



White paper

Management of business data within BiSL

Article to promote understanding of the BiSL process of Business Data Management (BDM).

Authors: Frank van Outvorst, Hans Pijnenburg

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1. Introduction

Reason

The reason for publishing a white paper about the BiSL process of Business Data Management (BDM) is the fact that the management of data is becoming increasingly important for many organizations while, at the same time, organizations are wrestling with the implementation and execution of a process such as Business Data Management (BDM). Within these organizations, the importance of data and of this management process is recognized, but organizations are searching for the correct way to implement it.

This white paper sheds light on the problems in practice and offers some help with the practical implementation of the process.

This document, version 1, is an initial attempt to develop the process of Business Data Management (BDM). Further in-depth exploration will follow in a second or subsequent document (article).

Approach

This document was created by the BDM study group within the Working Group BiSL Development. This Working Group forms part of the ASL BiSL Foundation and has the objective – as its name suggests – of further developing the topics within the BiSL model. The BDM study group has assigned itself the task of further developing the BiSL process of Business Data Management.

The input for this document was obtained by holding an initial series of interviews with several organizations involved with the ASL BiSL Foundation, which the authors believed contained data that are significantly important and where interesting experiences in the field of business data management may be available. A mixture of large and small, for-profit and non-profit organizations was chosen.

Abstract

In Chapter 2 the theoretical background of BDM is explained from the BiSL perspective, including an examination of the difference between data and information. Chapter 3 presents the results of the interviews as descriptions of what we see happening in practice in terms of this topic. In Chapter 4, the conclusions are drawn with reference to the observed practical situation. Finally, Chapter 5 takes a look ahead at the next part of this white paper.

2. Theoretical framework

BiSL in general

BiSL is a model for Business Information Management and Information Management. The model consists of a description of a process framework for the IT management domain of Business Information Management, supplemented with best practices. The process framework consists of a number of process clusters, which combine various processes.

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The model has 3 levels, i.e.:

- operational
- tactical
- guidance

More information about BiSL can be found in the book by Van der Pols, Donatz and Van Outvorst¹.

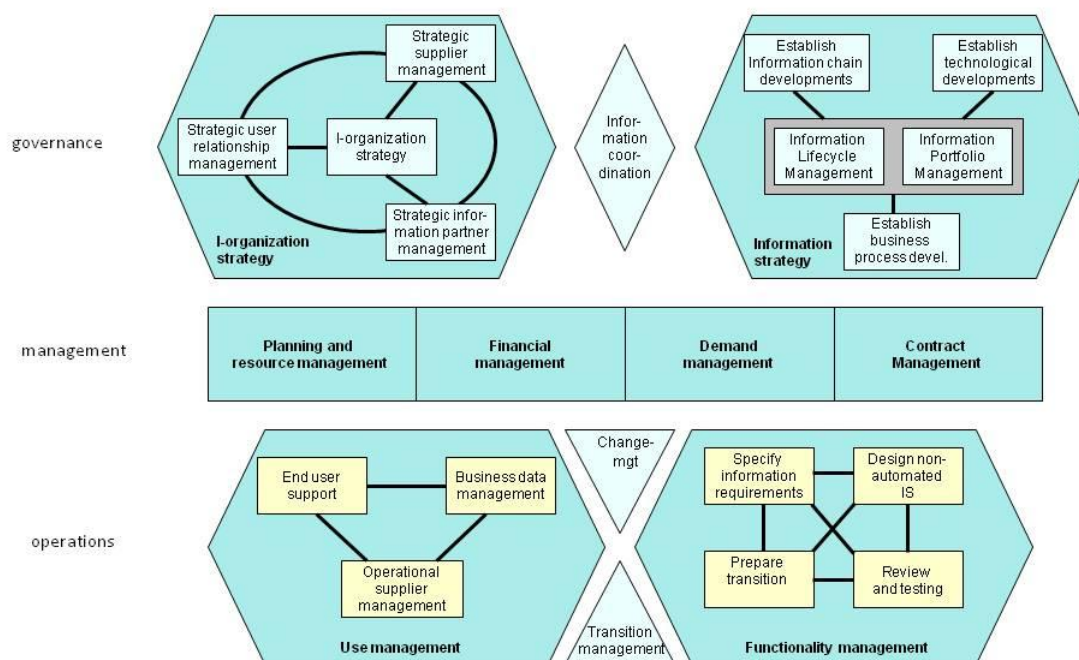


Figure 1: Diagram of BiSL framework, from: *BiSL – A framework for Business Information Management and Information Management*¹.

Where does BDM fit into BiSL?

The BDM process is positioned within the BiSL model as an Operational process within the Use Management process cluster. Specifically, at operational level it contributes to the exploitation (use) of the provision of information.

Within the use (in other words, operation) of the provision of information within organizations, the following three areas of attention can be distinguished:

1. users
2. content of the provision of information
3. implementation of IT services

¹ Pols, Remko van der; Ralph Donatz; Frank van Outvorst: *BiSL – A framework for Business Information Management*, Van Haren Publishing, ISBN 9789087530426

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The Use Management process cluster is aimed at these three areas of attention with the following processes:

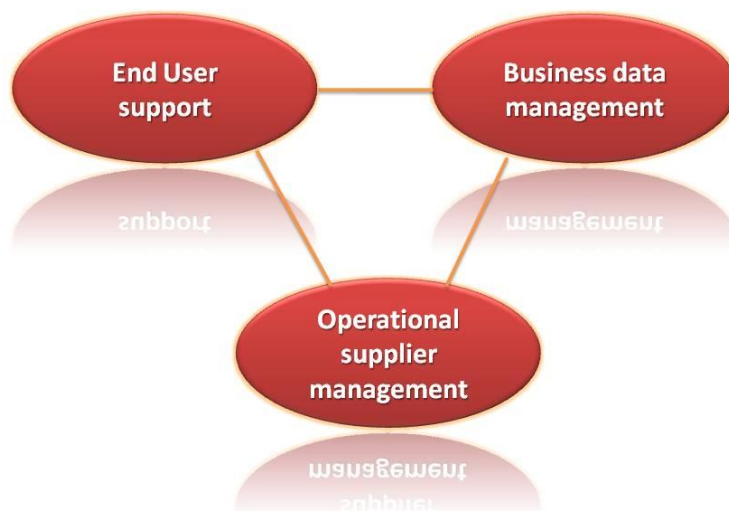


Figure 2: Use Management Cluster

Within this cluster, BDM is aimed specifically at the content of the provision of information, in this case at content-related business data. Business information can be defined as the combination of the business data established in the provision of information (both automated and non-automated) and the meaning that is given to these data.

This is based on the following definitions of data and information:

| Concept | Definition |
|-------------|---|
| Data | Logging of facts. |
| Information | Interpretation of data, based on which actions and decisions are taken. |

When data are referred to within the automated provision of information, two types of data can be distinguished:

- Operational data, which are important for process implementation. Also known as process or production data.
- Control data for the correct operation of the information system. These are often parameters or master tables, such as tariffs, VAT percentages, etc., which determine the outcomes of a business process.

In addition to an automated provision of information, a non-automated provision of information also exists within many organizations. This involves non-automated or semi-automated documents, such as receipt forms, requests, registration forms, individual Excel lists, etc.

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What is BDM?

Three topics are very important in order to ensure the correct format and content of the data in the provision of information:

- Maintenance and monitoring of the business information model
- The data quality regarding accuracy, completeness and timeliness
- Supply of ad hoc information

The BiSL model states that, in addition to management of the use of the data in the business processes, management of the structure of data in the model(s) is also important. After all, the basis for the data use is established in this kind of business information model:

- What kind of objects are we interested in, as an organization, and for what we are going to establish data?
- What is the significance of these objects and the data we establish about these objects?
- What are the relationships among the recognized objects?
- What are the relationships among the data (and the objects)?
- What are the quality criteria that the data must fulfill?

Within the BDM process, Business Information Management cannot of course be responsible for the quality of the (business) data. Business Information Management is also not responsible for quality requirements with respect to the information. Responsibility for both of these topics lies with the process owner. The latter determines what data quality is necessary for implementation of the supported business process in accordance with the applicable frameworks for implementation of that process. In addition, the process owner controls the way in which the supported business process is implemented.

Business Information Management does fulfill an advisory role in terms of defining quality requirements and translating these requirements into quality criteria, functional requirements, etc. Business Information Management is responsible for facilitating a process owner in the use of the provision of information as well as monitoring the agreed quality and the agreed use.

The ultimate goal is ensuring that the added value of the provision of information is also genuinely achieved, rather than defining functionalities, but the underlying data are missing or are not reliable, which means that incorrect decisions are taken in the business process or the effectiveness and efficiency of the business process are jeopardized.

3. What do we see in practice?

Based on the interviews held, a number of trends surrounding BDM, or business information in general, are observed. In this paragraph, these trends are discussed one by one.

- **Increasing importance of information**

Various factors play a role in assigning importance to the information. To summarize, the most important factors are internal policy, commerce, industrial risk, economic importance or shifts in attention within an organization.

A clear example of economic importance comes from the nineteen eighties and relates to Enron. Enron was an American energy company that chiefly delivered gas. At the beginning of the nineteen nineties the company began to concentrate on trade: its core activities switched from delivering gas to buying and selling delivery contracts on the futures market. Soon, Enron was also investing billions in water, telecommunications, metal, chemistry, the internet, insurance and other products and services. The company became a prime example for anyone who believed that a lot of money could be earned very quickly in the new economy. But Enron spent more than it earned and kept losses out of the books by shady

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dealings with hundreds of subsidiaries, which in some cases actually belonged to Enron managers. When the company eventually went under, it appeared that managers were putting billions into their pockets, accountants had destroyed evidence, the company had financed the election campaigns of virtually all the presidential candidates, both Democrats and Republicans, and that almost a thousand subsidiaries had been created to evade taxes and to embellish the accounts. Since the 'Enron scandal' in particular, using legislation and regulations (Sarbanes Oxley in the USA), great importance has been attached to accurate data in the administrations of organizations and of their financial institutions for the purposes of determining the operating profit and taking business decisions.

Recent examples of shifts in attention towards data include the political attention for information and information carriers within Defense and the Police following various incidents, such as the loss of USB drives or incompletely deleted information on computer disks. In addition to safety and reliability, increasing concern is perceptible within policy and the government for keeping and making all types of data accessible, so that it is possible later to trace the facts on which decisions were based.

Large organizations, such as banks, insurance companies, airlines, the government, and industrial organizations preserve their legacy functionality and systems with the data files managed in them. A great deal has been invested in this. In addition, over the last few decades the functionality achieved has increasingly stabilized, so that migration would mean a one-by-one replacement and therefore represent little added value. In order to supply the data file with the required enrichment, files are added in mid-office systems.

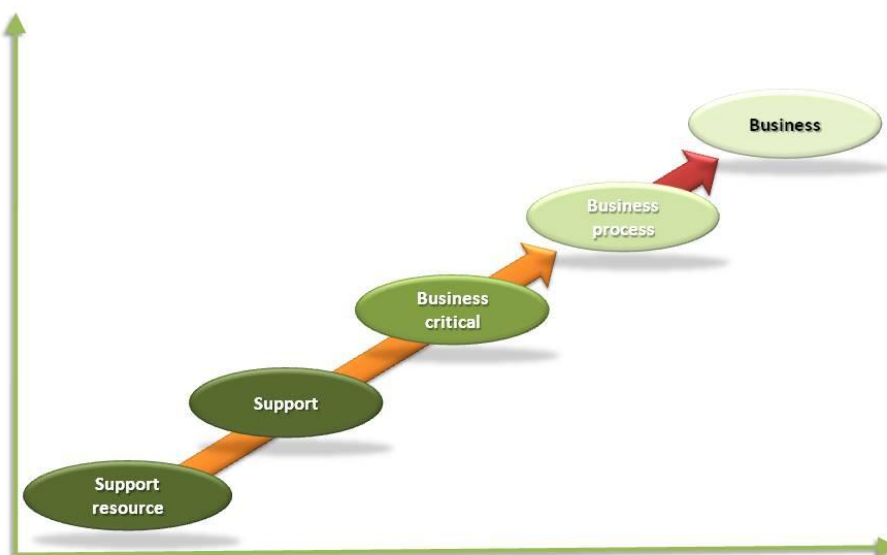


Figure 3: Increasing importance of information provision

It is also noticeable within Public Order and Safety (POS) that information is becoming increasingly important. Thus, core business policy processes, such as Detection or Enforcement is increasingly becoming an information process in which, in addition to collaboration among various police departments (forces, for example), but also among other (chain) parties within POS, the data flow is also becoming more important. The parties

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involved are devoting much attention to continually raising the levels of reliability, speed, accessibility, etc. of information.

Speed and completeness of information exchange are also increasingly important in Health Care, for example: While a patient is still in an ambulance and being transported at speed, communication links are being used to exchange patient data with the hospital and when he arrives at the Emergency Room, the required data are already known, so that the correct preparations have already been made.

As can also be seen from Figure 3, sharing information is becoming more important everywhere. In addition to the business process, all kinds of chains emerge, in which a company has a role to play.

In addition, whole sectors are also changing, such as the utilities sector, because information is becoming increasingly important: Utility companies do not themselves produce and deliver energy any longer, rather they trade in it This means that, for them the data flows have become enormously important.

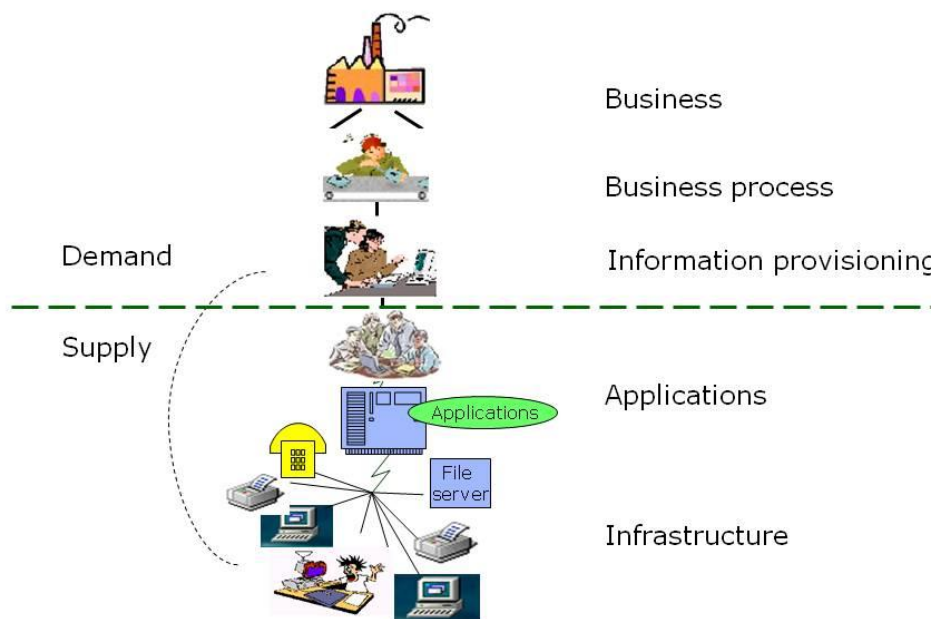


Figure 4: Positioning of Supply and Demand

And how important is information for the consumer? Thanks to the increasing number of consumers connected to the Internet, they can look for much better products and services, and compare prices and conditions on-line before making a purchase. The second-hand goods market has also received a huge boost from the Internet and the information made available to consumers as a result. For the consumer or individual citizen, gathering news and/or information is becoming increasingly important. As a result, the availability of data on the Internet is also becoming increasingly important.

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- **Limited control of data**

With the increase in the importance of information for organizations, you would expect attention for management of the data also to increase. In practice, this does not often seem to be the case. One illustration of this is the way organizations deal with information models. Information models are useful not only at the time when applications are developed or changed, but specifically afterwards as well. Based on an information model, clear frameworks and guidelines for the use of data can be imparted. An overall business information model makes it clear how the different types of data from the various information systems must be related to one another, so that data exchange becomes possible. Unfortunately, in practice, organizations seem to have particularly little to do with information models as such and nothing at all with overall information models.

The BDM process is only a link in the entire chain of processes that are concerned with data. This also includes all kinds of relationships with business data models and control of the way in which data models are handled. As already mentioned, operational Business Information Management plays an important role in determining the method of use and recording of data. However, in practice, the Business Information Administrators are still insufficiently aware of their influence in this respect. For example, the choices of certain workarounds can have a major influence on keeping (overall) business information models in order. Information architecture is an important control instrument for the development of new information provision and for the implementation of management of the existing provision of information.

It is difficult to provide a good control instrument for decentralized Business Information Management: The high pressure from the work floor to achieve rapid solutions leads to workarounds.

Although the BiSL model establishes a strong relationship with a business information model, it is observed that an up-to-date and complete business information model is usually hardly ever used. Such a model is only drawn up for critical business units. For the organizations interviewed, keeping information models up to date requires a great deal of manual labor in the form of reports, queries, etc., which takes place very locally. It is striking in this respect that, when using ERP applications (such as SAP within the Retail branch), the Data Model aspect is well-regulated, with strong support (of course) from the information system itself. In addition, the insurance branch, for example, has its authorization and procurement well under control. Several of the organizations interviewed have also drawn up a language model (data definition), because a lack of clarity concerning definitions and the permitted use of data often prevails in the Operational Processes, controlled based on Information Management.

Some positive developments can indeed be observed:

- Within Public Order and Safety (POS), attempts are being made to reach national agreements about the recording of data.
- Within organizations, the use of reference tables (even in new construction projects) is being promoted. Diagrams and tables are published and all internals and externals must comply with them.
- Data definitions are being drawn up.

In practice, however, the focus is often placed too unilaterally on data quality (in the narrow sense). In most organizations, modification or new construction projects often have a great deal of freedom to define the data models and definitions they want themselves. At that point, BDM as a process plays no role in monitoring the agreed models and/or definitions. For the BDM process, sufficient usable frameworks from the guidance level are often also missing at that time.

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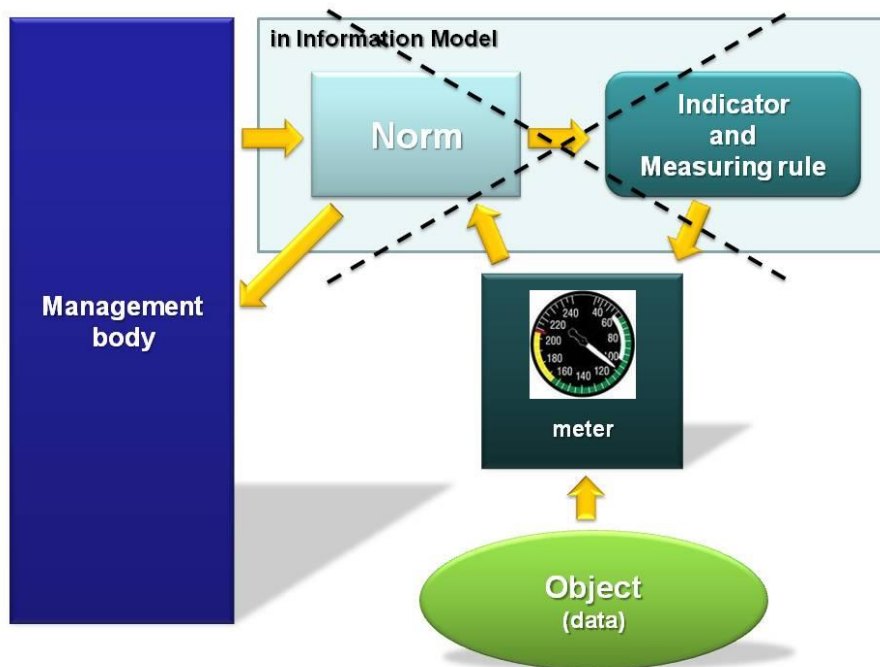


Figure 5: BDM based on control paradigm (norm-reality meter)

In practice, the exchange of data across organizations appears very difficult to regulate and to manage. All kinds of deviating object registrations, different meanings for data, etc. then occur. This also applies to the quality of the data. Thus, for example, it is difficult to give quality definitions, which can also be shared with one another.

- **Operational decisions can have strategic impact**

Business Information Management is often also necessary at the level of individual information systems. This can occur in the event of exceptionally large and/or complex information systems and/or shared use by several business units.

However, at corporation level too, Business Information Management/Information Management are absolutely necessary. Especially for data. If data increasingly have their own added value, these data will be gathered, recorded, enriched, and used across several processes. In that case, overall control is important. Facilitating, encouraging, and checking shared use and recording of data. How data in the systems are handled can then no longer be left up to individual process or system owners. A need arises for facilitating, but also mandatory, guidelines so that in any event control can be exercised across applications. In organizations, we can often find this in the form of basic data sets, business tables, shared information servers, etc.

Business Information Administrators are concerned with BDM in an operational and verification capacity and in many cases make the frameworks themselves. This is because virtually no frameworks are provided by Strategic and Management processes. If any do already exist, they are insufficiently coordinated with the User Organization. BDM seems to be a bottom-up approach, in which standards and rules are introduced over time based on experience and practice.

An important part of the process of business data management is solving problems that disrupt the progress of the business process and have their origins in the data within the provision of information. Examples of such problems can include missing or obsolete data in

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standard tables, alignment among various data files, or the reporting of frequently-occurring input errors. Rapid solutions are being sought to these problems, so that progress again becomes possible in the business process. What is often forgotten here is that these rapid solutions can have a major impact on the quality, fitness for use, and exchangeability of data. As a result, this kind of emergency solution can suddenly become a risk factor at strategic organizational level.

A couple of examples:

Within a semi-government organization, a need exists at management level for insight into the number of clients and the number of service transactions performed. A secretary is dispatched to dig out the required reports. Eventually, she comes up with a business information administrator who produces an ad hoc report based on the secretary's request. In preparing this report, the underlying question and the goal that this ad hoc report is to serve are overlooked. The required reliability of the requested report is also not considered. All this leads to a rapidly produced ad hoc report, not tested, and based on the majority of the currently available data. Based on this faulty oversight the available training space for the coming year is then established.... This organization now no longer exists!

A business information administrator with the police has to deal with the complaint that no unique code number has yet been defined for a new form of computer crime. In order to solve this problem quickly, it is decided that an existing code number will be used, with the description "computer" somewhere in an empty field. If reports of this type of crime increase, it is then evident that no overview can be provided when this form of crime is first discovered.

- ***Shift from application-oriented to data-oriented***

In the past, data were to a large extent attached to applications. The entry, consultation, and mutation of the data took place via these applications. Nowadays, data are increasingly no longer exclusively regarded as part of a certain application. Data are increasingly recognized within the total provision of information as a standalone component, independent of certain applications. The data are available to various, separate applications. This places strict requirements on the way in which the data are organized, on the definitions, quality requirements, and accessibility of the data. Additionally the importance of an unambiguous data owner is more strongly emphasized.

Examples that illustrate the aforementioned development include the development of shells around legacy applications so that the data within these applications are also accessible for other purposes/applications. Also, the success of data warehouses illustrates the aforementioned development. In this context we gain access to the data outside the applications.

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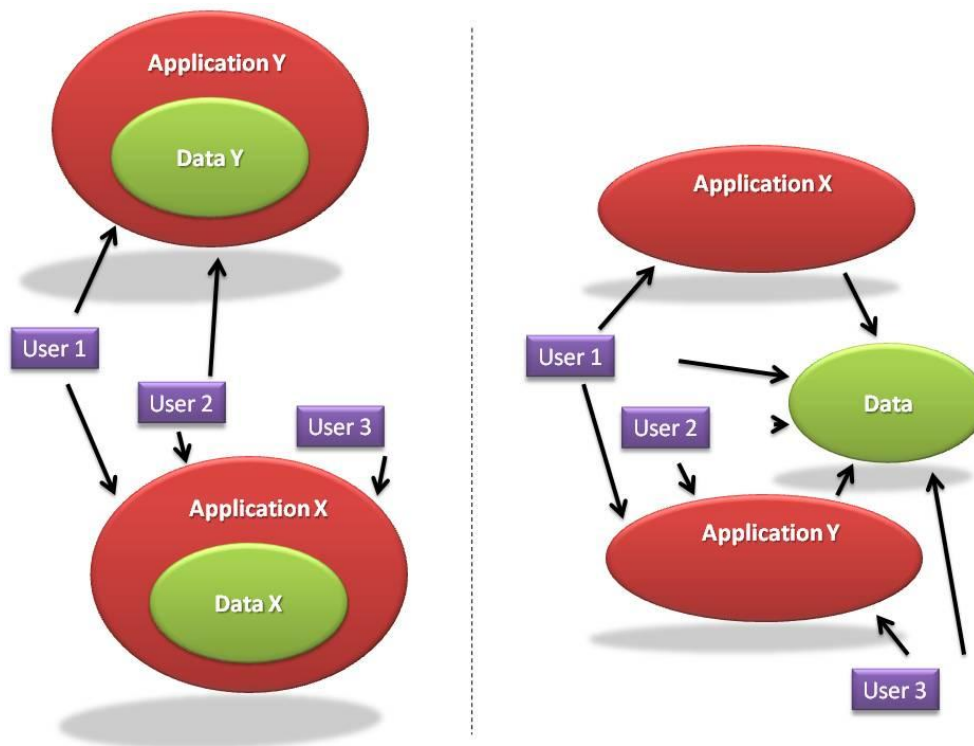


Figure 6: From application-oriented to information-oriented

- **Separate data parties that occur**

Within the overall process of data processing, new parties are recognized, which will play a role. Examples of this include the emergence of data brokers or the shift towards self-service.

Data brokers are present, for example, in the area of the provision of utilities. These are separate parties, which in fact only target the exchange of data between all types of parties in the utilities world. In this context, now and again it suddenly seems that these parties are decisive for the quality of the provision of service and the perception of this quality by the market and the end consumers.

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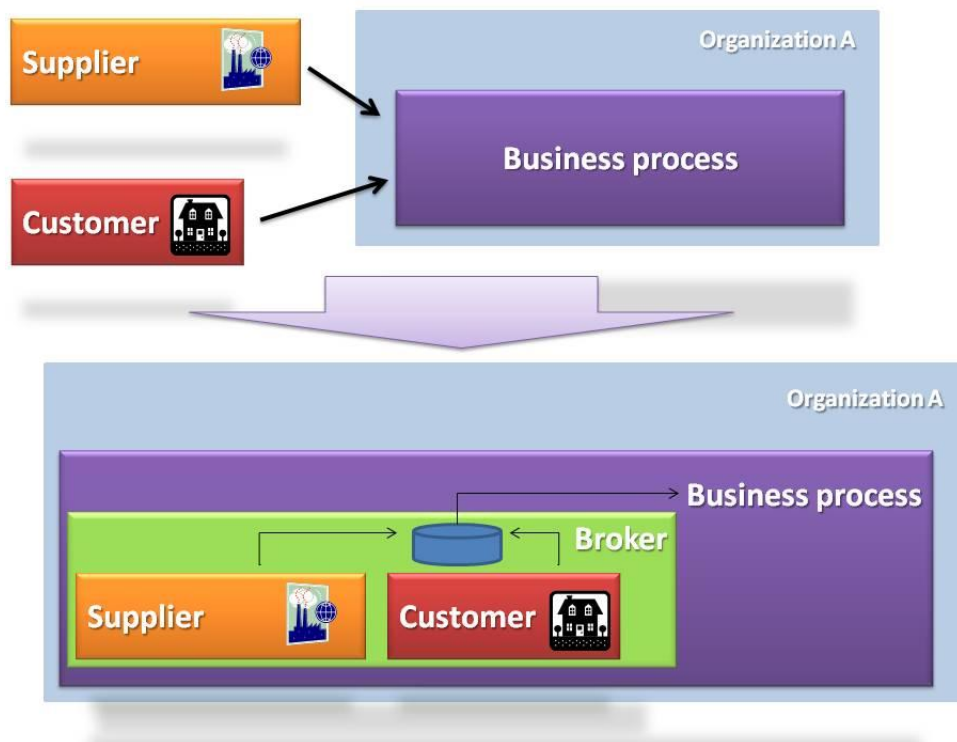


Figure 7: Emergence of brokers

Further, a shift is also observed towards self-service concepts, for example in the field of HRM.

In particular, shifting process limits provide fine examples of the creation of self-service concepts. The latter is the case, for example, in the shift of process limits of financial service providers: banks or insurance companies allow customers to perform transactions themselves that were previously part of the internal banking or insurance process: issuing payment instructions, opening accounts, printing out bank statements. Other well-known examples can be found in the world of logistics service providers or mail-order firms: warehouse instructions that are given directly by the consumer, monitoring the status of an order or inquiry, etc.

In such cases, the owner of the data and the extent to which the end consumer has access to the organization and/or the data must be well regulated.

- **Responsibility for data**

In the usual course of events, relatively little attention seems to be devoted to BDM. This changes at critical moments: Then, it is all hands on deck and the business information administrators work (pro-)actively with the end users to provide maximum guarantees of the quality of the data in business processes. Business information administrators then closely monitor the structure and quality of the data files.

In various organizations, this role-play is partly fulfilled on a regular basis if, at organization level, a considerable interest exists, such as political sensitivity, a high chance of stagnating business processes, in ensuring qualitatively good data/information output. Examples we encountered are a school's being prevented from obtaining incorrect budgets as a result of incorrect data or the DA who has to drop a case because of incomplete data from the police.

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However, an important point of discussion in BDM is always: Where does the responsibility lie? Business Information Management/Information Management is responsible for IP, but does that therefore mean that full responsibility for data or information lies with Business Information Management/Information Management? In theory, this is not possible because a user organization is primarily responsible for the data. This would then have to be in line with data ownership and the system/process ownership. Responsibility for good quality input (in accordance with agreed quality standards such as accuracy, completeness, timeliness, etc.) lies specifically with the user organization and should be included in the process control. In a number of cases, the trend is to draw input out of the organization itself and to place it with the customer (see also above). However, it is the responsibility of Business Information Management/Information Management to facilitate this so that data can comply as far as possible with the standards for the data defined by business. Measures can take the form of automated checks, reports on the data, changes in specifications for functionalities, making arrangements about interfaces with delivering systems.

4. Conclusions

- ***Underestimated consequences for strategic level***

Information as such is becoming increasingly important within organizations and this requires a different approach to its management.

Although BDM is an operational process in the BiSL model and in practice, major consequences are possible, with significant repercussions for the strategic level. This requires clear frameworks and direction from the Guidance level. However, in practice, the Operational level is too separate from the other levels. Business Information Administrators are concerned with BDM in an operational and verification capacity and in many cases make the frameworks themselves. This is because virtually no frameworks are provided by Strategic and Management processes. In such cases, a need immediately arises for the provision of frameworks for BDM from the Guidance level.

If data increasingly achieve their own added value, these data will be gathered, recorded, enriched, and used across several processes. In that case, overall control is important: facilitating, encouragement and checking shared use and recording of data. How data in the systems are handled can then no longer be left up to individual process or system owners. The need for facilitating, but also mandatory, guidelines so that in any event control can be exercised across applications. In organizations, this can often be seen in the form of basic data sets, business tables, shared information servers, etc.

- ***Need for relationship with information models***

The focus within BDM is aimed primarily at data quality, but BDM is intended to be broader. For instance, at Guidance level a strong relationship with architecture and the relevant information models should also exist based on BDM, but this relationship is not sufficiently clearly communicated within organizations. For example, the Reference Architecture of various organizations interviewed does include some passages about BDM, but they are brief and exceptional.

In fact, an architecture and its information models are the only useful means of determining definitions and the quality criteria for data. This is important for assigning meaning to data and therefore crucial for exchange, establishing reliability of reports, determining quality standards, and reporting current quality.

However, information models or architectures are often missing or are too complex in nature to be able to use them directly. The process owner is often insufficiently involved in providing quality criteria for information.

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A link with the business data model is important and often has to be further developed by organizations. However, in practice it is difficult to define and maintain good standards for data quality.

- **Need for frameworks and guidelines**

A great deal of uncertainty also exists concerning the role of data owners, system owners, and process owners. A data owner is responsible for the reliability of data (accuracy, timeliness, and completeness), release, accessibility, and provision. This is often a difficult topic in the shared delivery or use of data. The solution is then often to use source files for which an unambiguous data owner is indicated.

It can also become difficult if the data owner is not the same as the process or system owner. After all, through choices in the application(s) or the process, this person also substantially determines the possibilities for releasing data. For example: new version of system means that old data are no longer accessible without converting them. The question is whether data conversion is desirable.

5. Continued in part 2

In the sequel (part 2) to this white paper, we will look more closely at which measures organizations are taking in practice in their management of information and how they are dealing with the aspects and developments identified in this part. These measures will be analyzed and, based on this, we will arrive at best practices and/or additions to the BiSL model.

The authors can be reached by mail for additions and comments:

frank.van.outvorst@capgemini.com

hans.pijenburg@capgemini.com

About the authors

Frank van Outvorst works at Capgemini as a consultant in the field of business information management and information management. In addition to content-related provision of information questions, he is concerned specifically with questions concerning the configuration of the IP organization, specifically from the point of view of the user organization/customer.

Hans Pijenburg works as a Managing Consultant at Capgemini <...>