

The Essential Role of Enterprise Architecture Management for Data and AI Strategy & Governance

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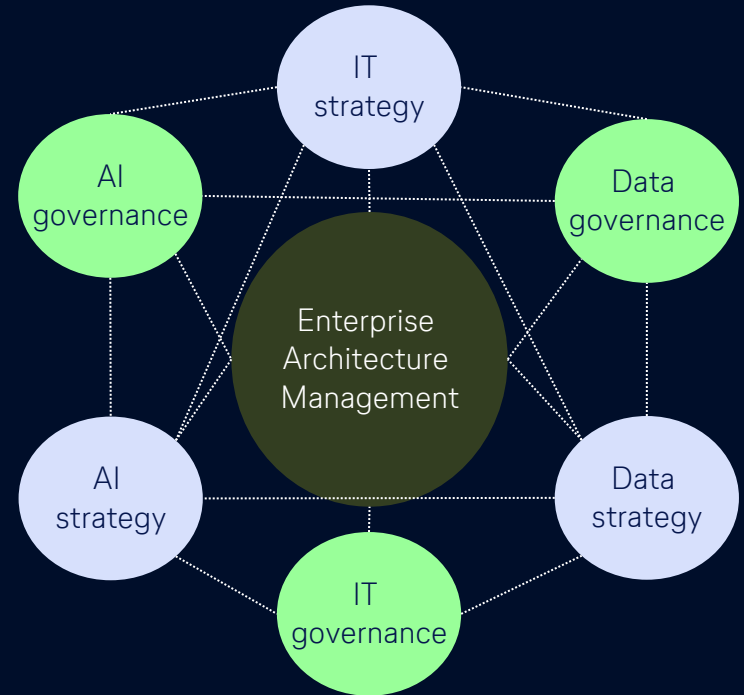
This is a variation of the presentation I held on the same topic on the IRMUK, Data & AI Conference Europe, October 2025, London



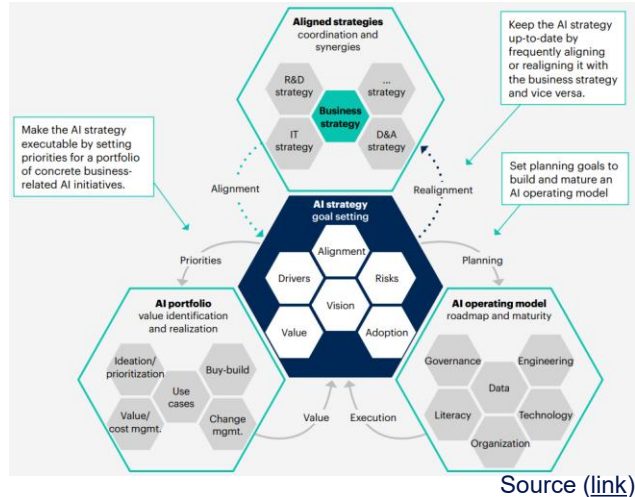
The challenge: Due to the stellar rise of Data and AI in the last years, enterprises are scrambling to calibrate their strategic Data & AI capabilities

Questions asked with high priority:

- How exactly does our Data strategy, AI strategy, AI governance look like?
- How do these relate to IT strategy and Enterprise Architecture Management?



Current existing guidance is either highly generic or incomplete



Source (link)

← Initial activities

AI strategy	Define the AI vision Measure AI maturity	Analyze external trends Initiate the AI strategy	Communicate the AI strategy Set adoption goals for AI roadmap	Identify priorities for AI portfolio Measure AI strategy success
AI value	Prioritize initial AI use cases Define value for initial AI use cases	Run initial AI pilots Track value of initial use cases	Establish process to prioritize AI portfolio Introduce product management practices	Implement AI FinOps practices Launch an initial AI product
AI organization	Create an AI resourcing plan Set up an AI community of practice	Appoint an AI leader Set up an initial AI team/center of excellence	Establish AI target operating model Form initial external AI partnerships	Set up process to manage AI partnerships
AI people and culture	Create an initial AI workforce plan Set up process for review of roles and job redesign	Create an AI change management plan Create initial AI awareness campaigns	Set up process to evaluate AI workforce impact Launch an AI literacy program	Define business champion to drive AI literacy Set up monitoring of employee readiness for AI
AI governance	Identify top AI risks and mitigation Define initial AI policies	Establish AI ethical principles Gain buy-in for AI governance approach	Set enforcement processes Define decision rights for AI	Set up cross-functional AI governance board Define target governance AI operating model
AI engineering	Establish build vs. buy framework Select vendors for initial AI use cases	Set up a sandbox environment Define library of design patterns	Define AI reference architecture Create an AI vendor and application strategy	Establish MLOps/ ModelOps practice Set up an AI observability system
AI data	Assess data readiness for initial AI use cases Implement data readiness plan	Build data analytics for AI Gain buy-in to evolve data capabilities for AI	Extend data governance to support AI Evolve data capabilities for AI	Establish an AI data quality framework Adapt metadata practices for AI

How to Build an AI Strategy

According to Google Cloud innovation

1. ESTABLISH A CLEAR VISION

Connect strategic priorities from the overall corporate strategy to specific AI domains and use cases:

Top-down: Link strategic priorities from the overall corporate strategy to specific AI domains to focus investment. Domains can be a department, a core product, or an end-to-end process.

Bottom-up: At the same time, gather feedback from teams on the ground to crowdsourc ideas and get a better understanding of the issues and roadblocks they encounter when working.

Domain focus: Isolated AI use cases rarely move the financial needle. Real impact comes from multiple use cases working together across domains to reimagine entire value chains.

2. PRIORITIZE THE RIGHT USE CASES

Evaluate potential AI use cases based on their potential business value, feasibility, and actionability:

Here are some examples of questions you can ask to map out your own use cases:

Business value	Actionability	Feasibility
1 Impact: Will this move the needle for our customer and employee needs?	1 Usability: How accurate does AI have to be to make it truly useful?	1 Technical fit: Is AI actually the right fit for this use case?
2 Alignment: How does this support our top business objectives?	2 Adoption: How easily can we adapt this into our existing processes?	2 Data readiness: How accessible and trustworthy is the data for this use case?
3 Reuse / extensibility: Can we reuse and build on it for future use cases?	3 Speed: How quickly can we drive value for our organization?	3 Risk tolerance: Are there any implications of inaccuracy or misuse?

3. MEASURE AND TRACK RESULTS

Define clear metrics to assess the performance of your AI use cases throughout their lifecycle:

Entire lifecycle: To fully understand value, measure each use case across its entire lifecycle, from pilot to launch and beyond, and continuously optimize.

Key performance indicators: Objectively assess performance, align strategy with business goals, demonstrate returns, and guide data-driven changes.

Baseline: Establish a baseline of current metrics to compare post-AI results. This may involve measurement of your production process without AI.

Model quality metrics	System metrics	Adoption metrics	Operational metrics	Business impact
These metrics help evaluate and monitor accuracy, factuality, reliability, and security of your AI models. They help set realistic expectations and reinforce responsible AI practices.	These metrics help track AI platform health and performance. They can reveal bottlenecks and uncover areas for compute cost and performance optimization.	To help understand how users interact with new AI tools, these metrics provide insights into adoption, usage frequency, and other types of qualitative user feedback.	These metrics help you measure whether AI features and capabilities are delivering downstream returns such as click-throughs and call containments.	Finally, these financial metrics provide visibility into whether you're meeting your strategic goals, such as increasing revenue, reducing costs, and mitigating risk.

Implement data observability for AI

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Enterprise Architecture
is the Cornerstone of
Digitalization Strategy

What is Enterprise Architecture Management (EAM)?

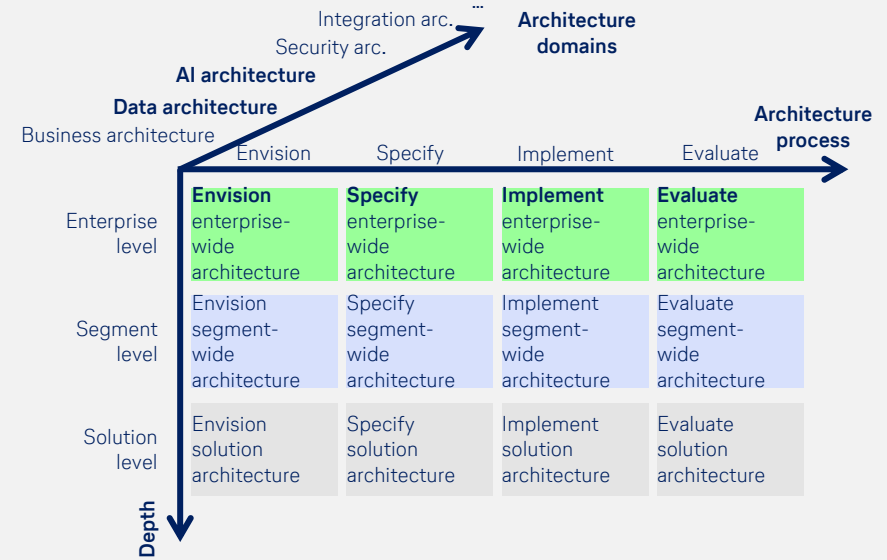
EAM manages and continuously optimizes the architecture of the enterprise-wide digital ecosystem



@ Based on Springer, 2022, J. Ziemann: "Fundamentals of Enterprise Architecture Management"; pictures from top: Shutterstock/Ink Drop, Tim Reckmann/Public Domain CC-BY-SA-3.0

What are EAM's core capabilities and processes?

Capabilities for managing the enterprise architecture



Capabilities to enable and support enterprise architecture management

EAM request management	EAM content management	Management of the IT asset inventory	EAM communication and training
EAM case management	EAM collaboration and stakeholder management	EAM board and panel management	EAM coaching and project support

Strategy is generally understood as:

High-level, comprehensive target picture and a plan for reaching it

Referring to ancient Greek: Stratos (Legion), Agos (Leader)

- A **plan of action or policy** designed to achieve a major or **overall aim**

Oxford Dictionary, June 2020

- Strategy can be defined as the determination of the basic long-term **goals** and objectives of an enterprise, and the adoption of **courses of action** and the **allocation of resources** for carrying out the goals

Chandler, 1962, Strategy and Structures: Chapters in the History of the Industrial Enterprise

→ Essential, long-term goal

→ Plan how to reach it

- **Basic, long-term behaviour** (combination of measures) of the company and relevant sub-sectors towards its environment in order to achieve the **long-term objectives** *Gablers*

Wirtschaftslexikon, 2016

- Decision/game theory: **Set of rules**, whose compliance should increase the probability of the occurrence of a desired event *Gablers Wirtschaftslexikon, 2016*

→ Long-term behavior, set of rules

Architecture and strategy are closely related - not only in nature



For digital ecosystems also applies:

- There is a **close relationship** between architecture and strategy
- There is **not “the one” perfect architecture**
- **Even with a defined environment**, it is hard to derive a good strategy and architecture

Architecture and strategy are closely related – not only in nature



For digital ecosystems also applies:

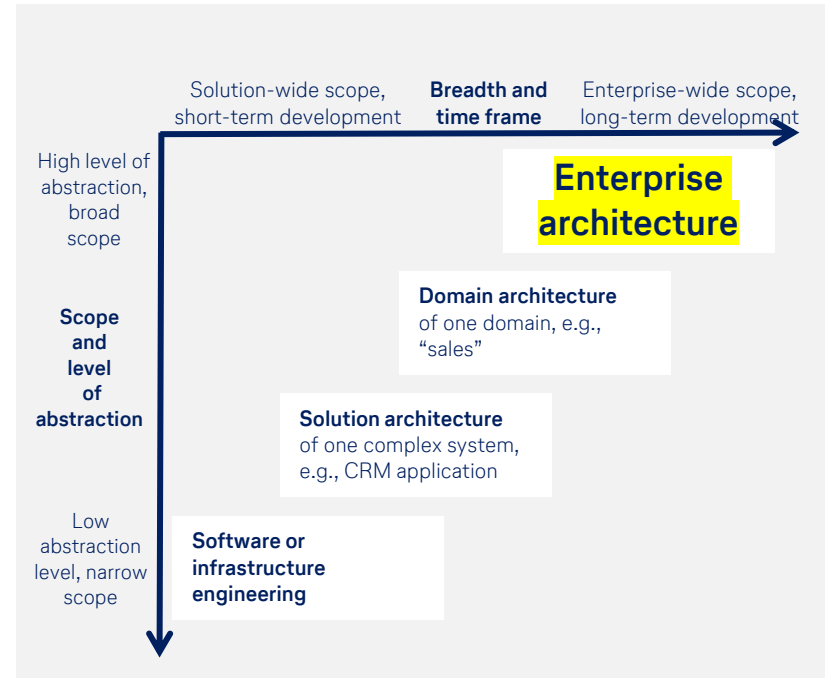
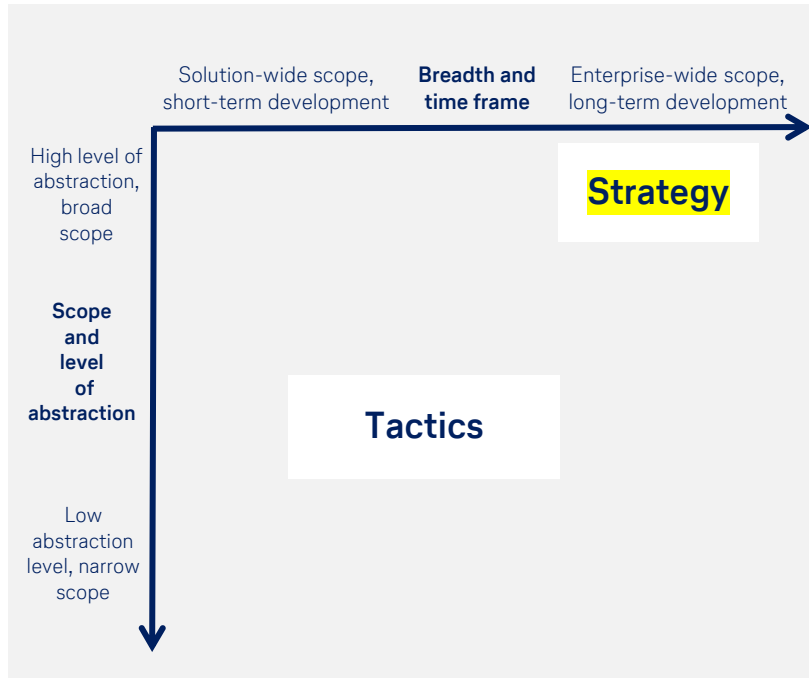
- There is a **close relationship** between architecture and strategy
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- **Even with a defined environment**, it is hard to derive a good strategy and architecture

*Beware of the
“Eierlegende
Wollmilchsau”*

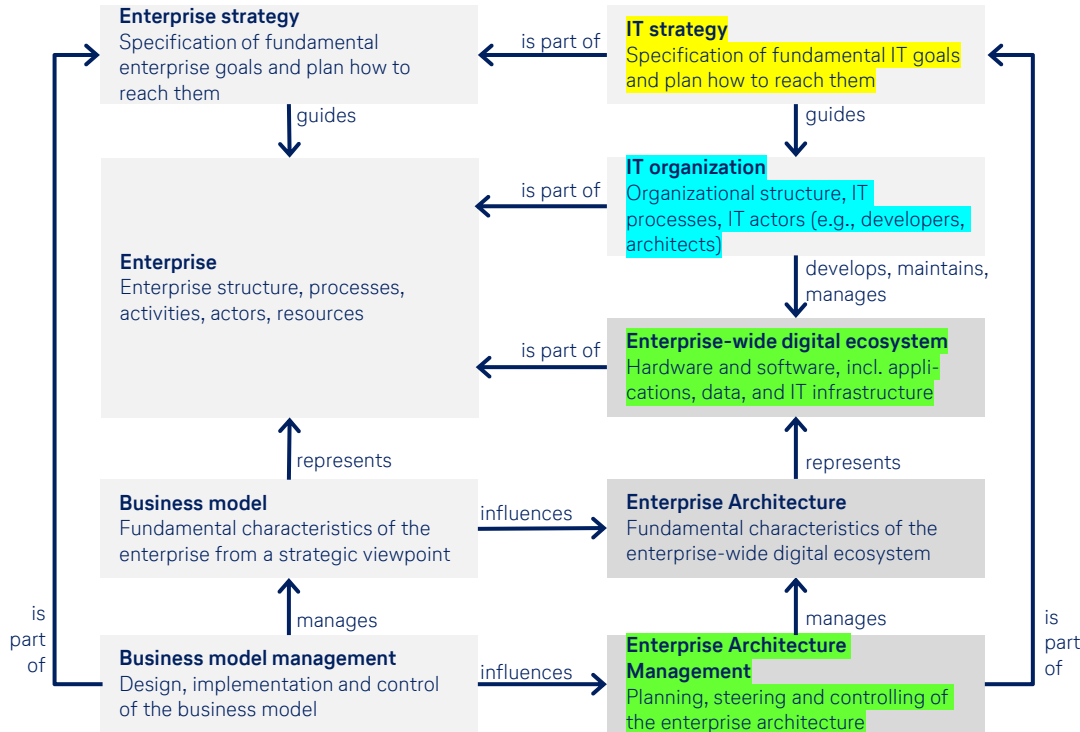
“We will excel at everything”
is not a realistic goal
and hence not a
strategy



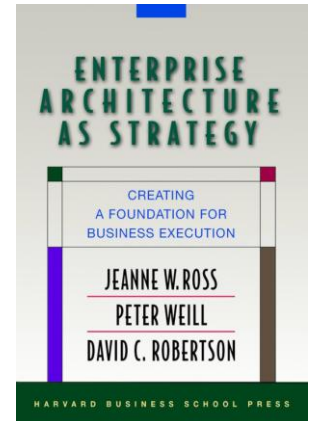
Strategy is long-term, has a broad, comprehensive scope and is high-level. Tactics are short term and have a narrower scope. *Sounds familiar?*



Summary: Enterprise Architecture Management steers the enterprise-wide digital ecosystem. Thus, it is an essential element of IT strategy



This was nicely expressed already 2006 in a prominent EAM book:



Enterprise Architecture

as cornerstone of

Data strategy and Data Governance

Enterprise Architecture supports both Data Governance and Data Strategy

Recent examples from the aviation industry

✈ ✈ ✈ Enterprise-wide target picture Data & Insights.

E.g., laying out all Data & Insights capabilities, standards, applications for Lufthansa's Hub Airlines

✈ Domain-specific data & insights architecture.

E.g., specifying the data & insights ecosystem of the Flight Operations domain

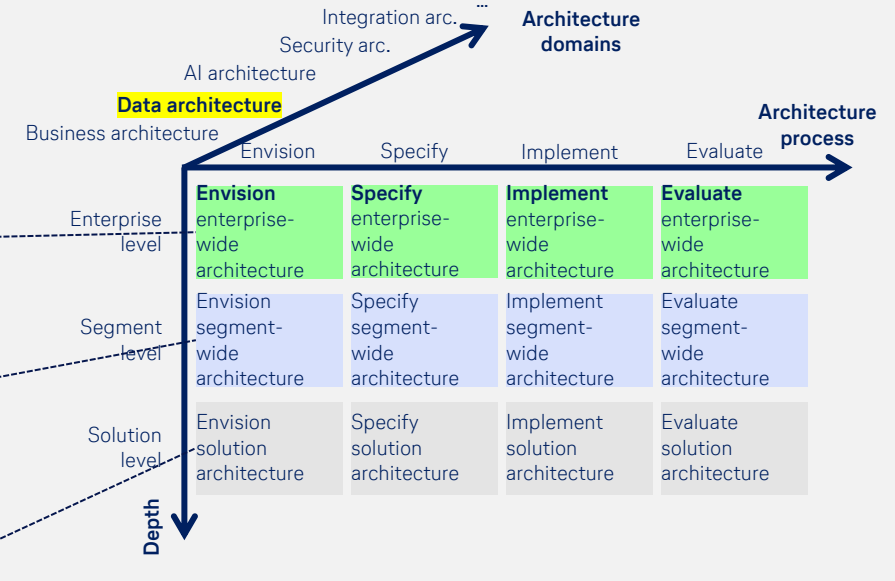
🧠 Support central data & insights platforms.

E.g., support the central data platforms architects and ensure that architectural requirements are met

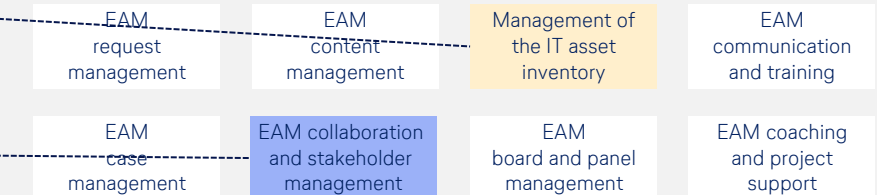
📁 📦 Manage Enterprise-wide Catalog of data & insights applications and related data products

🍷 Enterprise-wide alignments on strategic Data & Insights projects and activities

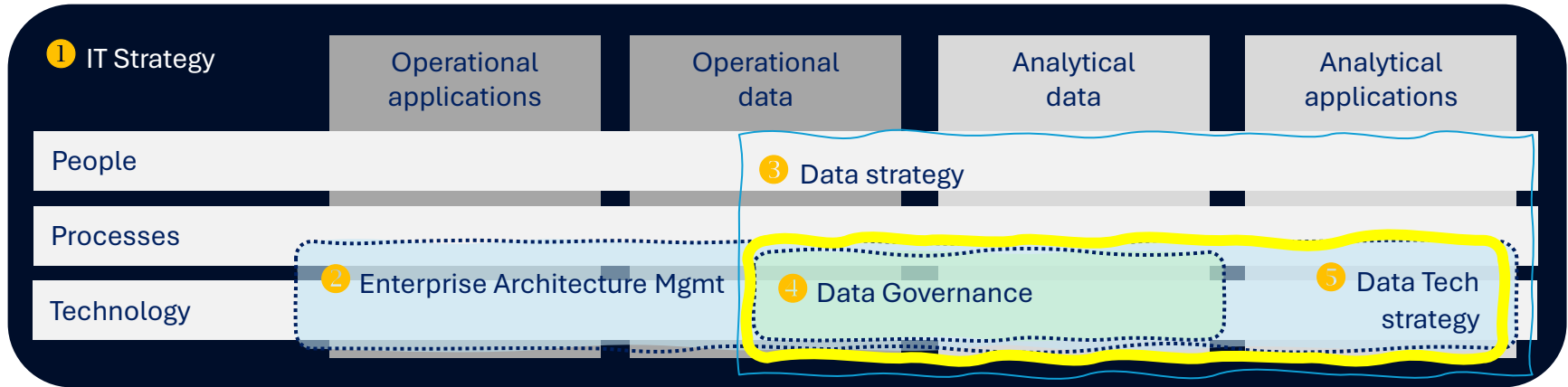
Capabilities for managing the enterprise architecture



Capabilities for enable and support enterprise architecture management



Data strategy can be divided into **people, processes and technology**.
 Different from IT strategy, it does rather focus on analytical applications



1. IT strategy

provides the big picture for managing all digitalization capabilities of an enterprise

2. Enterprise Architecture Management

defines the high-level picture of applications, data and infrastructure

3. Data Governance

ensures quality and compliance of data

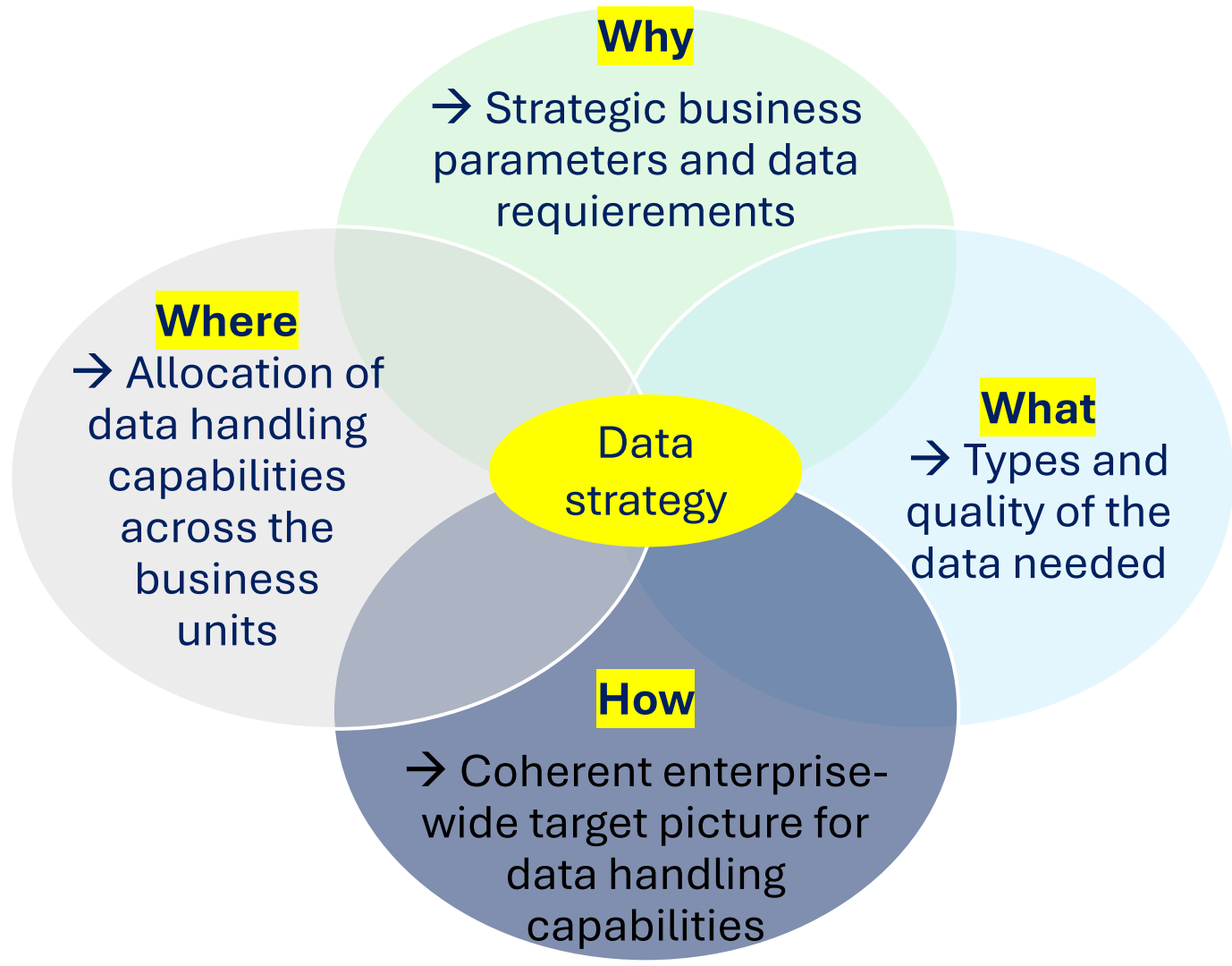
4. Data strategy

defines the big picture for managing and using data, including the general approach to data analytics in the enterprise

5. Data Tech strategy

focuses on the technology part of data strategy

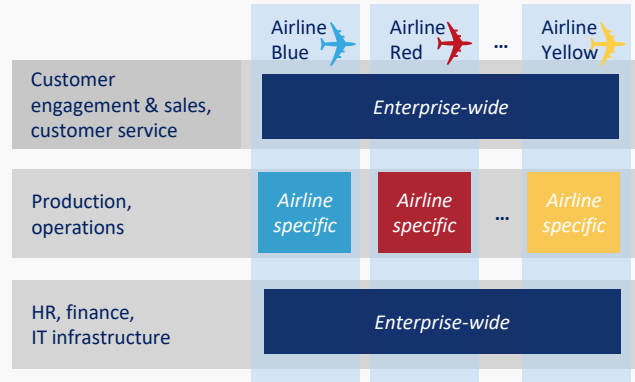
The tech data strategy should address the classic questions on a high level



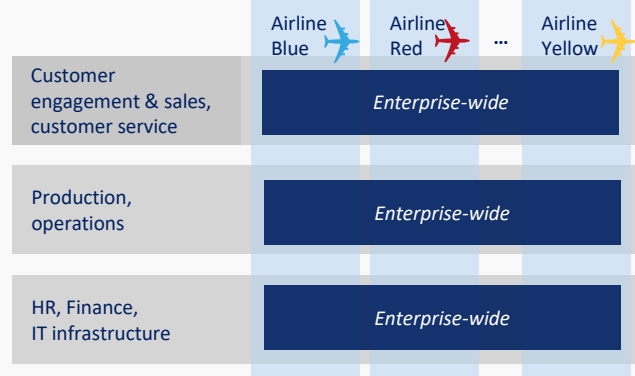
“Why” dimension

Here the Data Tech strategy derives strategic requirements from the business and the enterprise operating model

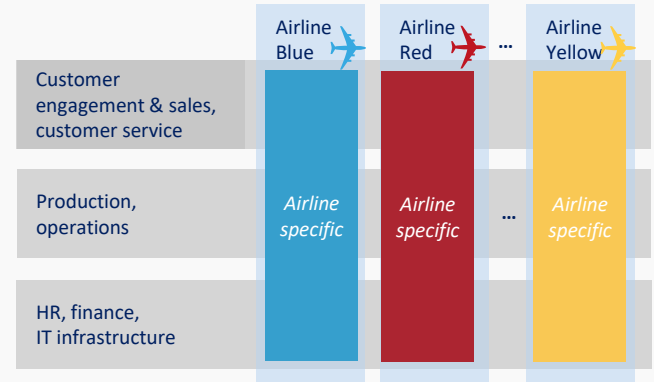
1. Decentralized operations (market-oriented)



2. Completely integrated airlines (function-oriented)



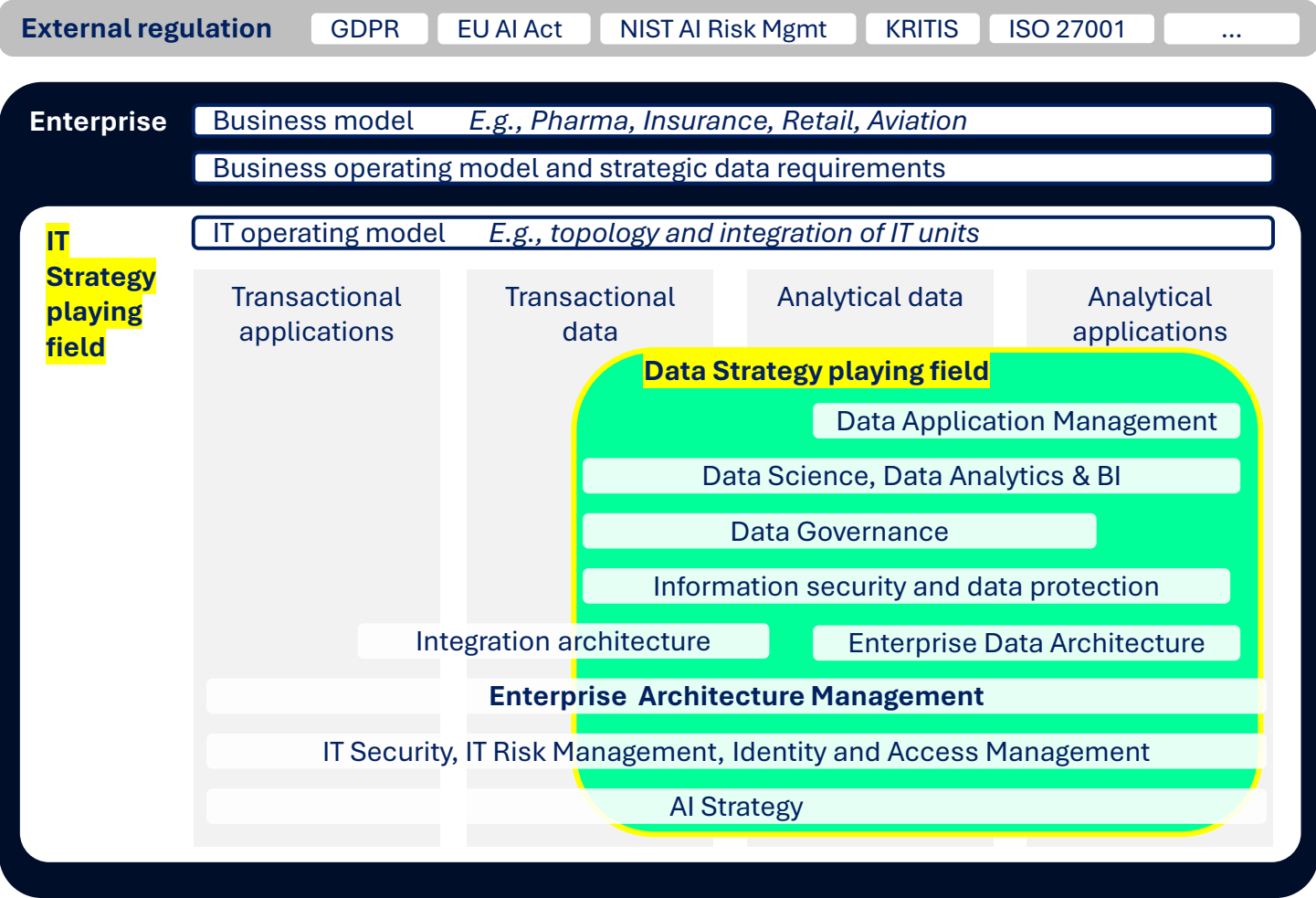
3. Completely decoupled airlines (product-oriented)



- On a very high level: Which type of data should be available, where, in which quality (inc. degree of harmonization), why, and for whom?
- **THIS IS NOT a strategy:** “We need all data everywhere in perfect quality, in real-time, available 24/7”

“How” dimension

The data strategy must ensure that the relevant capabilities are mutually exclusive and completely exhaustive

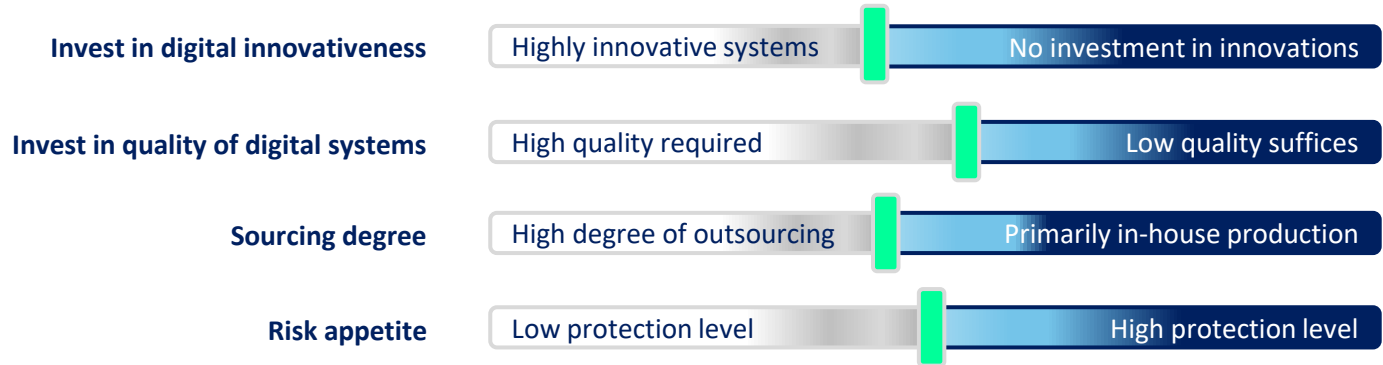
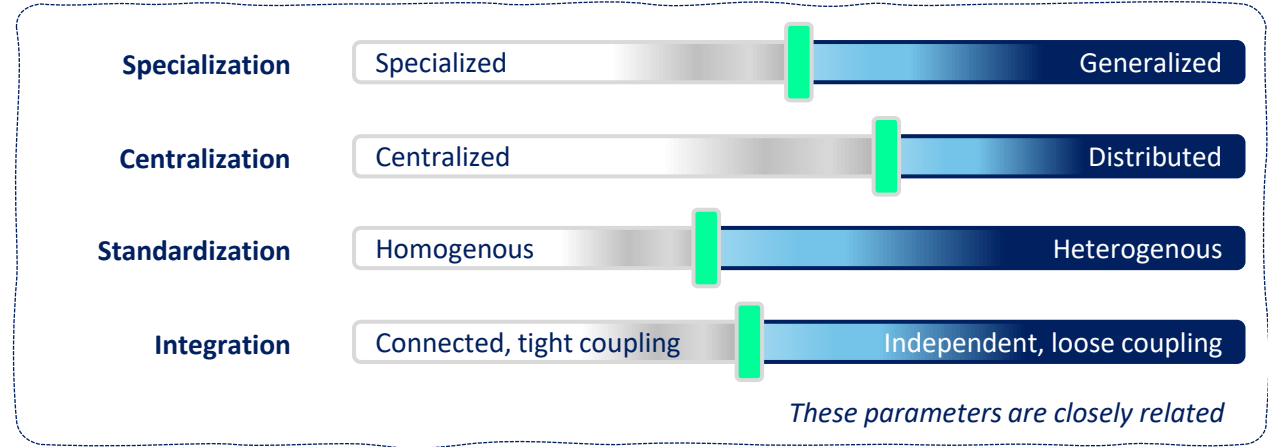


„What“ and „Where“ dimension

Strategic parameters of the
enterprise-wide data strategy

General strategic parameters of the enterprise-wide digital ecosystem

i.e. the enterprise architecture

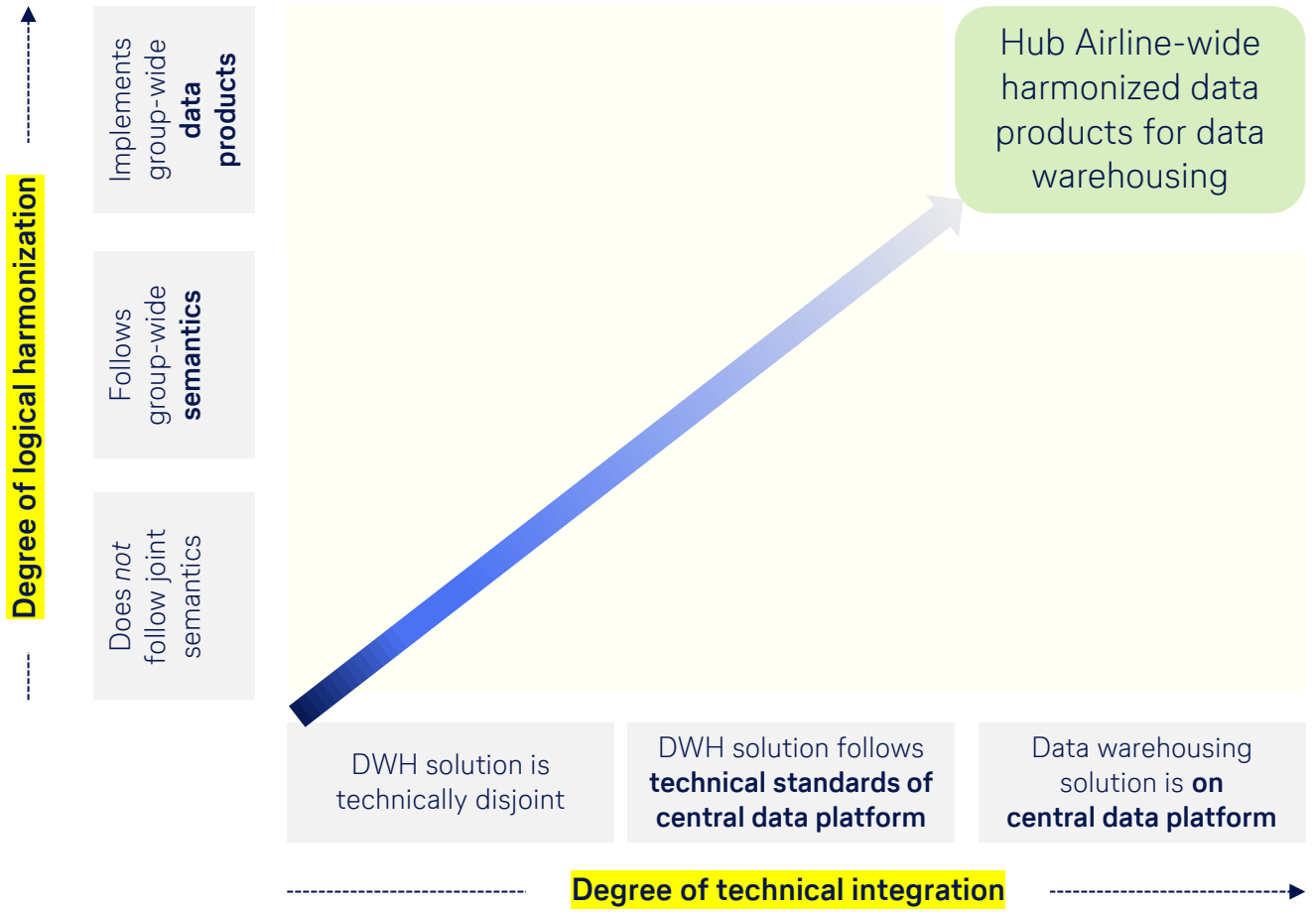


Parameters of the data mesh: Centralization, integration, specialization and coherence on various levels

		1. Data warehouse in theory	2. Data warehouses in practice of large enterprises	3. Data Mesh on one central platform	4. Data Mesh on various platforms	
Governance	Data quality standards	Enterprise-wide quality standards, semantics and syntax	Enterprise-wide standards (high-level) Domain- wide standards (detailed)	Enterprise-wide quality standards, semantics and syntax	Enterprise-wide standards (high-level) Domain- wide standards (detailed)	
	Semantic harmonization e.g., IDM, glossary					
	Syntactic harmonization e.g., contracts					
Product development	Consumer-specific products ("consumer-aligned")	Enterprise-wide i.e., by central development team	Domain-wide i.e., a data warehouse for each (large) business domain	Sub-domain (team-wide) ≈ independent data analytic "areas" for each team	Sub-domain (team-wide) ≈ independent data analytic "areas" for each team	
	Integrated data base ("Aggregate data")					
	Data ingestion / ETL					
Platform	(Physical) analytics platform	Enterprise-wide platform	Domain-wide	Enterprise-wide platform	Domain-wide	
	Technology standard harmonization		Enterprise-wide		Enterprise-wide	
		<ul style="list-style-type: none"> + High integration, data quality and cohesion - Bottle neck, too slow for today's requirements 	<ul style="list-style-type: none"> + At least domain-wide integration, data quality and cohesion - Bottle neck, still too slow, data swamp 	<ul style="list-style-type: none"> + Fast and innovative local developments - <i>Challenging</i>: Platform scalability, data quality, integration, coherence 	<ul style="list-style-type: none"> + Fast and innovative local developments - <i>Challenging</i>: data quality, integration, coherence 	
		<p>Read-optimized</p> <p>Centralization, integration, specialization and coherence</p>			<p>Decentralization, decoupling, generalization, and flexibility</p> <p>Write-optimized</p>	

The target picture data & insights for Lufthansa's hub airlines

highlights **two core metrics for data warehousing capabilities:**



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Recent examples from the aviation industry

Target picture AI 🗺️ 🌐 E.g., laying out all AI capabilities, standards, applications for Lufthansa's Hub Airlines

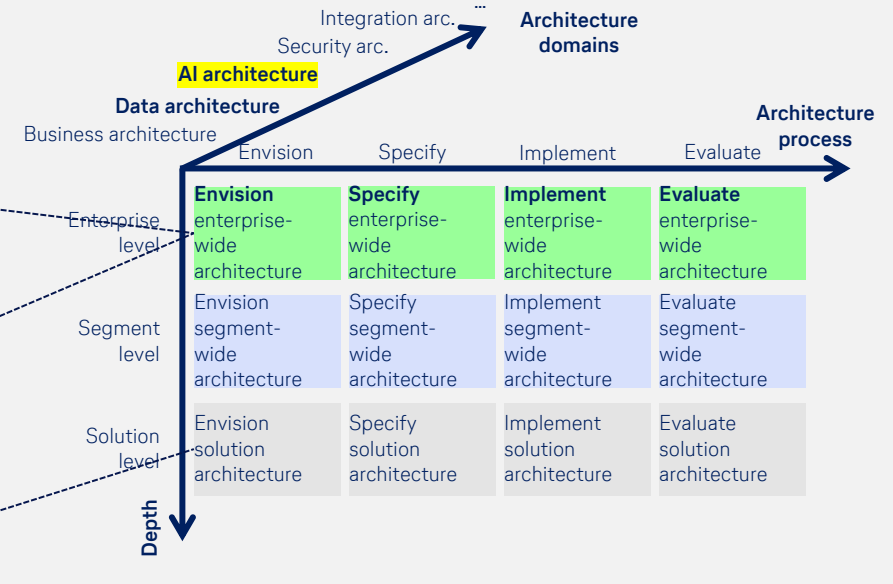
Lufthansa's Group-wide GenAI landscape 🤖 Which logical and physical solutions blocks, platforms and resulting GenAI-based applications are in the target picture?

✅ **Architecture governance on solution level:** E.g., GenAI specific solution sketching and cross-domain expert councils

Enterprise-wide catalog 📁 of AI-based 🤖 solutions and risk ⚠️ classifications

AI architecture community 🗣️ 📅 E.g., bi-weekly Lufthansa group-wide exchanges on GenAI developments

Capabilities for managing the enterprise architecture

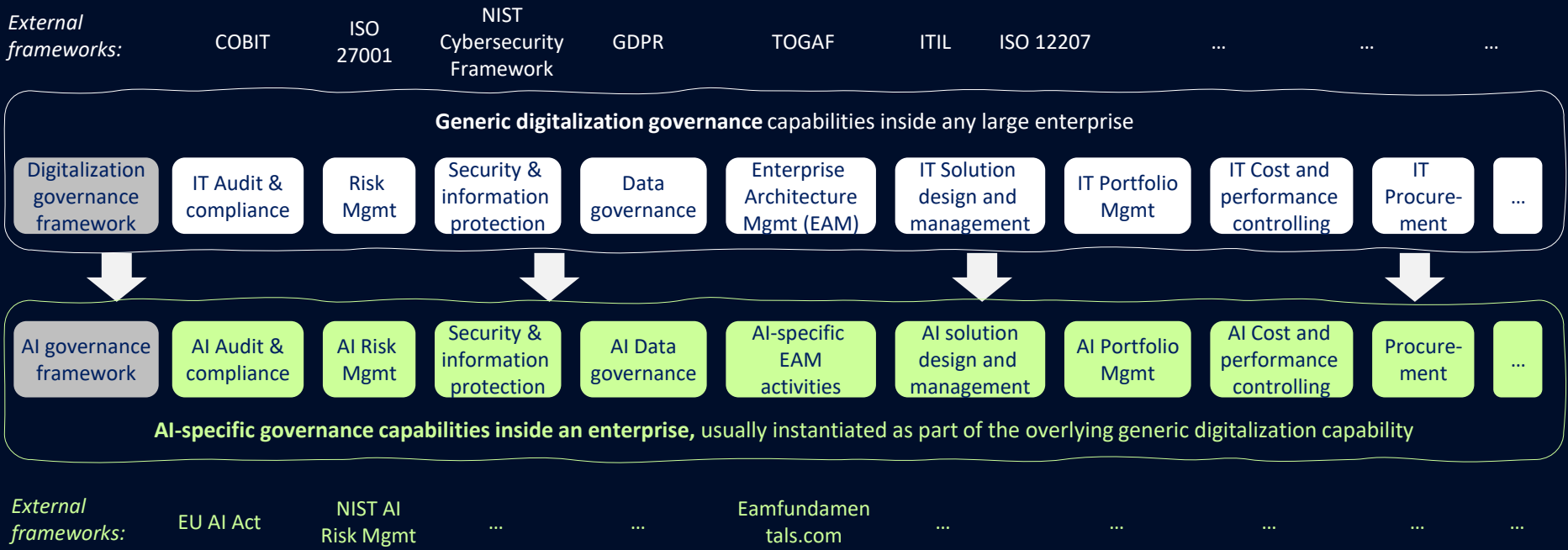


Capabilities for enable and support enterprise architecture management

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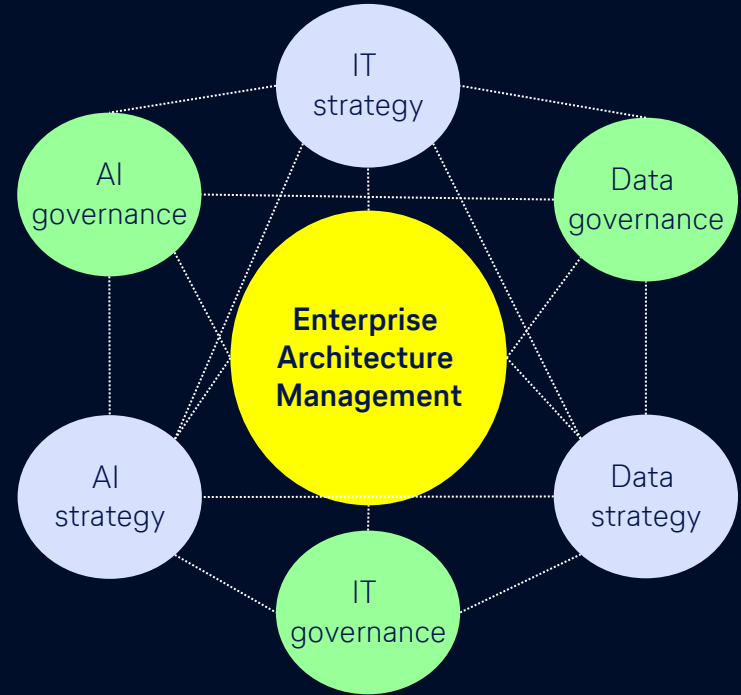
AI governance is always an interplay of various capabilities.

The generic digitalization governance capabilities are extended to address AI-specific features



Summary

- Enterprise Architecture Management (EAM) not only provides the enterprise-wide context for data & AI governance & strategy, it also implements some core capabilities for Data & AI strategy and governance
- EAM has proven to be suitable also for shaping the enterprise-wide landscape with upcoming, fast-developing technologies like **GenAI**
- When enterprises **(re-)define their strategic Data & AI capabilities**, the substantial role of EAM in there must be clear



Fundamentals of Enterprise Architecture Management

Foundations for Steering the Enterprise-Wide Digital System



The book “Fundamentals of Enterprise Architecture Management” is available at [Springer](#), [Amazon](#) or your favorite local bookstore.

Download the **graphics from the book**, e.g.:

1. [Intro](#)
2. [EAM in a Nutshell](#)
3. [Enterprise Architecture in a Nutshell](#)
4. [Strategic and Tactical Context of EAM](#)
5. [Implementing EAM](#)
6. [Evaluating Enterprise Architecture Management](#)

You can find complementary publications at eamfundamentals.com

Additional EAM Publications

•**Enterprise Architecture Lessons from Steve Jobs.** LinkedIn, July 2024. [Link](#).

•**The Pig Cycle of Digitalization Governance: Navigating the Extremes of Decentralization and Overregulation.** Medium.com, June 2023. [Link](#).

•**Central and Decentral Allocation of Enterprise Architecture Management Activities.** University of St. Gallen, guest lecture in Master Lecture “Managing Enterprise Architecture for Digital Transformation” from Professor Robert Winter. May 2023. [Link](#).

•**A Capability Model for Enterprise Architecture Management – Introduction and Examples From the Aviation Industry.** SwitchON Europe / SOFA Summits, February 2023. [Link](#).

•**Central and Decentral Allocation of Enterprise Architecture Management Activities – Introduction and Examples from the Aviation Industry.** Softwareforen Leipzig, EAM community days, November 2022. [Link](#).

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Data Analytics, GenAI and Enterprise Architecture

•**Isolated Data and AI Strategies Without Enterprise Architecture? Still a common Mistake.** August 2025, [Medium.com](#)

•**The Essential Role of Enterprise Architecture Management for Data and AI Strategy & Governance** EAMInsights Conference May 2025. [Link](#).

•**Enterprise Architecture Management am Beispiel von Data Analytics.** Data Culture Podcast. July 2024. [Link](#).

•**Do Large Enterprises Need a Dedicated “AI Governance” Department?** LinkedIn, June 2024. [Link](#).

•**Gen AI in a large aviation group – How EAM helps introducing a disruptive technology.** Guest lecture, University of Lausanne, May 2024. [Link](#)

•**Data Analytics Topologies – Much Mesh About Nothing?** LinkedIn, March 2024. [Link](#).

•**Portfolios of Generative AI Use Cases. A Brief Introduction and Examples from the Aviation Industry. ...**

Process Digitalization and Interoperability

•**Prozessdigitalisierung in der Finanzindustrie – Den richtigen digitalen Prozess finden.** Business Technology Journal, January 2016, Heft 24. [Link](#)

•**Architecture of Interoperable Information Systems – An enterprise Model-based Approach for Describing and Enacting Collaborative Business Processes.** January 2010, Logos. *Note: Logos was so kind to permit the free download of a copy [here](#); however, the official, printed version can be obtained [here](#).*

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