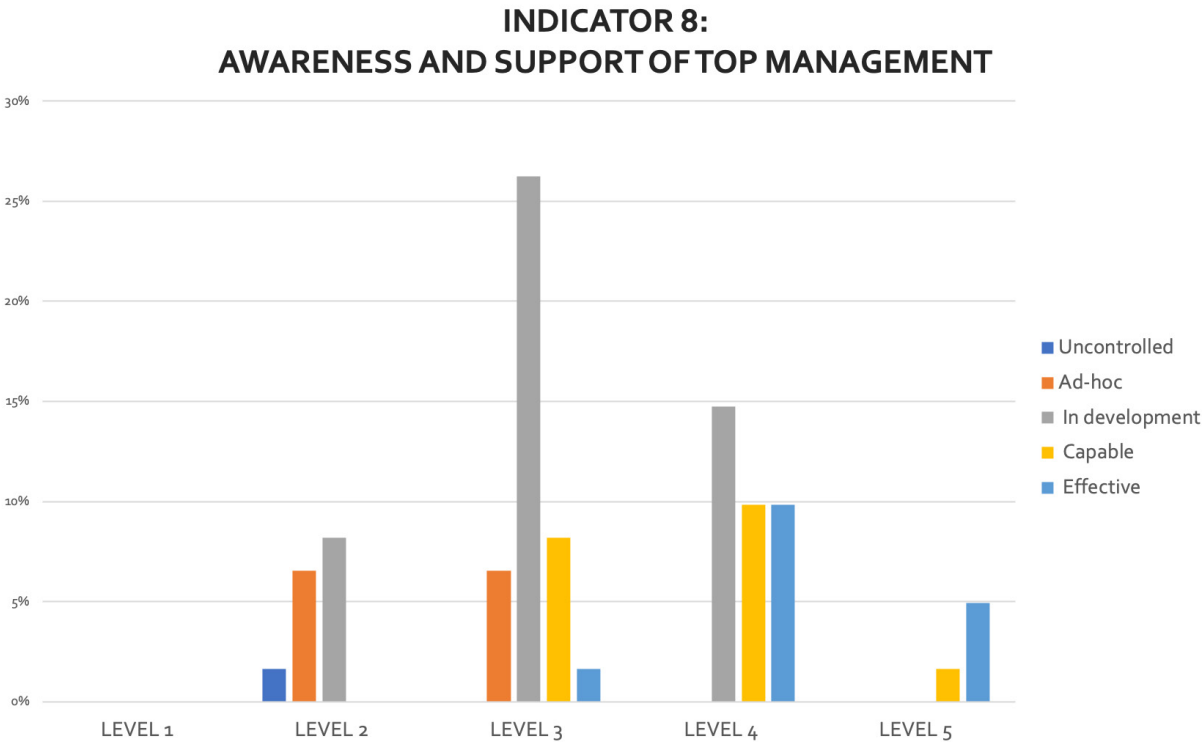


Figure 18: Maturity levels of the presence of awareness and support of top management.

2.3 DATA MODELING

Data modeling is a business capability that delivers data models ‘[...] a) to define and analyze data requirements, b) design logical and physical structures that support these requirements, and c) define business and technical meta-data’³.

The set of indicators measure data modeling maturity. These indicators demonstrate the presence of:

Indicator 9: a business glossary

Indicator 10: data models

Indicator 11: documented information and data requirements

Indicator 12: specified critical data.

2.3.1 DISTRIBUTION OF MATURITY LEVELS

The graphical representation of the average maturity of the data modeling can be viewed in Figure 19.

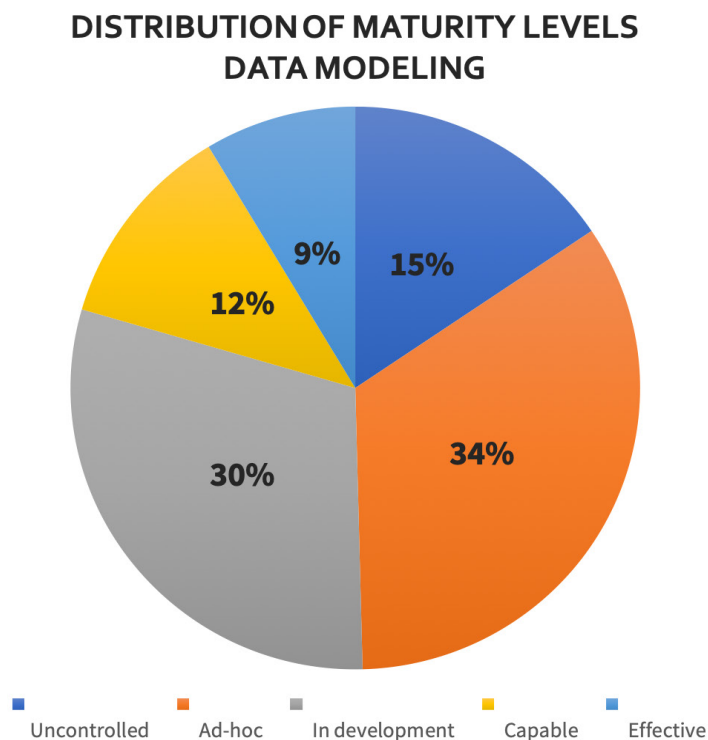


Figure 19: The distribution of maturity levels of data modeling.

49% of all respondents have either no such sub-capability or perform it on an “ad-hoc” basis. 30% of respondents have data modeling “in development”. Only by 21% of companies this data management (DM) sub-capability operates.

2.3.2. RELATIONSHIPS BETWEEN MATURITY LEVELS OF DM CAPABILITY AND DATA MODELING

Below in Figure 20 you can see the distribution of maturity of data modeling per data management (DM) capability maturity level.

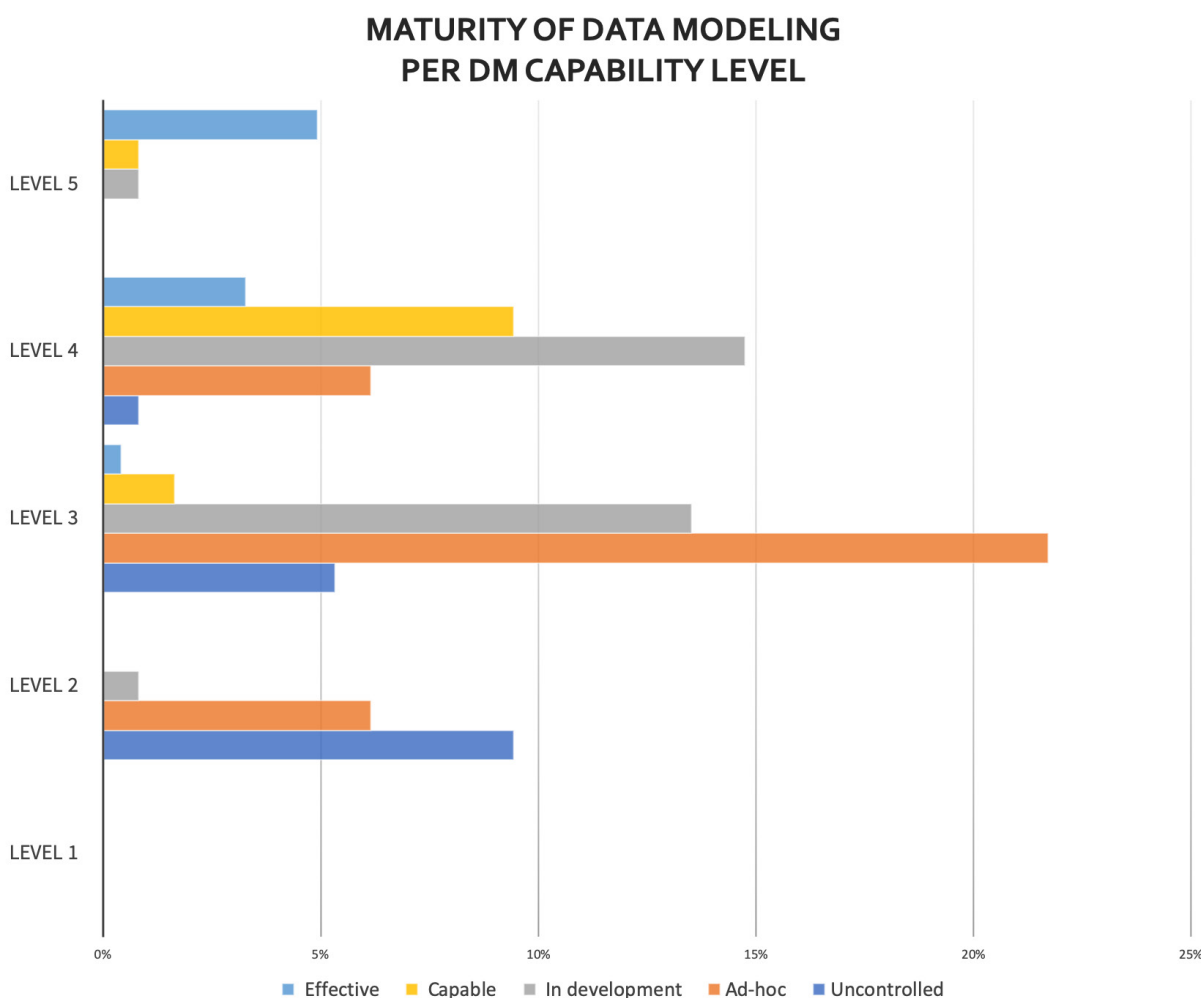


Figure 20: Maturity of data modeling per DM capability maturity level.

The dependency between the maturity level of data modeling and DM capability maturity level is logical. For example, the “uncontrolled” level of the sub-capability is the highest by Level 2 companies. Then it drops by Level 3 and Level 4. Level 4 and Level 5 companies claimed to achieve the highest “effective” level of data modeling.

2.3.3. RELATIONSHIPS BETWEEN MATURITY LEVELS OF DM CAPABILITY AND INDICATORS

The distribution of the maturity level per each indicator mentioned above can be seen in Figures 21,22,23,24 correspondingly.

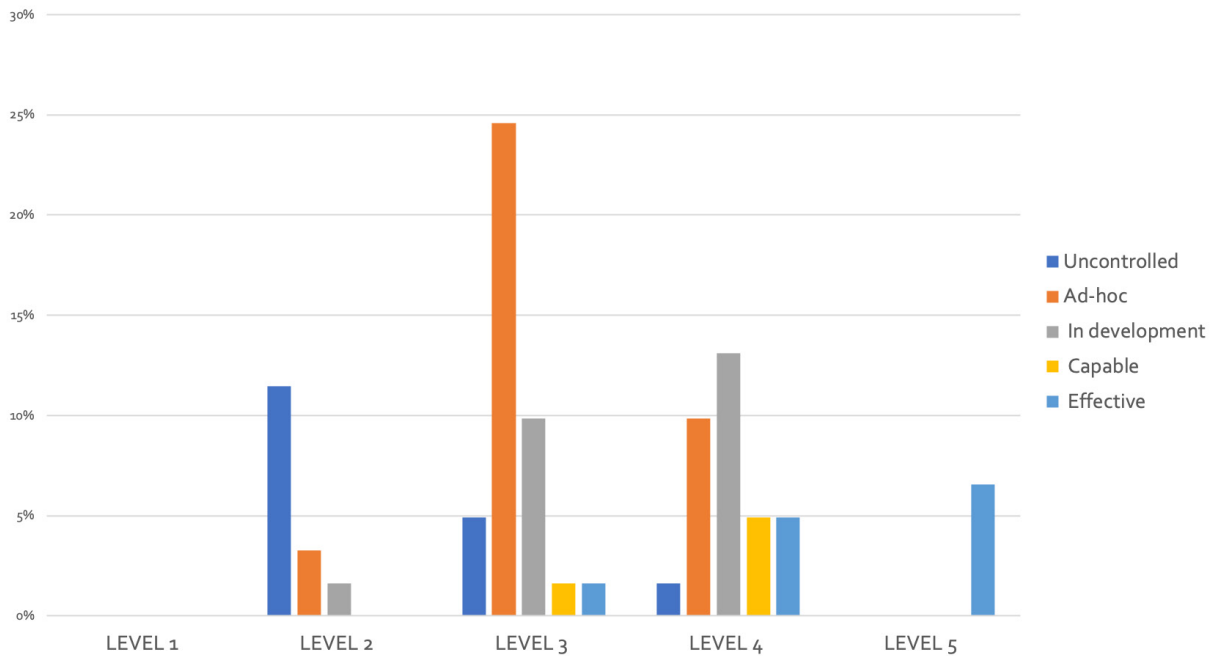
**INDICATOR 9:
BUSINESS GLOSSARY**

Figure 21: Maturity levels of the presence of a business glossary.

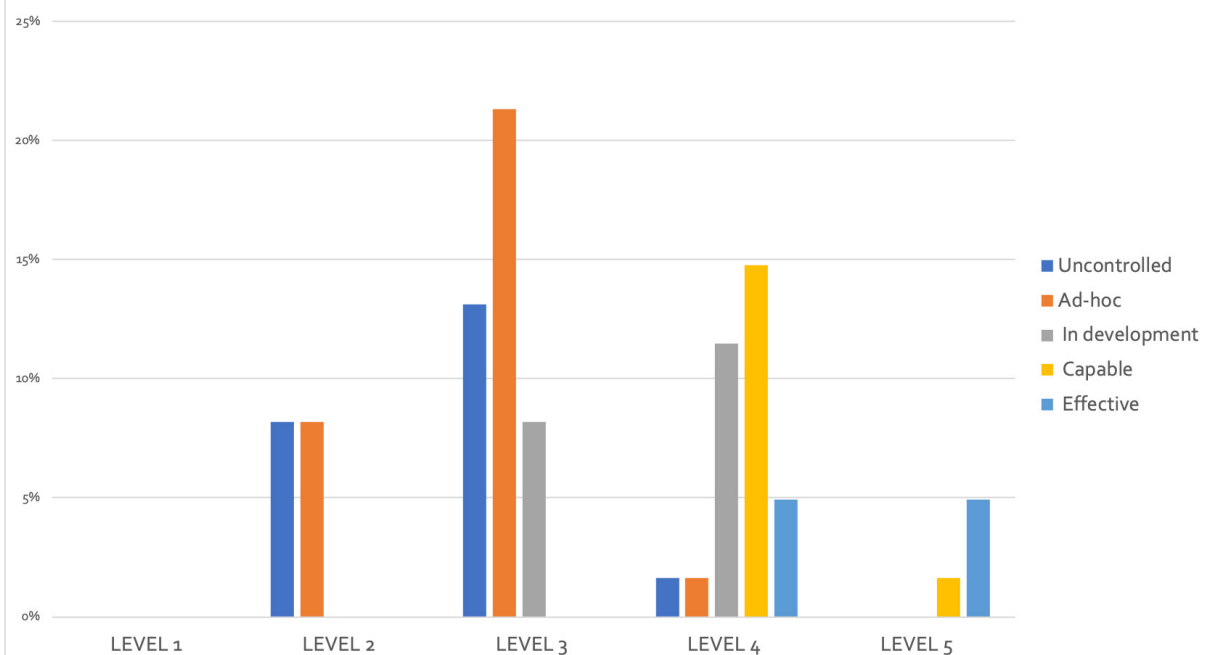
**INDICATOR 10:
DATA MODELS**

Figure 22: Maturity levels of the presence of data models.

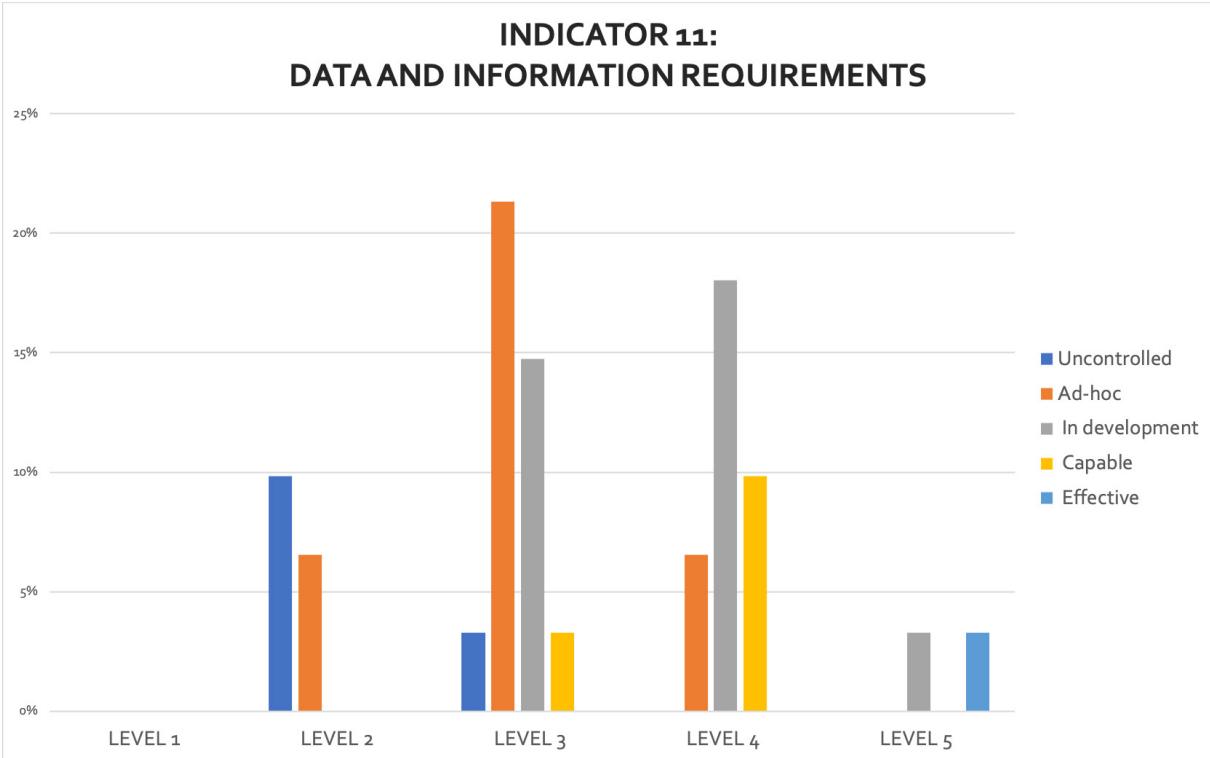


Figure 23: Maturity levels of the presence of documented data and information requirements.

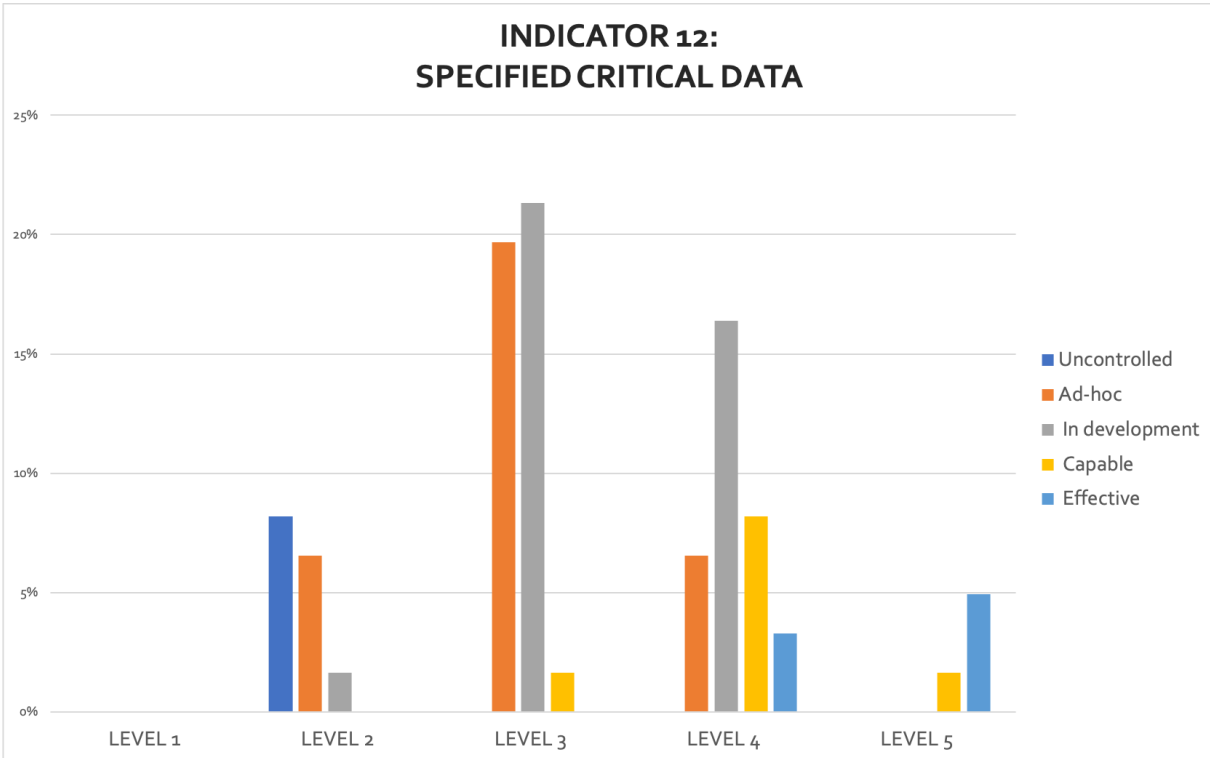


Figure 24: Maturity levels of the presence of specified critical data.

2.4 INFORMATION SYSTEMS ARCHITECTURE

Information systems architecture in the context of the “Orange” model is a business capability that ensures deliverables of data and application architecture required for designing data and information value chain.

The set of indicators measure the information systems architecture. These indicators demonstrate the presence of:

Indicator 13: optimized reporting practices

Indicator 14: optimized application architecture

Indicator 15: master and reference data management

Indicator 16: enterprise architecture function.

2.4.1 DISTRIBUTION OF MATURITY LEVELS

The graphical representation of the average maturity of the data modeling can be viewed in Figure 25.

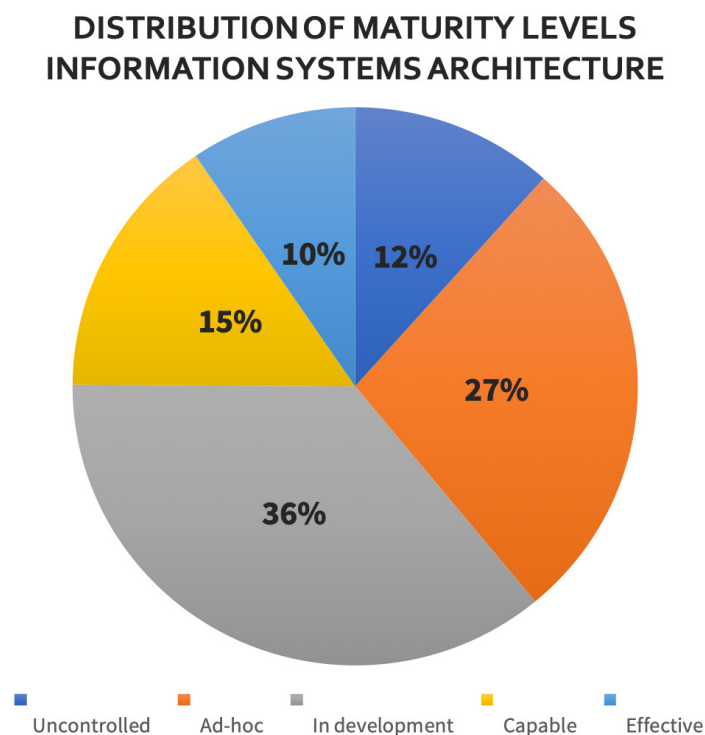


Figure 25: Distribution of maturity levels of the information systems architecture.

39% of all respondents have either no such a data management (DM) sub-capability or apply it on an “ad-hoc” basis. 51% of respondents have data modeling either “in development” or at “capable” level. 10% of companies enjoy having this DM sub-capability on board having the level “effective”. The results for the information systems architecture look better than for data modeling. These figures reflect the real situation. A lot of medium-sized companies

established the data and application architecture functions.

2.4.2. RELATIONSHIPS BETWEEN MATURITY LEVELS OF DM CAPABILITY AND INFORMATION SYSTEMS ARCHITECTURE

Below in Figure 26, you can see the distribution of maturity of information systems architecture per DM capability maturity level.

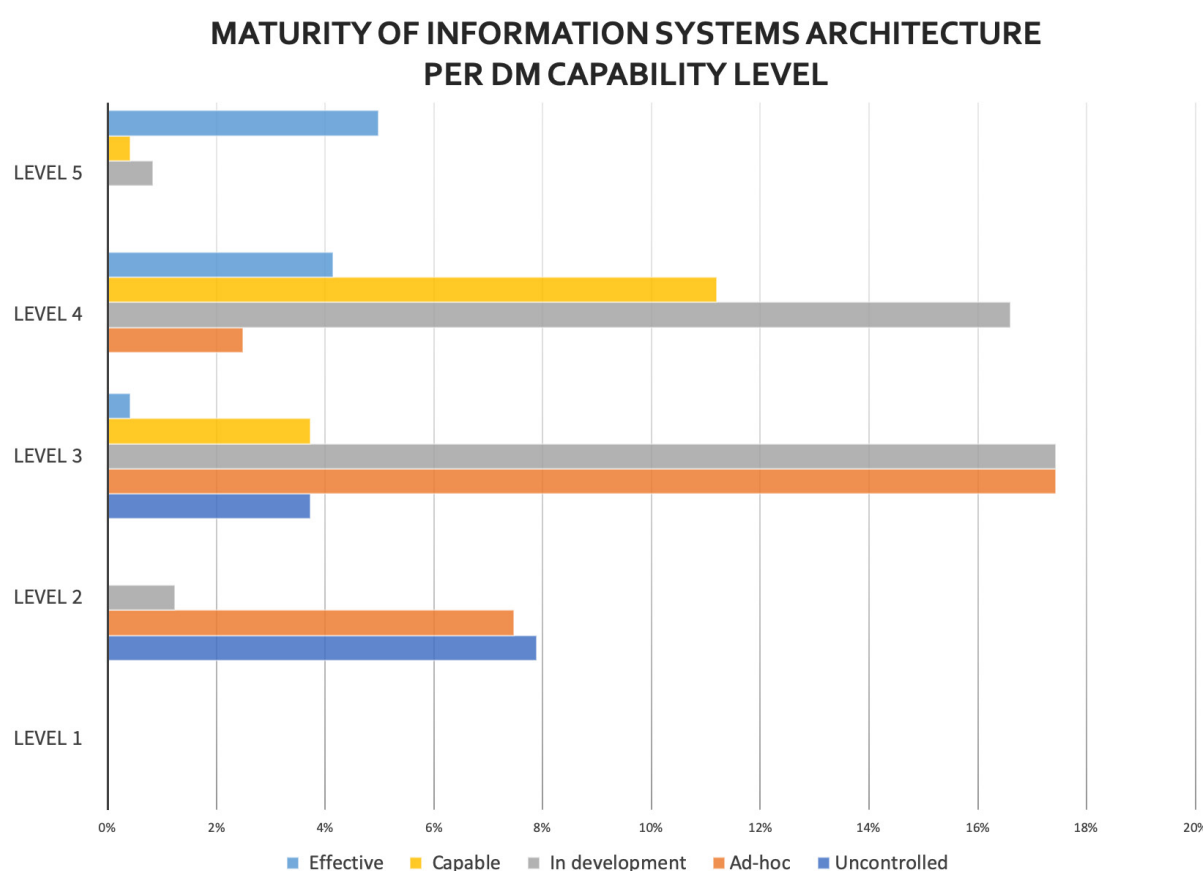


Figure 26: Maturity of information systems architecture per DM capability maturity level.

The dependency between the maturity level of information systems architecture and corresponding DM capability maturity levels follows the general trend: the higher maturity level of DM capability the higher the level of the sub-capability. There are two notable facts. First, a lot of Level 4 companies have this sub-capability at the “in development” status. Second, a lot of Level 2 companies still do not have this capability at all.

2.4.3. RELATIONSHIPS BETWEEN MATURITY LEVELS OF DM CAPABILITY AND INDICATORS

The distribution of the maturity level per each indicator mentioned above can be seen in Figures 27,28,29,30 correspondingly.

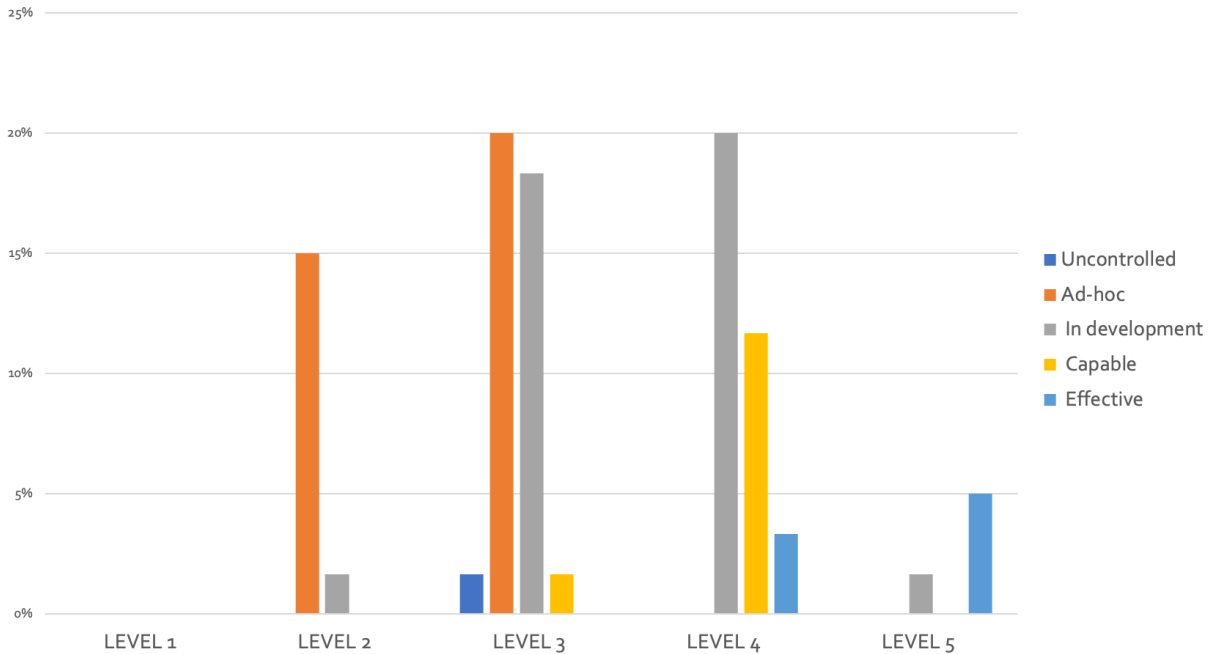
**INDICATOR 13:
OPTIMIZED REPORTING PRACTICES**

Figure 27: Maturity levels of the presence of optimized reporting practices.

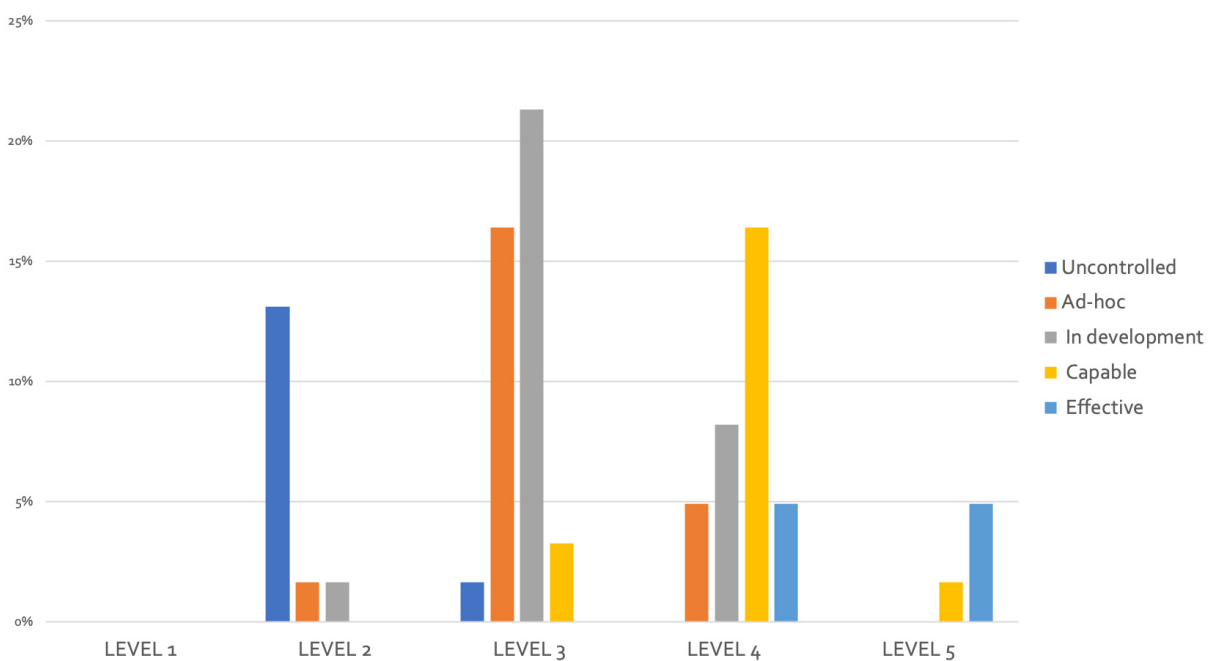
**INDICATOR 14:
OPTIMIZED APPLICATION ARCHITECTURE**

Figure 28: Maturity levels of the presence of optimized application architecture.

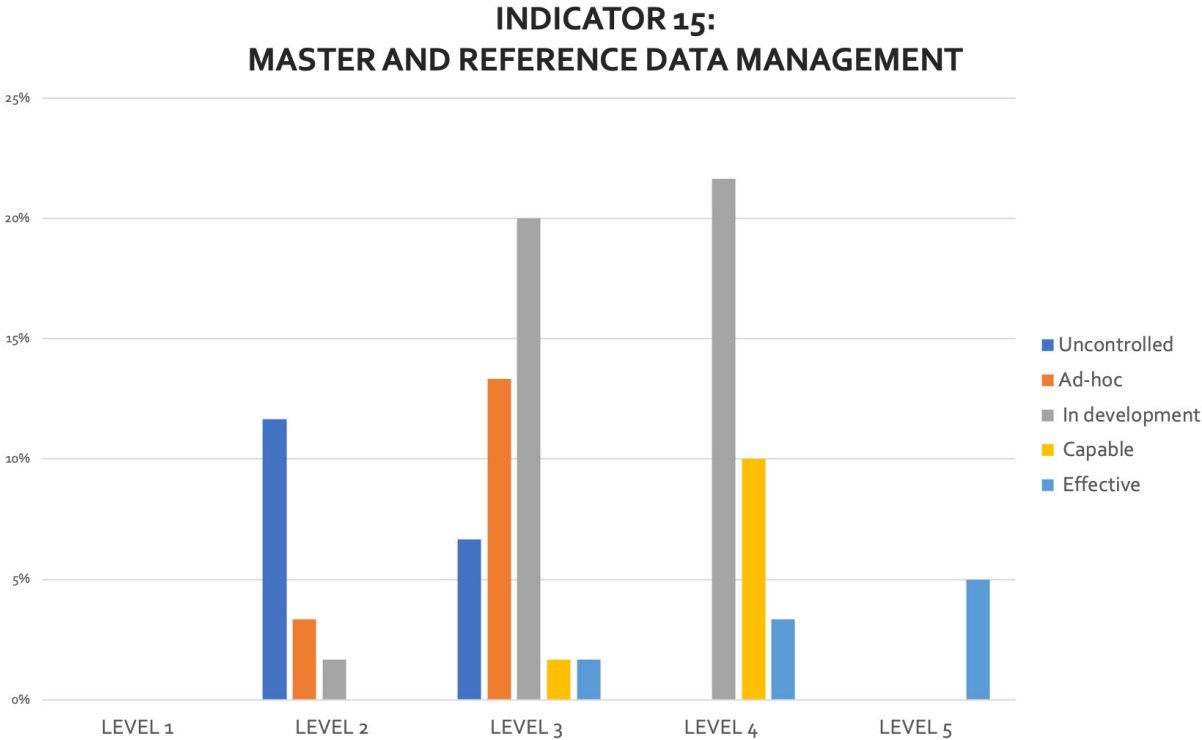


Figure 29: Maturity levels of the presence of master and reference data management.

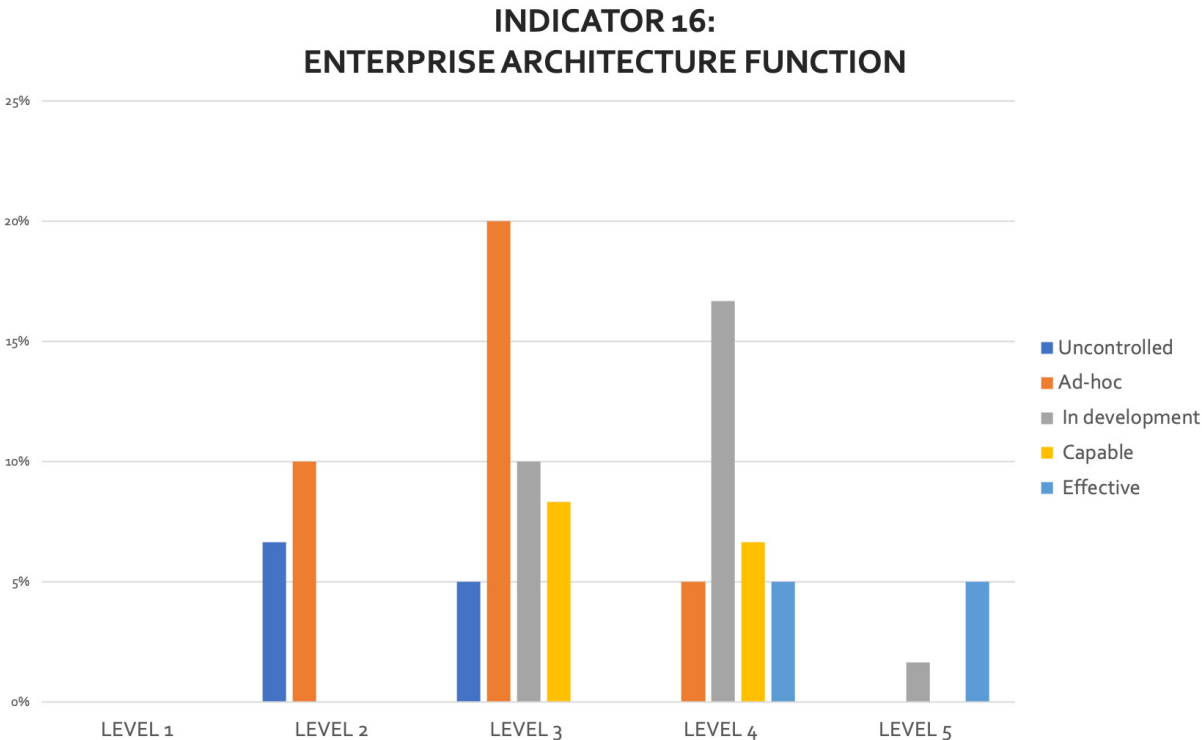


Figure 30: Maturity levels of the presence of enterprise architecture function.

2.5 DATA QUALITY

Data quality is a business capability that enables the delivery of data and information of the required quality.

The set of indicators measure data quality maturity. These indicators demonstrate the presence of:

Indicator 17: Information for decision-making

Indicator 18: On-time data and information delivery

Indicator 19: Data at the required level of quality

Indicator 20: Operational data quality roles and processes.

2.5.1 DISTRIBUTION OF MATURITY LEVELS

The graphical representation of the average maturity of the data quality data management (DM) sub-capability can be viewed in Figure 31.

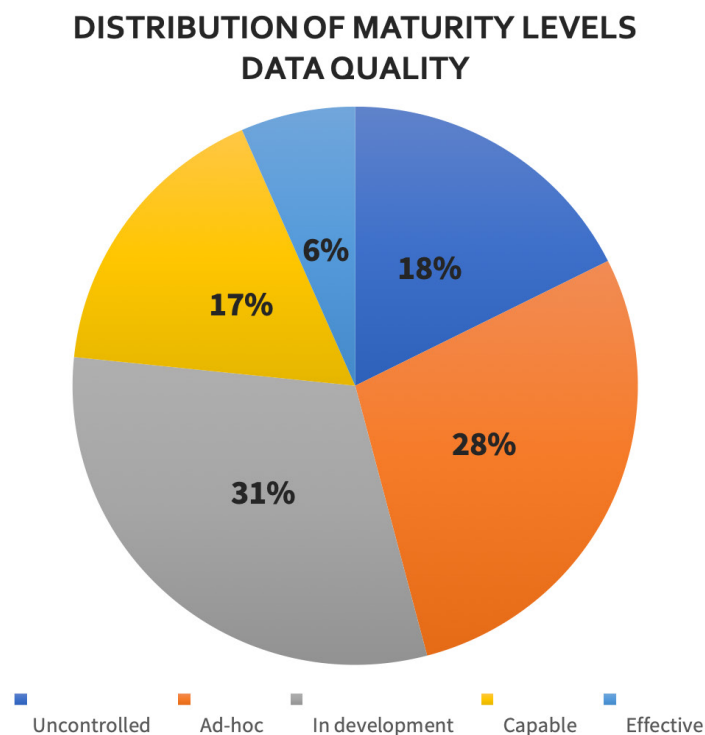


Figure 31: Distribution of maturity levels of data quality.

Notably enough, the data quality has the highest percentage of the “uncontrolled” level amongst other sub-capabilities. The rate reaches 31%. The same observation applies to the “effective” level. This is the lowest percentage among all other sub-capabilities. 48% of participants reached the third and fourth levels of maturity. These results prove the conclusion made earlier: a lot of companies have set up a data management framework and have resources, but their data management function is not fully operational yet.

2.5.2. RELATIONSHIPS BETWEEN MATURITY LEVELS OF DM CAPABILITY AND DATA QUALITY

Below in Figure 32, you can see the distribution of maturity of data quality per data management (DM) capability maturity level.

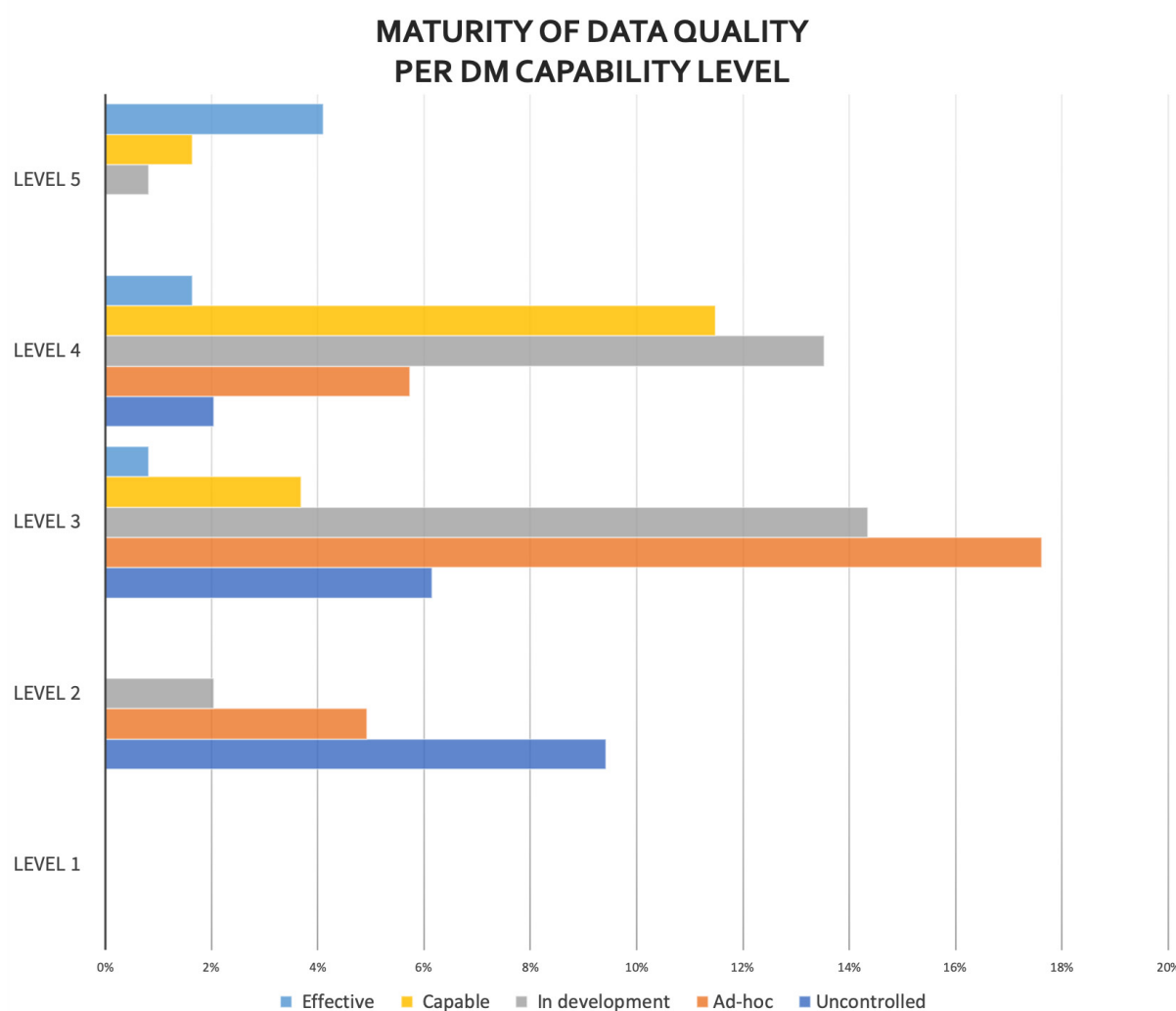


Figure 32: Maturity of data quality per DM capability maturity level.

The dependencies between DM capabilities levels and maturity of data quality prove that development of data quality stands behind the development of other sub-capabilities. For example, Level 3 and Level 4 companies still demonstrate “uncontrolled” level of data quality sub-capability.

2.5.3. RELATIONSHIPS BETWEEN MATURITY LEVELS OF DM CAPABILITY AND INDICATORS

The distribution of the maturity level per each indicator mentioned above can be seen in Figures 33, 34, 35, and 36, correspondingly.

INDICATOR 17: INFORMATION FOR DECISION-MAKING

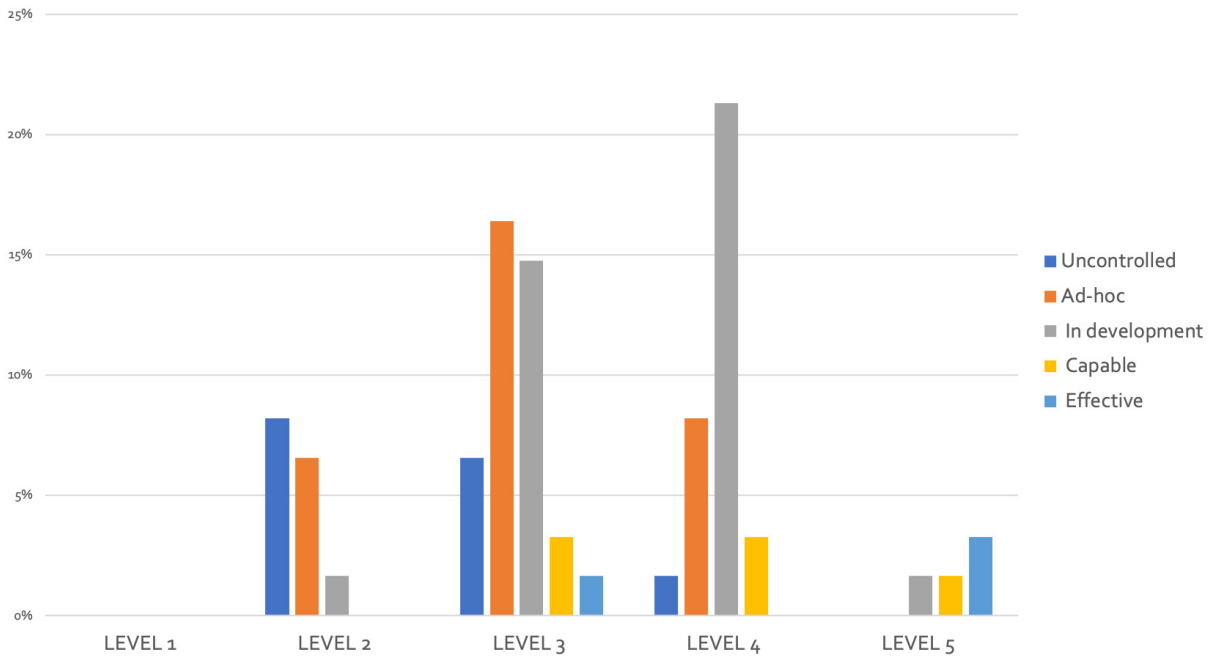


Figure 33: Maturity levels of the availability of information for decision-making.

INDICATOR 18: ON-TIME DATA AND INFORMATION DELIVERY

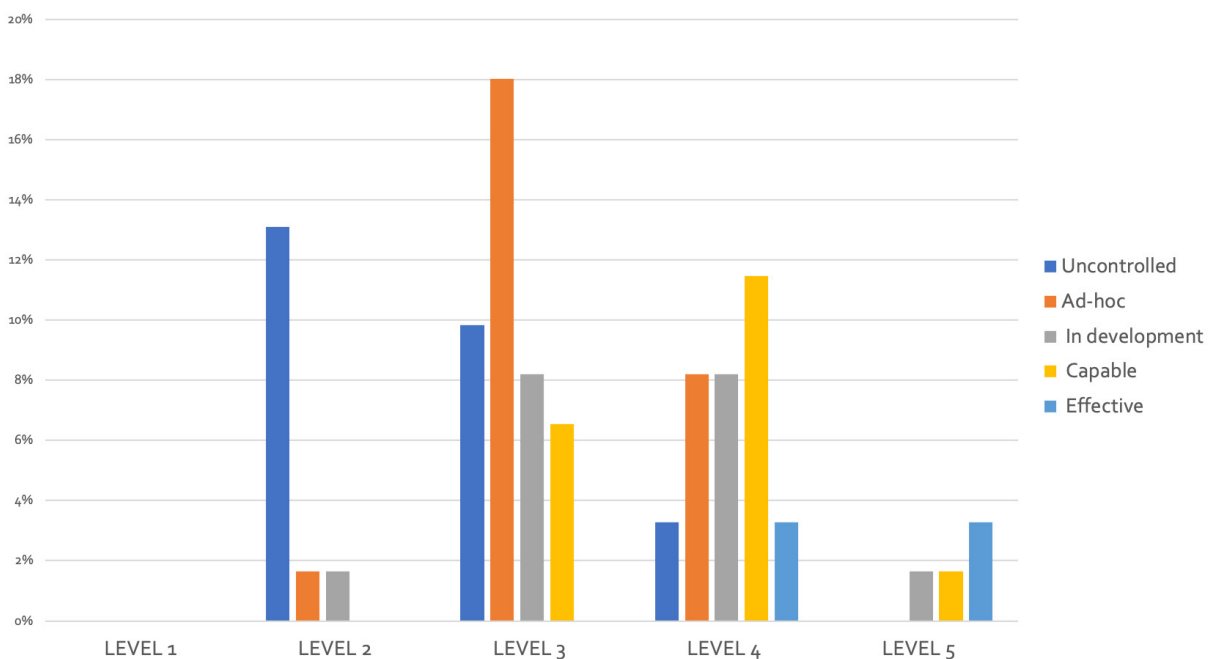


Figure 34: Maturity levels of the availability of on-time data and information delivery.

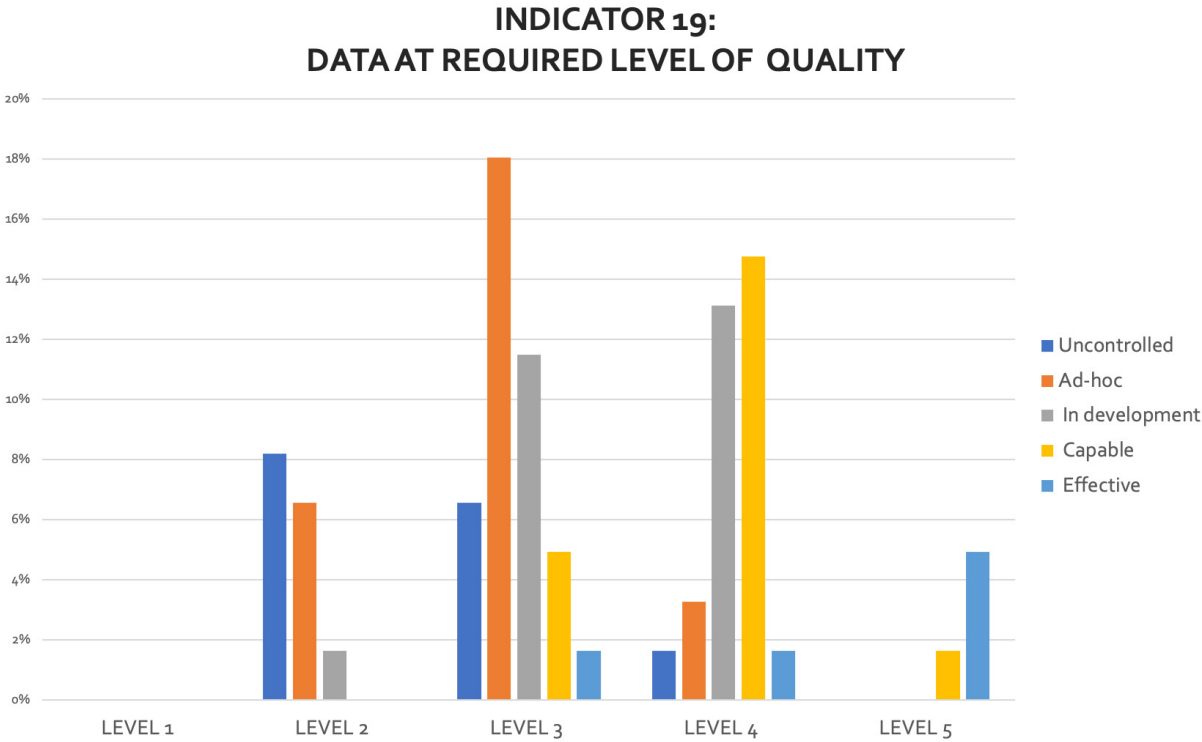


Figure 35: Maturity levels of the availability of data at required level of quality.

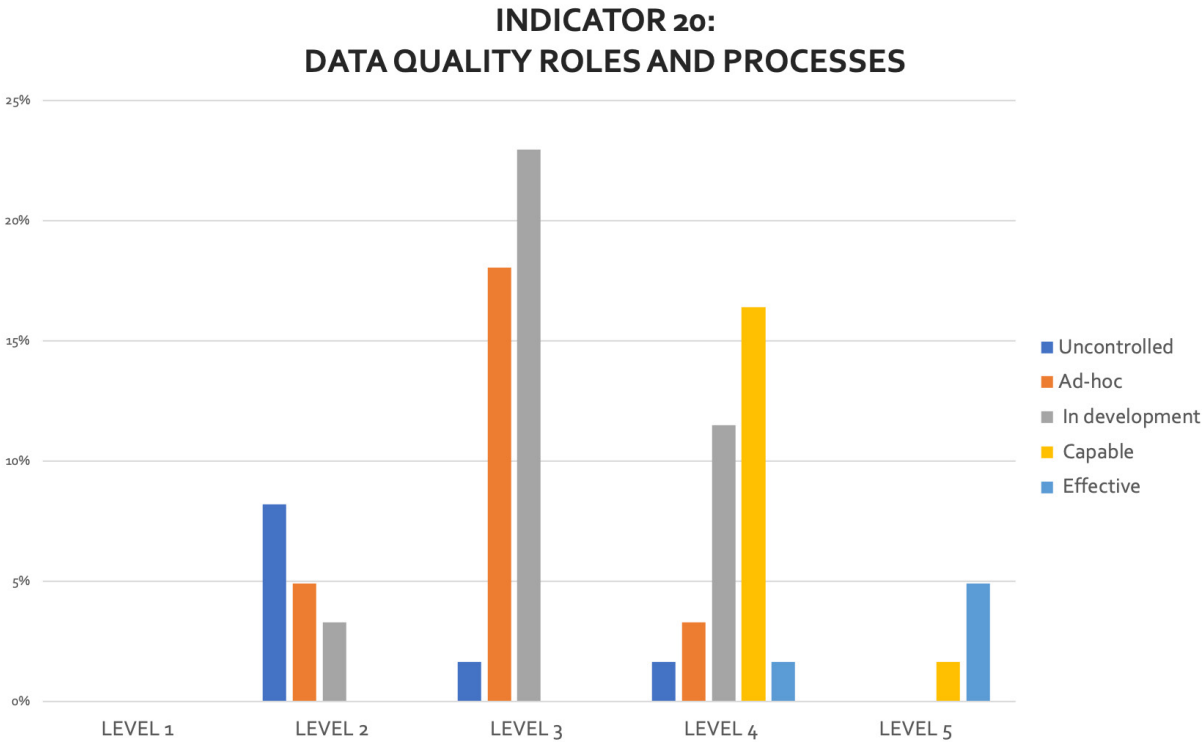


Figure 36: Maturity levels of the availability of data quality roles and processes.

3

ANALYSIS PER DATA MANAGEMENT SUB-CAPABILITY (DMC) DIMENSION

Data management capability and sub-capabilities are comprised of several dimensions. The Open Group defines these dimensions as the following: “A combination of roles, processes, information and tools enable a business capability.”⁴

In this review, the results of DMC dimensions have been aggregated to the data management (DM) capability level.

3.1 ROLES

Roles describe the participation of people in business operations. Roles can represent business units, functional jobs, etc.

The status of maturity levels of roles dimensions can be seen in Figure 37.

DM CAPABILITY DIMENSION "ROLES"

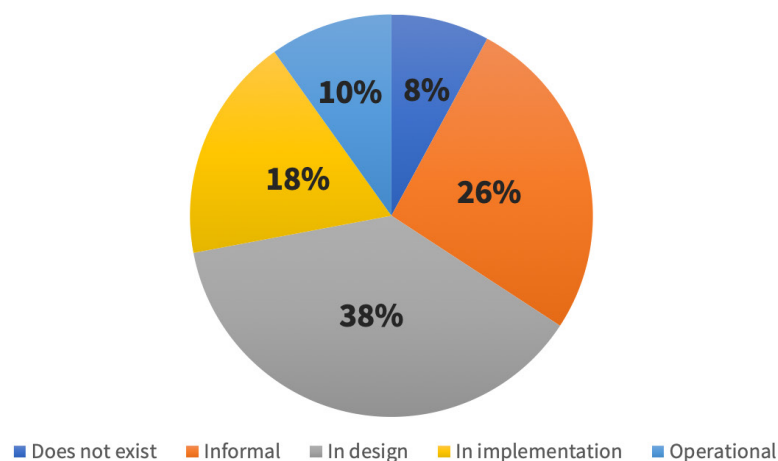


Figure 37: Distribution of maturity levels of the dimension roles.

Roles share commonalities with the data management framework sub-capability. That is why there is a strong correlation between their results. The situation when 8% of respondents don't have any formal data management roles and 26% have informal roles demonstrates the potential area for improvement.

Only 28% of respondents claim to be either “in implementation” or having the roles in the “operational” phase.

The dependency between roles and DM capability maturities can be seen in Figure 38.

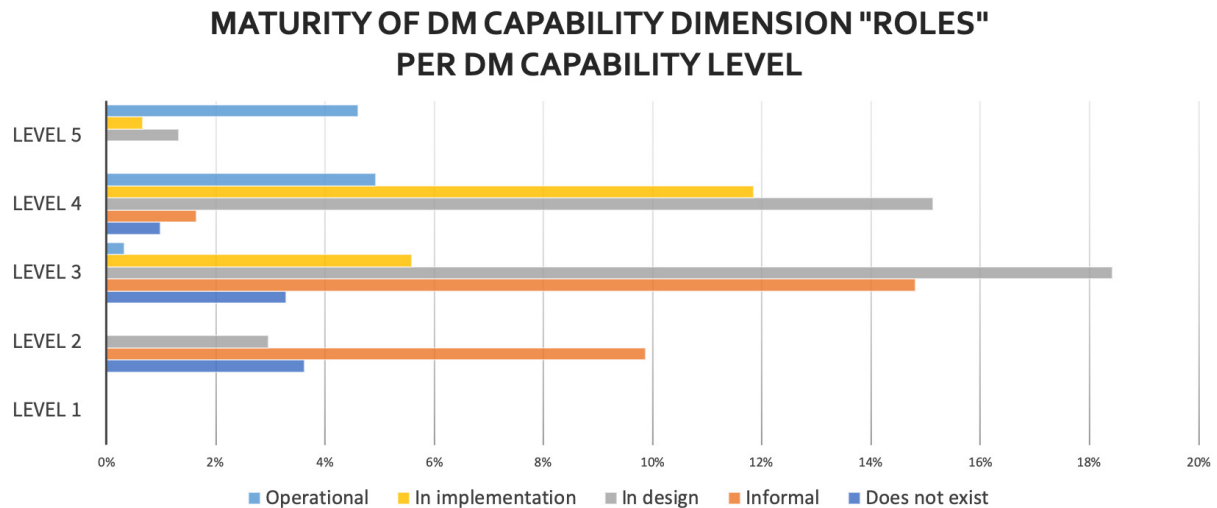


Figure 38: Maturity of roles dimension per DM capability maturity level.

The distribution shows interesting results. For example, the percentage of “operational” level is similar between Level 4 and Level 5. The maturity level “in design” can be found in each maturity group, from Level 2 to Level 5.

3.2 PROCESS

“Process” signifies a data management-related business process at different levels of abstraction.

The status of maturity levels of the process dimension can be seen in Figure 39.

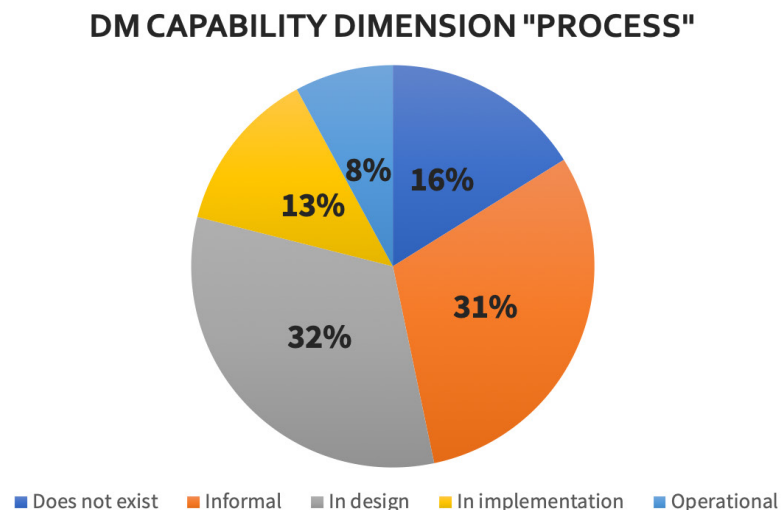


Figure 39: Distribution of maturity levels of the process dimension.

The analysis shows that in total, 47% of companies don't have formal processes in place. 32% are busy with design and only 21% is either currently implementing or already has operational processes in place.

In Figure 40, the relationship between process and data management (DM) capability maturity can be seen.

MATURITY OF DM CAPABILITY DIMENSION "PROCESS" PER DM CAPABILITY LEVEL

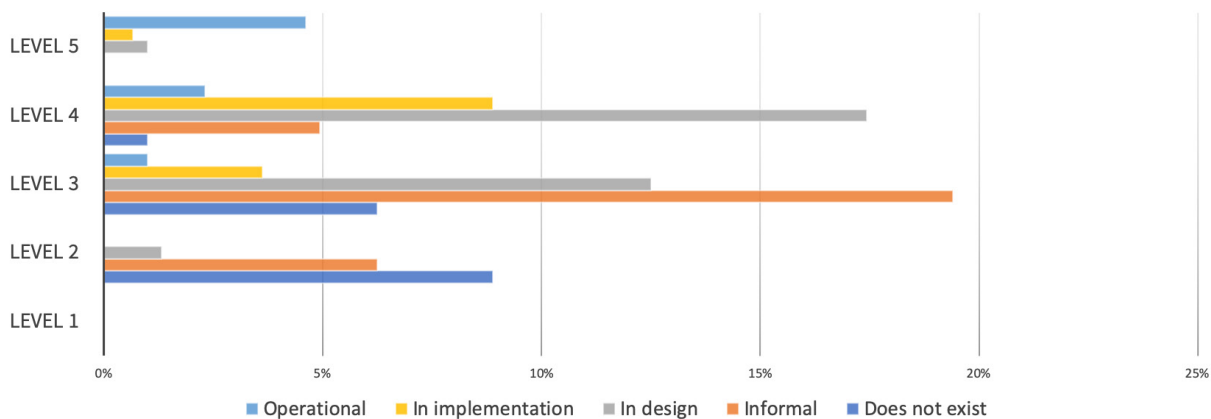


Figure 40: Maturity of the process dimension per DM capability maturity level.

There is an interesting observation that a high percentage of Level 4 companies still have processes in the “informal” design phase.

3.3 DATA

Data represents the “business information and knowledge required or consumed by the business capability.”⁵ In the context of this review, data stands for formal deliverables/arti-

DM CAPABILITY DIMENSION "DATA"

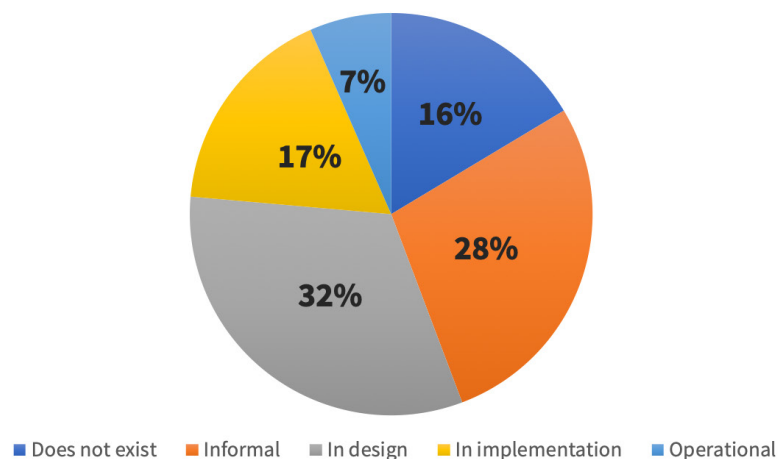


Figure 41: The distribution of maturity levels of the data dimension.

facts of each data management (DM) sub-capability. Policies and processes are examples of such deliverables.

The status of maturity levels of the data dimension can be seen in Figure 41.

Notably, 44% of respondents declared that they don't deliver any artifacts or do it in the "informal" manner.

32% of companies focus on the design of the formal deliverables. Only 24% of companies demonstrate that they either implement or already have formal deliverables.

In Figure 42 below, you can see the distribution of maturity of the data dimension per DM capability maturity level.

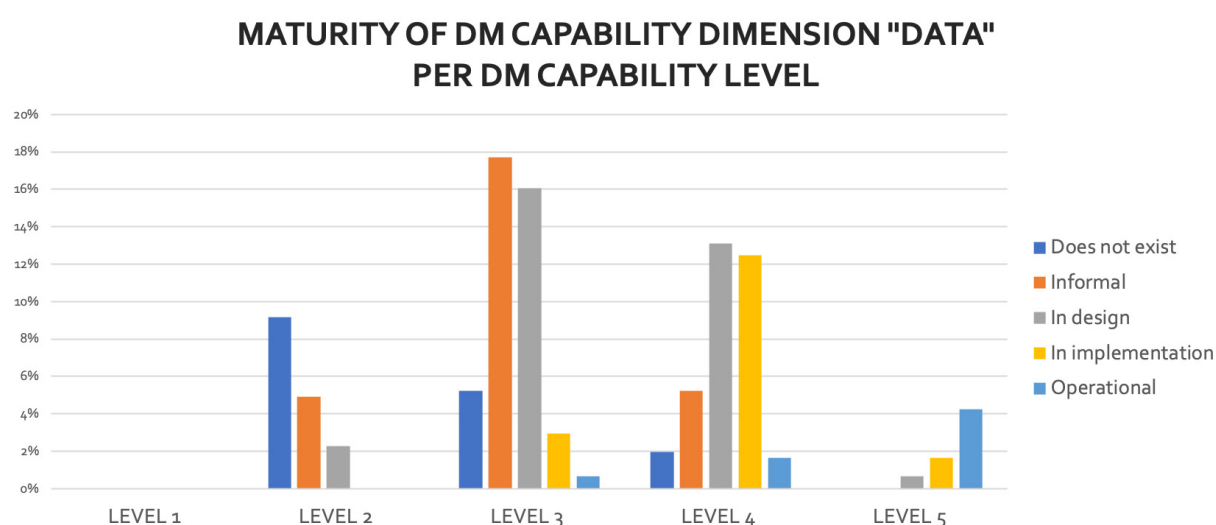


Figure 42: Maturity of the data dimension per DM capability maturity level.

The results show a rather poor situation regarding formal deliverables. For example, the level "does not exist" appears in response to Level 2, Level 3, Level 4, and even Level 5.

3.4 TOOLS

Tools "[...] include information technology systems and applications; physical, tangible assets [...]; intangible assets [...]".⁶

The status of maturity levels of the tools dimension can be seen in Figure 43.

In this analysis, tools describe IT applications and other assets. The distribution of maturity levels has a very positive trend in comparison with data and process dimensions.

The detailed analysis of dependencies between the maturity of tools and data management (DM) capability can be viewed in Figure 44.

There are some interesting observations obtained from these dependencies. For example, Level 2 companies have an equal percentage of "does not exist" and "informal" levels. At the same time, some Level 2 companies already reached the "in design" level. Notably enough, some Level 3 and Level 4 companies do not use tools in their operations at all.

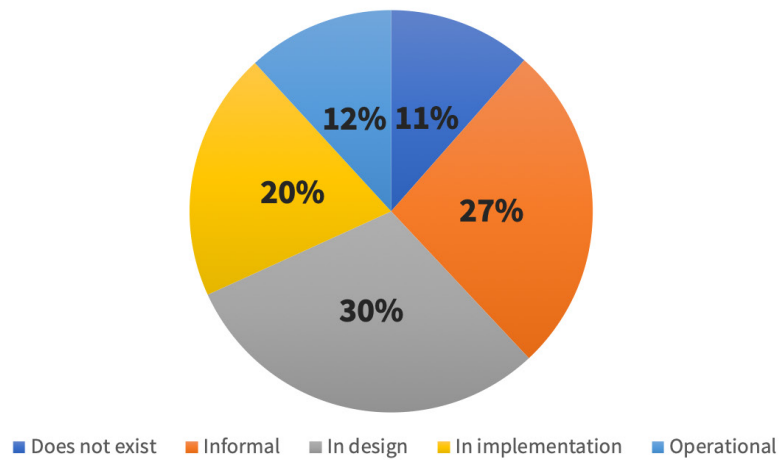
DM CAPABILITY DIMENSION "TOOLS"

Figure 43: The distribution of maturity levels of the tools dimension.

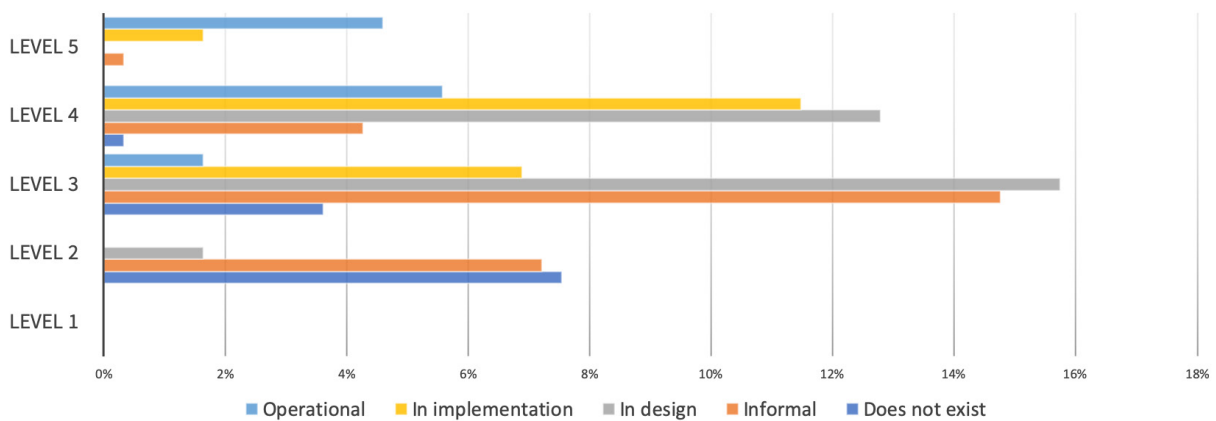
**MATURITY OF DM CAPABILITY DIMENSION "TOOLS"
PER DM CAPABILITY LEVEL**

Figure 44: Maturity of the tools dimension per DM capability maturity level.

INTRODUCTION TO THE “ORANGE” MATURITY ASSESS- MENT METHODOLOGY

The maturity model has been built based on the “Orange” model of data management.⁷ The “Orange” model considers data management as a high-level business capability that safeguards company data and information resources and optimizes data and information value chains in order to ensure the effective conduction of business.

Data management delivers its value propositions to key stakeholders through the data and value chains. The data and information value chain is a set of actions that transform raw data into meaningful information. A set of data management sub-capabilities supports the operations of data and information value chains. These sub-capabilities are business capabilities at a more granular level.

The set of sub-capabilities varies depending on the definition of data management adapted by a company. Three sets of capabilities are commonly recognized by medium-sized companies:

- Core data management sub-capabilities performed by data management professionals
- Supporting IT capabilities performed by IT professionals
- Other supporting capabilities.

The graphical representation of the “Orange” model can be seen in Figure 45.

The maturity model built based on the “Orange” model includes a maturity assessment of the data and information value chain as well as core data management capabilities:

- A data management framework is a business capability that delivers the structure in which all other data management sub-capabilities operate. Rules (strategy, policy, process, etc.) and roles are the core components of the framework.
- Data modeling is a business capability that delivers data models “[...] a) to define and analyze data requirements, b) design logical and physical structures that support these requirements, and c) define business and technical meta-data.”⁸
- Information systems architecture is a business capability that combines a specific set of deliverables of data and application architecture required for designing data and the information value chain.
- Data quality is a business capability that enables the delivery of data and information of the required quality.

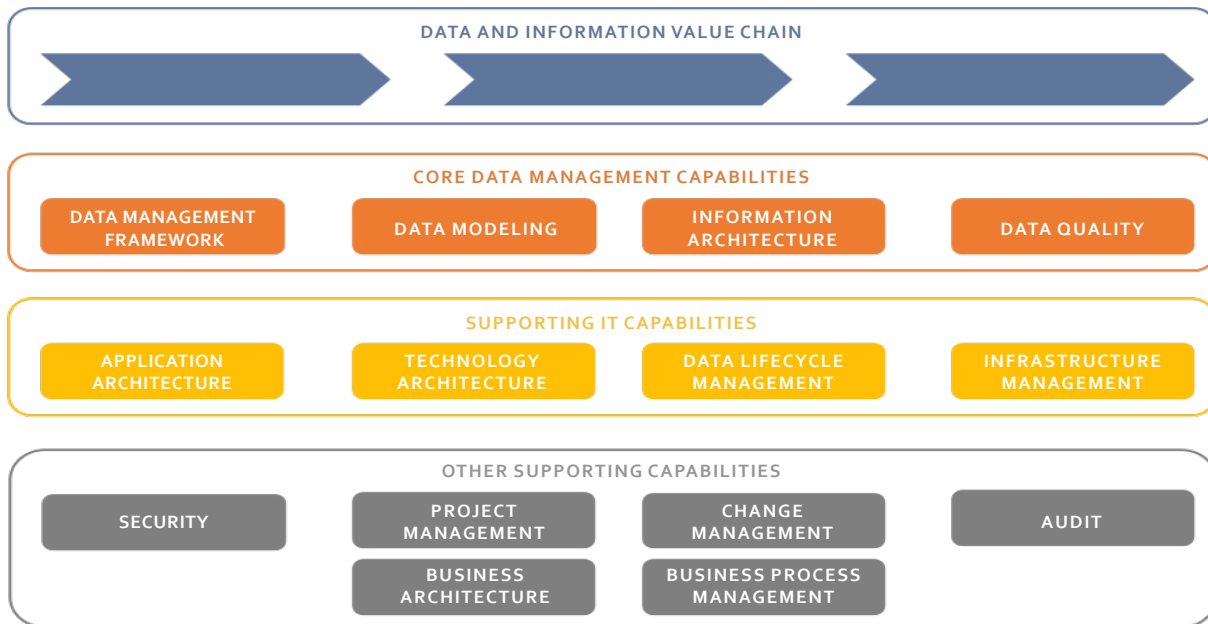


Figure 45: The core concept of the “Orange” data management model.

In the context of this model, “a business capability is a particular ability or capacity that a business may possess or exchange to achieve a specific purpose or outcome.”⁹ Several dimensions enable a business capability. The Open Group defines these dimensions as the following: “A combination of roles, processes, information and tools enable a business capability.”¹⁰ In Figure 46, you can see the graphical representation of business capability dimensions.

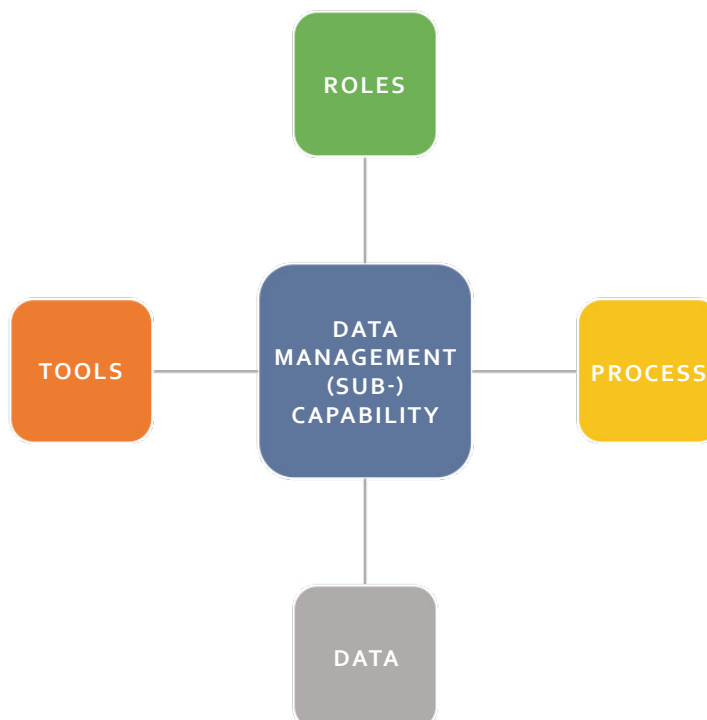


Figure 46: The (sub-) data management capability structure.

Roles describe the participation of people in business operations. Roles can represent business units, functional jobs, etc.

Process means a business process at different levels of abstraction.

Data “[...] represents the business information and knowledge required or consumed by the business capability.”¹¹

Tools “[...] include information technology systems and applications; physical, tangible assets [...]; intangible assets [...]”¹²

The maturity model includes a maturity assessment of each of the four dimensions of the business capability.

Different capabilities typically require the same roles or tools to perform operations. That is why this review delivers, per each dimension, a results aggregated from all components of the “Orange” model.

The maturity model considers five levels of maturity. The overview of the maturity levels can be seen in Figure 2.

CONCLUSION

This analytical review has aimed to discover the current level of data management maturity in medium-sized companies globally. In this chapter, the key conclusions and insights into future development are presented.

1. Data management (DM) is a business capability that safeguards data and information resources and enables decision-making by optimizing the transformation of raw data into meaningful information.

Data management has become a formal business function, within the majority of companies that participated in this research. Managing data is an unavoidable part of business operations in any company. The fact, that the function has been formally established demonstrates that companies recognize data and information as one of their key resources.

2. Data management is a set of multiple disciplines.

The analysis has shown that not all of these disciplines are equally developed. Data governance (data management framework) and information architecture have shown a higher level of maturity than data and information value chain, data modeling, and data quality.

3. Data management framework (data governance) is a solid foundation and one of the success factors for any data management initiative.

The majority of companies have established a data governance function in place. The existence of data governance is demonstrated by the implementation of data management related roles, policies, and processes. A lot of companies have either already designed or are in the process of designing a set of required roles and processes. The situation with the development of policies looks less optimistic because major companies are still in the development phase. Not all companies enjoy sustainable budgeting of their DM initiatives. Building awareness and gaining support of top management is still on agenda of the majority of respondents.

DEVELOPMENT TIPS:

To strengthen data management framework companies should focus on:

- improving the collaboration between different data stakeholders;
- expanding awareness of data management goals and tasks among business stakeholders;
- embedding data management into regular business operations by implementing policies, standards, processes, and procedures;
- making available data management artifacts by creating centralized repositories and implementing data management tools.

4. Data and information value chain sub-capability has an exceptional role in the delivery of the business value of data management.

The knowledge of the data transformation is one of the means to comply with le-

gislative and audit requirements. The proper documentation of the data and information value chain means knowledge of all transformations that data undergoes from its origin to a destination.

Not many companies can easily find the required data. They also do not have enough knowledge and documentation of the key data transformation chains. The lack of proper tooling is one of the reasons for that.

DEVELOPMENT TIPS:

To bring this sub-capability to a higher maturity level, a company should put additional effort into:

- alignment of the processes of documenting of information requirements and finding relevant data sources on the most granular levels;
- investigation and documentation of application and data flows;
- application of data lineage methodology for the documentation of the critical data chains.

5. Data modeling and information architecture are essential tools to optimize the usage of data and information resources.

Many respondents confirmed having a formal enterprise architecture function in place. A lot of companies currently pay attention to the optimization of reporting practices and architecture landscape. But many companies still do not have implemented processes to specify information requirements and transform them into data requirements. Business glossaries, data models, and data catalogues are crucial means for identification of these requirements. Companies still have not put much effort into the development of these means.

DEVELOPMENT TIPS:

The progress in the following areas will increase the maturity of data modeling and information architecture:

- improvement of processes of aligning information needs and corresponding data requirements by developing data models;
- classification of data and specification of critical data (elements) to prioritize data management deliverables.

6. The quality of data remains one of the key challenges for many companies.

Qualitative data is one of the key success factors in improving decision-making. Therefore, the management of data quality remains among top data management priorities. Despite this fact, the analysis has shown that many companies still experience lots of challenges in this area.

Requirements for delivery of information for decision-making have not been met as expected.

The required level of data quality has not been reached. The positive side of it, is that a lot of companies are in the process of the establishing a data quality governance framework.

DEVELOPMENT TIPS:

To improve the situation, companies should focus on:

- specification of data quality requirements in order to effectively classify, prioritize, and manage the resolution of data quality issues;
- implementation of tools and techniques for data profiling;
- design and implementation of data quality monitoring.

7. Effective data management requires a balanced structure of supporting processes, people, tools, and deliverables.

The common trend is that the majority of companies have developed required processes and possess enough resources to move on with data management initiatives. Implementing these processes into practice is still something that needs to be worked on.

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DATA MANAGEMENT MATURITY ASSESSMENT REVIEW

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