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# Value and data management in a data-driven business

Introduction

Modern enterprises leverage data and AI to keep up with the high dynamic of an ever-changing business world. On the way to achieve that goal almost all of our clients face the same challenge: To transform their strategy, operating model and way of doing business such that data is used to drive the corporate capabilities used in processes that generate value.

One of the recent concepts of achieving this is the data mesh, that shifts responsibilities towards the business to produce data products that are standardized in their creation as well as in their access. The data mesh paradigm, however, is not a purely technological invention, but rather a socio-technological endeavor that brings together technology, employees, and corporate processes. The classical Venn diagram of these three is given below. We have added the usually omitted descriptions of the links between the adjacent pairs: Employees possessing an intuition for the capabilities and limitations of technology ("technology literacy"), the enterprise being able to use technology in processes ("capability model") and the employees working together along the process landscape ("collaboration model").

Collaboration model

Technology (data) literacy

Employees

Processes

Technology

Corporate capability model
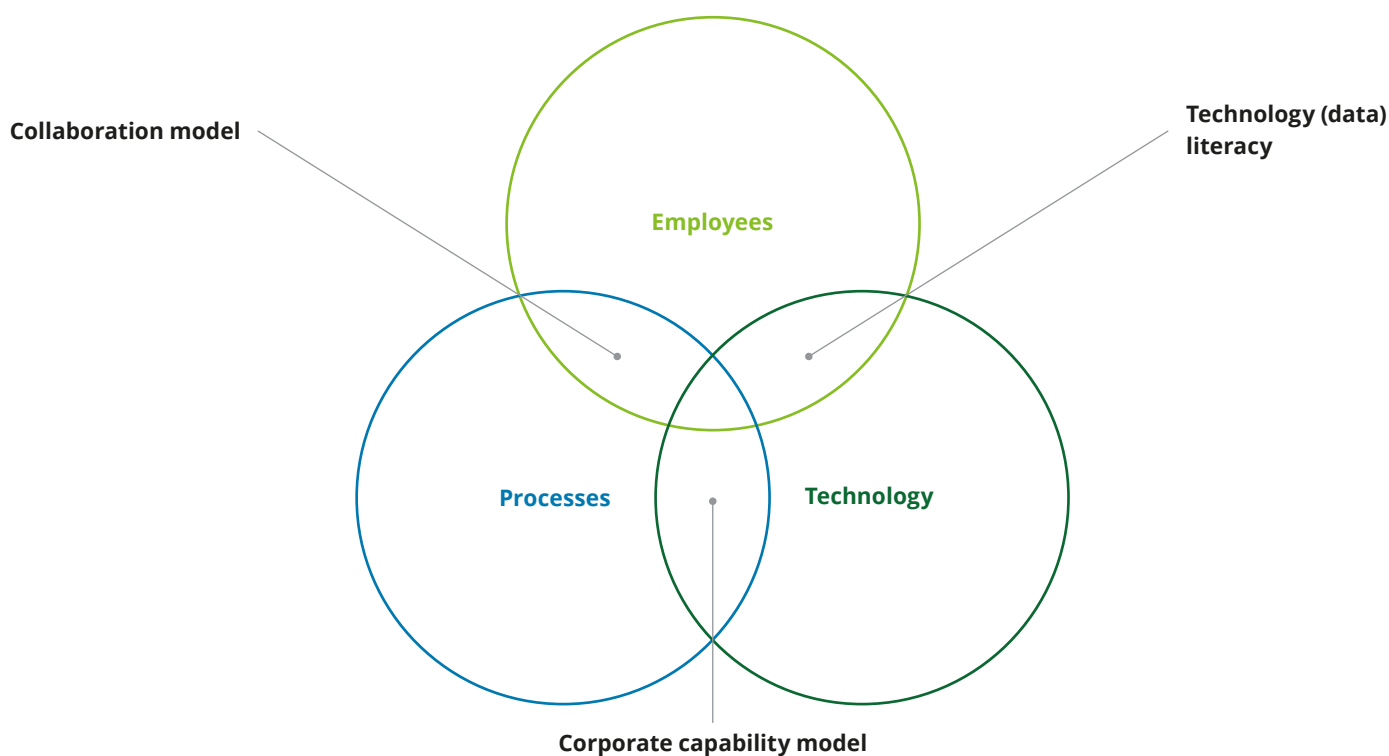
Achieving literacy, data capabilities and collaboration are at the core of a successful transformation. Here, Deloitte presents a series of papers that explain key aspects how to achieve these three along the transformation towards becoming a data driven enterprise. The series is structured into strategic, tactical and operational aspects of data driven work.

Beginning with the strategy framework we are working along, we introduce our orchestrator for the data transformation journey. As the major tactical pillars of the transformation we focus on the required governance as well as the data-centric process landscape in two further articles.

These concepts are underpinned by operational tools such as data catalogs, data quality and IT platforms which we are also covering in an article. Since these developments need to be sustained by specialized change management, a separate article is dedicated to this topic.

The journey to a data-centric enterprise is a complex transformation that continues to bring new challenges and insights. We will continue to expand and add to our series of articles.

How processes shape the success of data transformation

To ensure future competitiveness, companies use data to optimize their existing processes, extend their value chain or even create new business areas. But they will not be able to drive value creation without a full-scale transformation that recognizes data as part of the value chain and is aware of its impact on the enterprise as a whole.

A key paradigm of data-centricity is the reusability and scalability of data assets. The novel concept of the Data Mesh also aims to move "the responsibility for the data to where the know-how is". This approach is designed to increase the quality of the data as well as shareability and reusability. Shifting the responsibility for the data, usually from IT to the respective business units, also requires changes in the organization as a whole, whether it is new roles and responsibilities or new skills within the business units. These shifts have a big impact on the entire organization, particularly in terms of how you work, how you collaborate and how you coordinate projects within the enterprise.

Whereas in the past, applications were usually introduced to enable, support or optimize a certain business process as a standalone project, we are seeing a shift towards a platform approach focused on reusability and scalability. This involves breaking an application down into its individual technological elements and then ideally providing them as a reusable service on a platform.

Dividing applications into microservices to foster scalability and reusability at the technology level has been a familiar architectural approach for several years. With companies adopting a more data-centric focus, we are now bringing this approach to data assets as well, slicing them into logically related contexts and providing them as data products in a federated data landscape.

To ensure that we establish and maintain scalability for data objects/data products, it is vital for companies to define their overarching principles and guidelines. These mainly stipulate the requirements that data has to meet, but not without allowing the business units some flexibility. Definitions of related terminology, roles and responsibilities, architectural principles and the operating model are additional issues covered in these guidelines.

When it comes to platform architecture, it is essential to establish central guidelines (e.g., the data and solution architecture) in line with IT standards and policies as well as agreed procedures designed to ensure efficient development, improvement and operation of the data products.
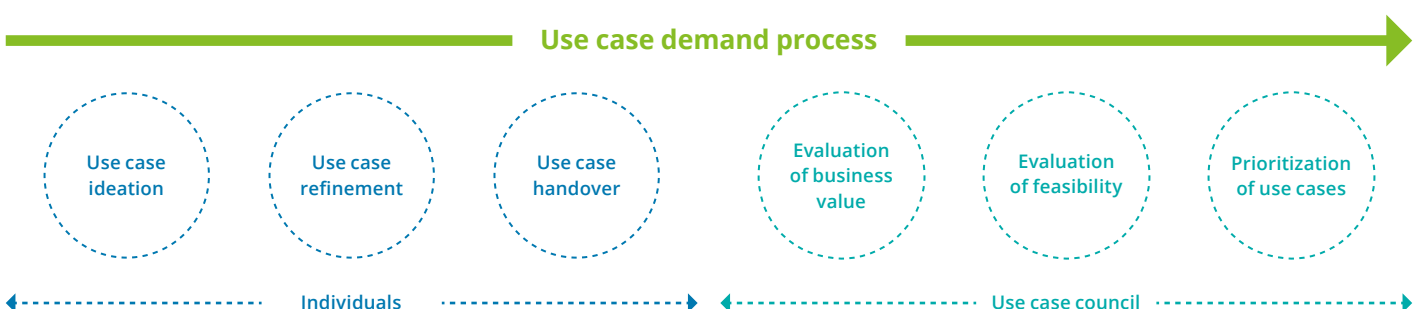
When it comes to use cases, data centric roles and the technological dimension, we rely on robust processes to act as the glue that holds them together and creates the foundation for a common collaboration model. We have identified two crucial processes for establishing a federated data landscape, which we will outline in the following:

Use Case Management Process

As mentioned above, data-centric transformation involves major changes across the entire enterprise. There are novel ideas for using data in virtually every business unit, since there is a large variety of technological solutions available.

In our practical experience, we have found that a tech first approach is generally unsuccessful. Enterprises need an alternative approach that enables them to allocate the limited (budget) resources efficiently.

To address precisely this requirement, we have established a standardized process for enterpris-es to coordinate and manage their use cases. Each of these use cases represents a specific business value and has different requirements for implementation, making the use case itself the main instrument for coordinating a data-centric transformation.

Use case demand process

- Use case ideation
- Use case refinement
- Use case handover
- Evaluation of business value
- Evaluation of feasibility
- Prioritization of use cases

Individuals ←----→ | ←----→ Use case council

The use case management process involves providing a standardized definition and description of a proposed use case. With the input and context from the business, centralized ideation teams using the appropriate method (e.g., design/data thinking) and describe it with a pre defined blueprint that consolidates all relevant information and ensures comparability between the use cases. Based on the definition in the blueprint, the team invites relevant experts to participate (SME, architects, etc.), particularly when it comes to defining functional and non-functional requirements as well as complying with agreed company specifications and principles in this early phase.

The standardized definition and description of the use cases enables us to calculate both the added value for the business and the expected implementation effort. A further element in this phase is assessing whether the use case is generally feasible and identifying the potential for synergies with other use cases or similarities in terms of data and technology requirements.

The use case funnel is designed to manage and prioritize the defined use cases, which allows a centralized use case council to determine what the high-priority initiatives are and how to allocate the implementation budgets and resources. The council generally includes interdisciplinary members from the relevant corporate functions and makes joint decisions. This ensures a high level of transparency across all use cases within the organization and makes it possible to exploit synergies.

Similarly, the council endeavors to invest wisely in skills and technology by selecting the right technology for the use case in question.

In addition to the technology component, we also want to ensure that the data is scalable. One core principle of data-centric transformation is ensuring that data is standardized, trustworthy and accessible across the enterprise. Date Mesh leverages the data product as a vehicle to maximize data reusability.
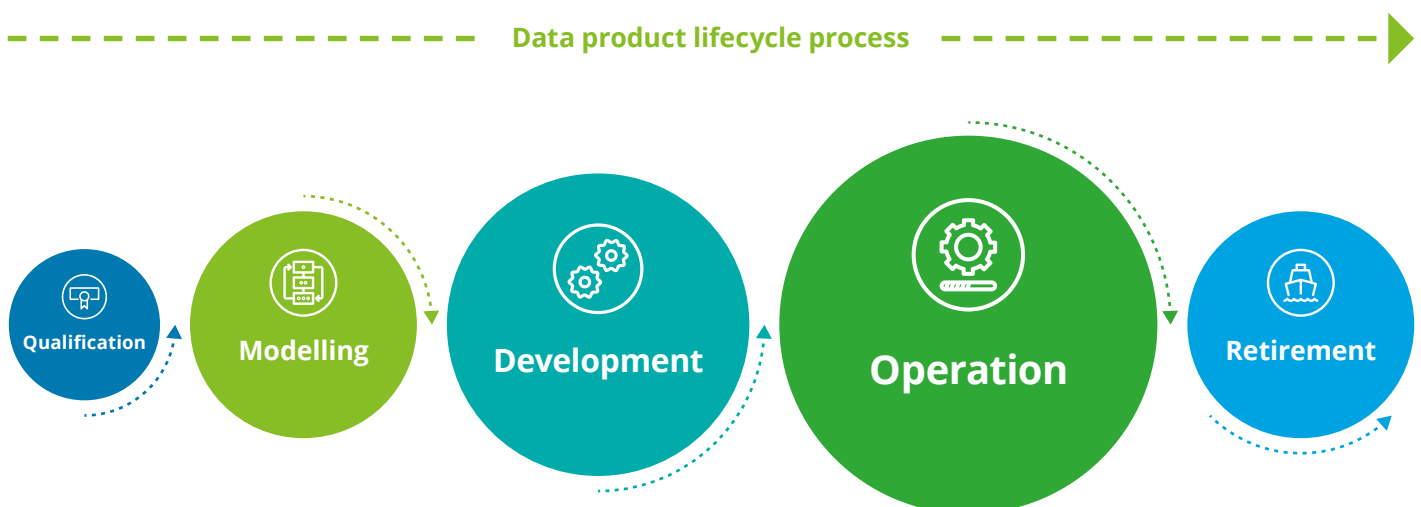
A management process at the data product level is essential to make sure we can scale and maintain unique data products.

Data Product Lifecycle Process
The use case management process and the use case descriptions help us capture and combine the required data objects (data sources) into logical groups based on their related business purpose (data products). With a proper description of the dataset in place (metadata), we can catalog the data product itself as well as its description in a central inventory (data catalog) to make it searchable and reusable.

In technological terms, a data product is basically a service that provides a certain set of data in a standardized manner. Data products represent the essential building blocks of a federated data architecture.

As the landscape of data products evolves, maintaining all of the data products and keeping track of the ways they are interrelated can obviously become quite a complex. That is why, in order to comply with the relevant regulations, it is so important publish only those data products that meet uniform standards and principles. Each data product in the architecture is therefore developed in a standardized lifecycle from conception through its active phase and into retirement when it becomes obsolete.

Data product lifecycle process

Qualification · Modelling · Development · Operation · Retirement

We derive the specifications for any given data product from the use case management process (use cases require data as a source) or source it from outside the use case process.

Since there are some data assets that can span several steps of a business process or even multiple business processes within one company, establishing a standardized procedure for building data products is essential. This approach must be strongly collaborative in order to collect the various specifications and perspectives from all relevant business areas and to develop a sustainable, scalable technology solution architecture.

The lifecycle of a data product begins with the qualification phase in which users identify the need for a specific data asset, e.g., via the use case process. As part of the qualification process, the team describes the specifications for the data from a business perspective, enabling the team to determine whether similar data products already exist and can be adapted, or whether it is necessary to develop a new data product. After an initial criticality assessment of the data, the team evaluates what safeguards are necessary to ensure they factor in all relevant issues at an early stage. As soon as the qualification phase begins, the team enters the data product into the data catalog to foster transparency across the entire data landscape.

Each data product has a standardized blueprint throughout the product lifecycle that comprises all relevant information and creates transparency for all parties involved in the process.

After completion of the qualification phase, the team develops a more detailed description of the data product in the modeling phase. Key components of this phase are the defined data models (from a conceptual and logical perspective) that establish a common understanding of the asset and the functional and non-functional requirements for the data product, which will subsequently become the solution architecture for the data product.

In this phase in particular, subject matter experts provide major support, whether it is with coordinating definitions, documenting requirements or building solution architecture for the data product. This ensures that the new product complies with all company-wide guidelines and that the data product and its operations are integrated into the enterprise data landscape.

At the end of the modeling phase, the team has a formal implementation strategy for the data product in place, which is subject to approval at the quality gate. A central governance council generally approves the product (reference orga article), ensuring the efficient allocation of resources, the identification of synergies and compliance with corporate requirements.

Once the data product has been approved, the agreed implementation plan kicks off, generally using an agile approach (DevOps) to respond to feedback and make any necessary changes as early as possible.

Users can request access to the data product on the central data marketplace once it is made available. After the access is granted, the data product serves to execute the use case derived from the original requirement as well as other use cases.

When there is no longer the need for a particular data product, the standardized retirement process begins, making sure the product is completely removed from the system landscape in compliance with all regulatory or corporate requirements.

Outlook

The two processes described here are closely related. With the use cases as the main focus, business value is front and center of the process. This makes the management of the transformation as well as the allocation of the resources as effective as possible.

Making the transition into a data-driven company brings about radical change within the enterprise. The novel collaborative process and the changes in traditional roles and responsibilities will not succeed without a significant mindset shift. In order to provide support for everyone involved, the two processes we outlined here will create transparency and standardization. The data as well as the technology will be sustainable and scalable as a result by making robust, reliable data available to the people who need it most.

The best way to bring about a mindset shift like this is to make change management and an effective communication campaign the priority at an early stage of the transformation. We address this complex issue in the following article.

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Christoph is a data strategy consultant and data scientist, combining the two in his endeavor to help enterprises transform into data-ready organizations. He has a particular focus on the CEO and CDO organization's operating model design, data / machine learning governance, collaboration models and data literacy. In his opinion, data is a people business - technology is more readily available.

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Jan is a highly skilled data strategist with 8 years experience in designing & transforming companies to become value-data-driven. He is an expert in Data Governance & Operating Models. Jan's project background is in a variety of AI & Data Strategy and Data Science projects at different maturity levels (PoC, PoV, MVP, MMP) including the design of cloud architecture and data operation units.

Glossary

Data Mesh

The data mesh is a domain-driven socio-technological approach for creating decentralized data architectures. It is based on decentral governance structures as a foundation for generating sustainable business value using standardized and re-usable data products. It relies on a flexible collaboration model accross the entire enterprise.

Data Product

A data product is a set of data that is made available for the usage of employees or systems via a standardized API on a marketplace. Its purpose is to realize use cases and therefore to enable the implementation of data-driven services.

Data as a product

Synonymous to Data Product.

Use Case

A use case creates business value by fulfilling an explicit objective. Use cases are based on existing Data Products.

Data Catalog

A data catalog is the central inventory for all data assets within the company. It is made understandable via a glossary of frequently used terms and by highlighting the technical and business data lineage as well as transformation logic.

Data Governance

Data Governance is the discipline that connects data processes, and corresponding roles and responsibilities by formulating binding enterprise-wide policies.

Ontology

Ontologies are formalized descriptions that capture relations between business entities and their ab-stract realization as data.

Data Domain

A data domain takes ownership of data relevant to a common area of interest and implements roles that are responsible for expanding and maintaining the usability of this data.

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