



The journey to becoming a data-driven company

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For companies in a high-wage country like Switzerland, where competitive pressures from abroad are increasingly being felt, the key to maximising innovation, efficiency and flexibility on the market is to embrace digitalisation. Studies prove, however, that this is no easy task. According to the latest Swiss IT 2023 Report, digital transformation is one of the top three challenges facing companies across all industries.

Setbacks in digitalisation usually result from the incorrect or inadequate processing of internal data. Today, only 34% of Swiss companies are able to extract enterprise value from their data. To make their data work for them, companies must establish a comprehensive data architecture and consider using data lakes, data warehouses and data meshes. Only by building a single source of truth for all company data can the data be handled in a clean, scalable manner to support the creation of new business models and the optimisation of existing processes.

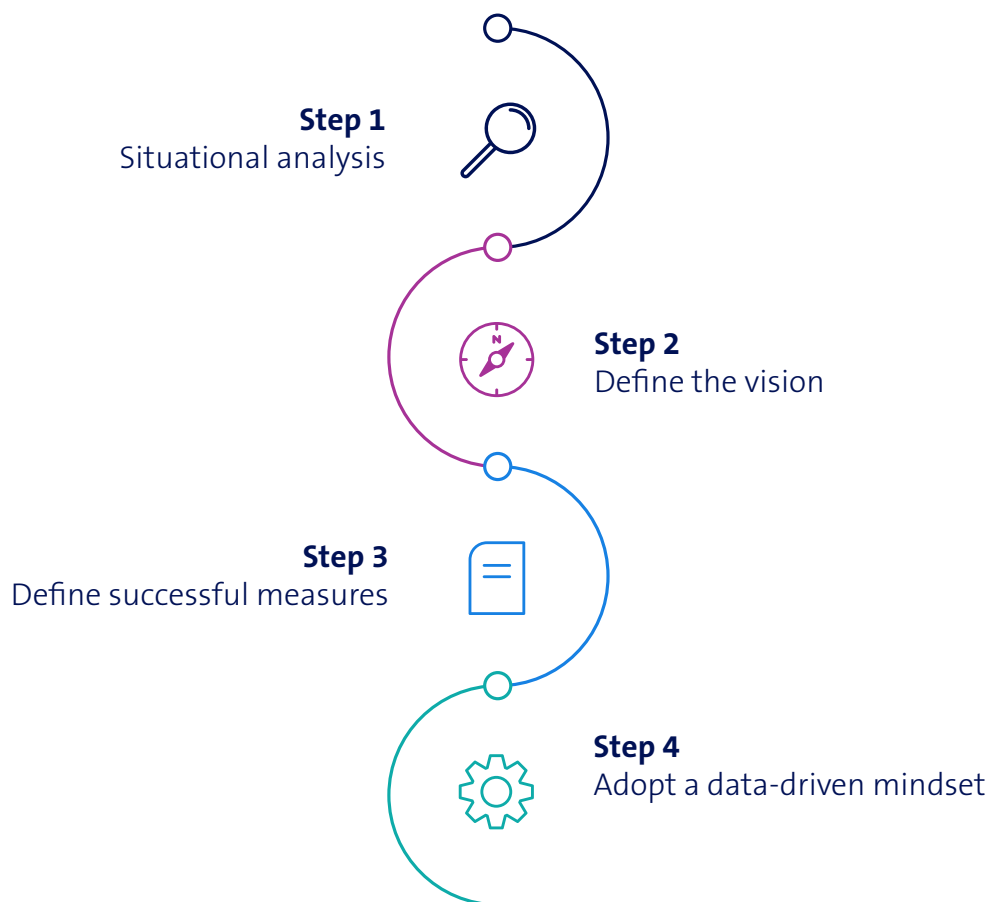
This white paper outlines how companies can review and improve their data management and develop a new, holistic data architecture to bring their corporate culture along with this change. A well-designed data architecture is the key to successful digital transformation. It enables companies to make data-driven decisions, develop new business models and compete internationally. Technological developments such as artificial intelligence (AI) and machine learning (ML) rely entirely on quality data – a challenge that companies must address now to remain competitive in the long term.



The importance of the data architecture

Digitalisation causes upheaval and radical change in companies across almost all industries.

Successfully mastering the digital transformation is, according to the latest Swiss IT 2023 report, one of the top three challenges facing companies. While 20 years ago, IT system capabilities extended purely to mapping accounting procedures, today, all functions and operating procedures are automated and completed efficiently using mobile technology.



Data as an asset – competitive advantage in the 21st century

In the future, to open up new applications and business models, the corporate strategies of forward-looking companies will have to include digital transformation, automation and workflow optimisation. Data is at the root of this transformation. It is important, however, that companies carefully consider how they create this data. It must be structured in a future-proof manner and maintained properly throughout its life cycle to bring order to the heterogeneous and highly complex application landscapes. This is the only way to ensure that the data can be used optimally throughout the organisation. Integral to this is the data architecture.

Today, only 34% of Swiss companies are able to leverage data to create enterprise value. This was the finding of MSM Research in its latest study, Internet of Things (IoT) and Data-Driven Business (DDB) in Switzerland, for which the consulting and market research company conducted around 600 surveys with Swiss SMEs, large enterprises and public authorities. This means that most organisations have yet to use their data to its full potential.

Leveraging data intelligently improves processes and makes businesses more efficient. It also opens up opportunities for entirely new customer experiences or business models, giving businesses a genuine competitive advantage. Data must therefore be considered a major asset – it can be used to create new business models that fundamentally change a company's business. Data is most valuable if it can be connected within or even between organisations. It provides new insights and delivers information that ultimately allows companies to automate strategic and operational decision-making. Whatever the size or nature of a business, be it an online pizza supplier, an international fashion group or a heat pump maintenance specialist, organisations that recognise the value of data have a huge opportunity to achieve a competitive advantage.

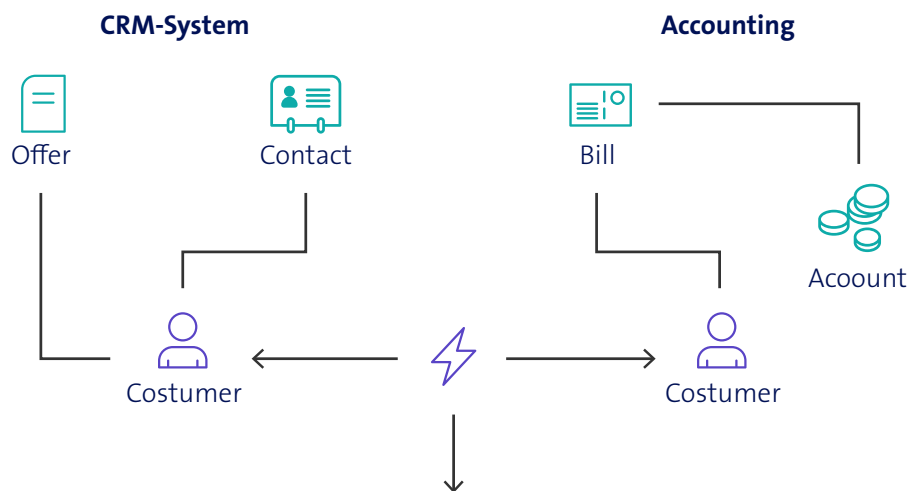
***Leveraging data intelligently
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The challenge: neglected data governance across application boundaries

Many companies are still not taking full advantage of their available data. According to the Swiss IT 2023 Report, poor data quality, complex data environments and data volumes are some of the biggest challenges in data management. They can be due to careless, insufficiently regulated data maintenance and structuring or many IT infrastructure changes, as well as data silos that have arisen over time. Most companies procure new IT applications based on individual application scenarios and their cost efficiency.

If a company needs to implement a new CRM system, for example, or evaluate standard software for the finance department, the focus is too often on the individual business process that needs to be digitalised, rather than a holistic view of the data. The efforts of the business process owner are directed towards achieving the project and departmental goals and getting the new system up and running as quickly as possible. Without a company-wide requirements analysis, this single-system approach will almost always result in redundant data across application boundaries and prevents a holistic and integrated view of existing information from the outset.

Data quality challenges



An integrated view of the data and data analyses is virtually impossible.

One consequence could be, for example, that the definition of a customer is unclear because the CRM system and finance department are using separate data records. Technological developments such as artificial intelligence (AI) and machine learning (ML) rely completely on quality data. If the information in the company cannot be connected, the prospects of a successful implementation of these technologies remain slim, if not a pipe dream.

By building a holistic data architecture, companies can rise to the challenges of data management and take full advantage of their data. Four architectural concepts are fundamental to this and form the basis of a data-driven company: the data lake, the data warehouse (DWH), the data lakehouse and the data mesh.

Data lake definition

A data lake is a repository designed to store large amounts of data in its raw or native format, usually as files or as binary large objects (blobs). A data lake is typically a single repository for all company data, including raw copies of source system data and transformed data, used for tasks such as reporting, visualisation, advanced analytics and machine learning.

Data warehouse definition

A data warehouse is a central repository, optimised for analytics, that consolidates and condenses data from multiple, typically heterogeneous sources. The term comes from information management in business information technology.

Data lakehouse definition

A data lakehouse is a modern data architecture that combines the key benefits of data lakes and data warehouses. All data, structured and unstructured, is made available on one central platform. While unstructured data can be queried directly for ML and AI application scenarios, structured data is managed in a resilient, layered architecture for analysis.

Data mesh definition

Data mesh is a socio-technical approach to managing data at scale. The architectural framework places significant responsibility on the data owner to ensure the quality of the data. Each node in a data mesh is called a data product, a reusable data asset designed for a particular use and delivered according to agreed-upon standards and schedules. The data mesh approach is also often combined with other more technical reference architectures.

Source: DAMA

We often encounter other architectural frameworks, such as data fabric, logical data warehouse, Lambda and Kappa (for big data and streaming). Architectures are often combined. That is not necessarily wrong. However, we recommend remaining as consistent as possible with the data architectures deployed, rather than incorporating too many over time. Otherwise, technical issues could arise (short-term quick wins in the system, which are later regretted), and new developers may not have the time to come to grips with the existing architecture to add value for the business – for example, by realising new features such as dashboards.

When implementing new IT applications, the focus is often on the business process, not the data.

A straightforward **four-step approach**

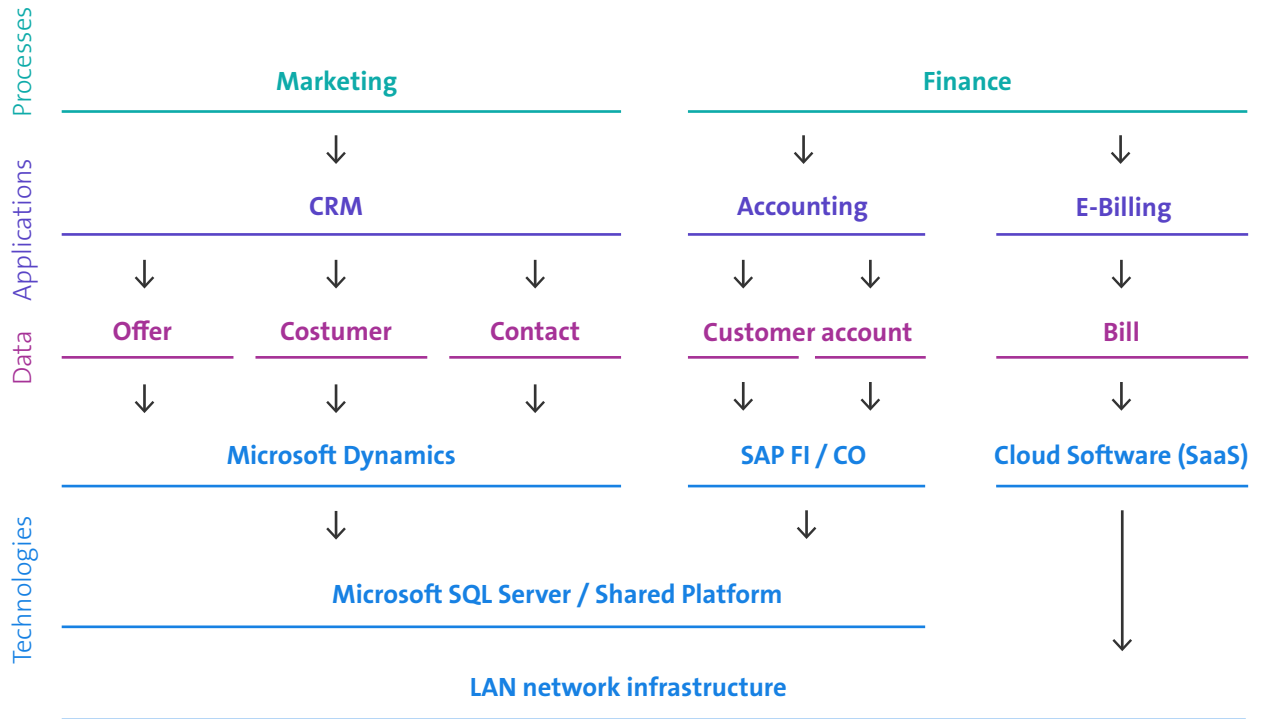
- 1** Situational analysis
- 2** Define the vision: data talks
- 3** Define successful measures
- 4** Adopt a data-driven mindset

Step 1 Situational analysis

During this step, the main objective is to gain an overall impression. In larger companies, this first task involves establishing the enterprise architecture. The analysis begins with listing all the business processes, applications, data and technologies required, as well as documenting the relationships between these elements. It is important to identify which application is responsible for which data, which system is the master and which technologies are required for which tasks. This step also involves identifying potential synergies and dependencies.

This stocktaking gives companies a better understanding of their data architecture. Transparently documenting and visualising the current situation contributes towards understanding. Interviews, research and workshops should be conducted with different stakeholders in the company. The analysis identifies different data assets such as customers and records the distribution of the individual data as well as data relationships. An analysis is also performed to identify redundancies in the data and establish which people in the organisation are responsible for which data. The confidentiality of the data and the extent to which it is worthy of protection are also analysed.

Big Picture der Ist-Architektur



Inventar der Data Assets

Data Asset	Master	Classification	Owner	Quantity	Availability	...
Costumer	System XY	Strictly confidential	Department I	–	–	
Account	System Z	Not confidential	Department B	–	–	
Offer	System A	Confidential	Department C	–	–	

Step 2 Define the vision: data talks

For a successful transformation, everyone, especially those at a senior level, must be aware of the company's vision and where the journey is headed in the long term.

What technical capabilities will need to be in place to support the digital vision?

What data will be required for this?

What will be the associated requirements and constraints for the technology modules (functional and non-functional requirements as well as legal frameworks)? It is useful to define specific principles as part of the IT strategy.

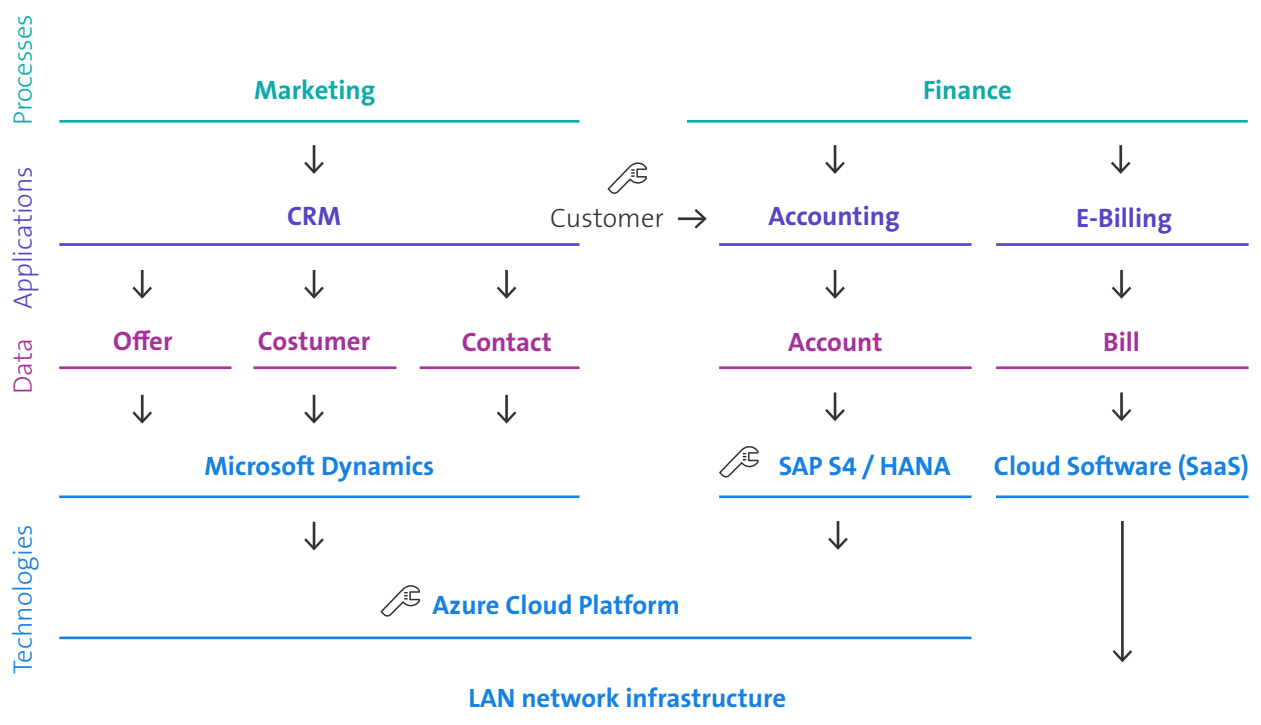
Is the Internet of Things (IoT) relevant for the future business strategy?

This would have implications for the volume of data to be processed in a cost-efficient way; a logical consequence would be to adopt a cloud-first strategy. Similarly to the situational analysis, a detailed inventory is also required of the target processes, applications, data and technologies as well as their interaction and dependencies.

How can data be standardised to facilitate master data management in one central location (master, single source) and ensure distribution to peripheral systems over interfaces (e.g. API), thus avoiding data silos?

The aim is to avoid the creation of redundant data silos. By answering these questions, companies can gain an accurate idea of their target data architecture and make sure it delivers sustainable value.

Big Picture of the target architecture



Evaluated need for action

Step 3

Define successful measures

Once the current situation and vision have been defined, it is time, in this third step, to analyse and determine the main differences between the two architectures at business process, application, data and technology level. The specific measures required to achieve the vision can then be formulated on the basis of this. It is important to take into account

- a) programmes and projects that are already underway and involve a change in architecture,
- b) and new programmes and projects that will be launched as a result of the analysis.

Ongoing programmes and projects

For programmes that are already underway, the change request procedure should be used to incorporate any changes or synergies resulting from the analysis in the programme or project management. For example, when replacing accounting software, it must be ensured that all relevant master data (e.g. customer name, address) is transferred to the new system from a single location (single source of truth). It is likely that the new system will require more information about a customer (e.g. billing address) than was previously the case. This is not a problem as long as the same information (e.g. customer name) is not duplicated.

New programmes and projects

vision – and if resolving this promises significant advantages – then it is advisable to start a new project. A solid business case must be prepared and proposed to the project sponsor, who, in most cases, is also the party who would benefit from the change; e.g. the marketing manager, for whom consistent customer definitions would be useful for product line-related data analyses. Consider which technical capabilities (applications, resources etc.) are required for analysis of the data: is a central data warehouse or data lake to be implemented, or is it more effective to combine the two approaches? If the existing master data is of high quality and stored in a clean and consistent manner, then this approach offers good prospects of success. Questions about data security and data storage are also important in this context. Who is allowed to have access to integrated analytical data? Is some of the data in a public or private cloud and some stored locally on the company premises? A clear vision should also be developed in this regard, as described in step 2. In light of the new Federal Act on Data Protection (Swiss FADP; GDPR in the EU) and the EU AI Act, it is worth remembering that without understanding your own data or being able to provide information about it, there can be no AI.

Step 4

Adopt a data-driven mindset

The data-driven mindset must be incorporated in all corporate projects. Just as lawyers are appointed to oversee legal, financial and business requirements, they must also be appointed for data.

To ensure that data can be reused, the business department will be shown the benefits of long-term, consistent and holistic data management. Communication is at the heart of all activities. It is important that decision makers understand and recognise the importance of the transformation to a data-driven company. The current

situation and vision must be clear and understandable. If a customer master already exists, its duplication must be prevented. It is also important to keep demonstrating that the long-term return on investment for a professional and automated interface relies on taking full advantage of analytical application scenarios.



One final tip: create transparency

Established enterprise architecture or data management frameworks, such as TOGAF or DAMA, offer guidance and best practices to help businesses standardise their approach and tailor their architecture to the size of their company. The enterprise and data architecture can also be visualised for a deeper understanding. There are different ways to do this. For smaller organisations, an Excel document is sufficient.

If the interrelationships become more complex, it is advisable to use an enterprise architecture tool such as the SAP Enterprise Architecture Designer. Regardless of the visualisation chosen, implementing a transparent data architecture is essential for a successful transformation to a data-driven organisation.

Gain transparency over your business processes, applications, data and technologies, and lay the foundations for becoming a data-driven organisation

How we can help you

Lay the foundations for your data-driven future now. Discover where you are on your journey to becoming a data-driven company and receive impartial advice from our experts.

Register now for the [ReThink AI Workshop](#).

Learn more about [data-driven business, AI and analytics](#)

