



Rethink! EAM 2026 – Berlin – 29./30..06.2026

Inverse Conway Maneuver – The Key Principle for Transformations

Dr. Thomas Meintrup, Mercedes-Benz AG, Chief Enterprise Architect Engineering IT

Mercedes-Benz



About myself:

After successfully completing his studies in theoretical physics and receiving his PHD from the Université de Neuchâtel in Switzerland in 1994, Dr. Thomas Meintrup has been in the IT industry for over 25 years, initially as a scientific consultant, software developer, software architect and in the last years as an enterprise architect and IT strategy consultant in numerous projects for a wide variety of companies. Since November 2019, he has been employed as an enterprise architect at Mercedes-Benz and is responsible for enterprise architecture management, modern organizational and architectural concepts such as micro services and evolutionary architecture and since February 2024 he became the Chief Enterprise Architect of the IT of the Research & Development department. He introduced a business capability-based architecture method in various strategic projects, is the founder and leader of the internal Hey Architect! community and HA! conferences and develops and introduces a new agile architecture working and governance model. Mr. Meintrup has been a well-known speaker at various architecture conferences for several years.



Dr. Thomas Meintrup

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Lead PLM Solution Architect

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Abstract:

The German automotive industry, and thus also Mercedes Benz, is undergoing a comprehensive transformation: Our core product is undergoing a revolutionary change, new players esp. from the Asian region are aggressively pushing into the market, development cycles are becoming significantly shorter and global and local conditions are changing.

The digitalization of the vehicle, the integration of the car into digital ecosystems, but also the digitalization and optimization of internal processes play an essential role at Mercedes-Benz, in addition to radical efficiency programs, in order to respond to these changed market conditions and remain fit for the future.

Enterprise architecture has a crucial role to play in this transformation. Almost all changes in the Group are associated with fundamental changes to our business and IT architecture and landscape. Whether modernization, harmonization and standardization, E2E integration of business processes, use of AI, etc. imply radical change in the overall architecture of the company.

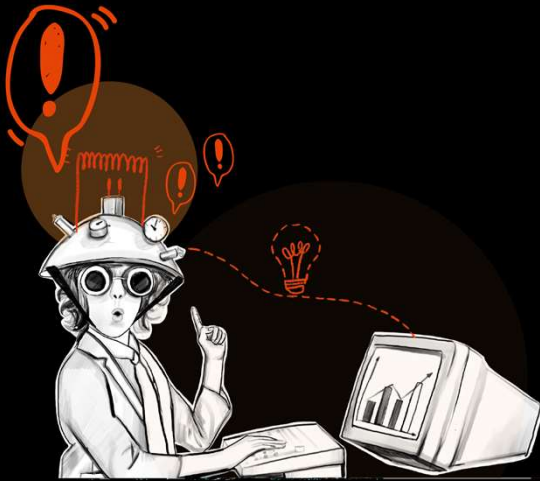
In our experience, the consideration of "Conway's Law" or the "Inverse Conway Maneuver" derived from it is the key principle for the implementation of these radical architectural changes. I would like to address this principle in my presentation and place it at the center of all architectural considerations. Using practical examples from different areas of Mercedes Benz, I will present the effectiveness of the principle and the interaction of architecture and organization, and I will work out that we usually have less technical problems to solve, but often organizational problems in order to meet the challenges of change.

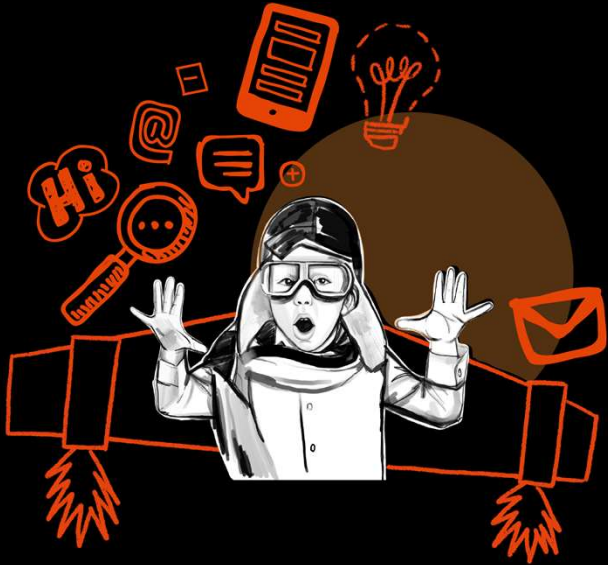
Motivation

About Conway's Law & The Inverse Conway Maneuver

Some Examples

Summary & Key Takeaways





Motivation

Under Pressure

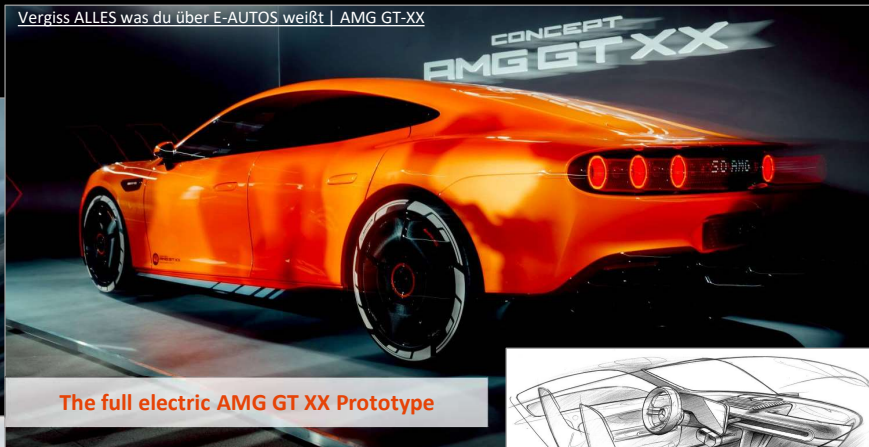


Innovative Product Highlights

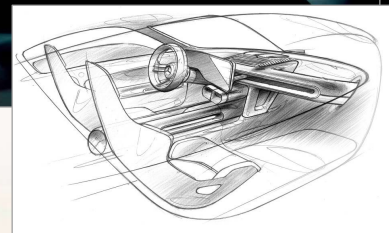
The full electric G-Class



Vergiss ALLES was du über E-AUTOS weißt | AMG GT-XX



The full electric AMG GT XX Prototype



The new CLA based on our new MMA

Innovative Product Highlights

The new electric C-Class



The new electric AMG GT 4-Door Coupé



THE FONTENAY



Pure Luxury: The new S-Class

More highlights
coming in
2026/2027/...

The actual situation at Mercedes-Benz:

Engineering process & IT solutions at Mercedes-Benz originated in the 1980s and 1990s - developed for HW-defined products with low variance.

Product & Market (a look back)



Hardware-defined products and architectures, with only few E/E components and no software

Designed for low variance and low complexity of car lines

Processes & Methods



Paperwork and manual processes - today only “rebuild” with IT

Hardware- and parts list-based concepts, with carline as top node without modularity and reusability

IT Architecture & Systems



Engineering core systems introduced in the 1990s

Monolithic, outdated technology stack with low flexibility but high maintenance and operating costs

Strategic Alignment

MB Corporate Strategy

MB Digitalization Strategy

Research & Development
Digi Strategy



Production & Logistics

Digi Strategy

Marketing & Sales

Digi Strategy

After Sales

Digi Strategy

...

IT Strategy



Big Initiatives (a small subset)

Digital Twin

E2E Product Life-Cycle Mgmt.

E2E Software Journey

Intelligent Build to Order

Retail of the Future

Workshop of Tomorrow

...

Mainframe Exit

Platform Consolidation

SAP Consolidation

Key Enabler

E2E Business Process Optimization

Agile Transformation

Enterprise Architecture

Resource & Performance Optimization

...





Conway's Law and the Inverse Conway Maneuver

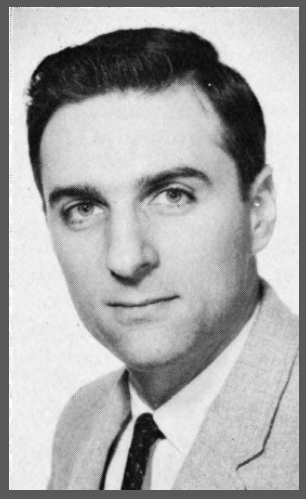
Melvin E. Conway

American Computer Scientist & Programmer

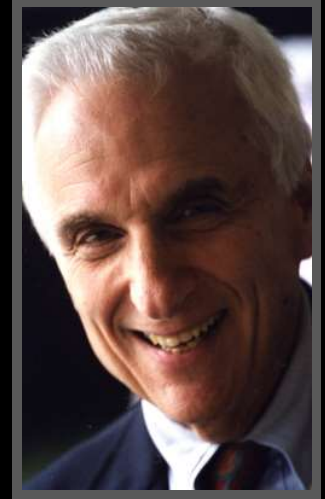
Education: Ph.D. in mathematics from Case Western Reserve University in 1961.

Key Publications: Most famous article: "How Do Committees Invent?" (Conway's law), published in *Datamation* in 1968.

Later Career: Conway held a U.S. patent for "Dataflow processing with events."
From 2002 to 2006, he taught mathematics and physics at Chelsea High School in Massachusetts.



Melvin E. Conway – 1968



Melvin E. Conway – 2018

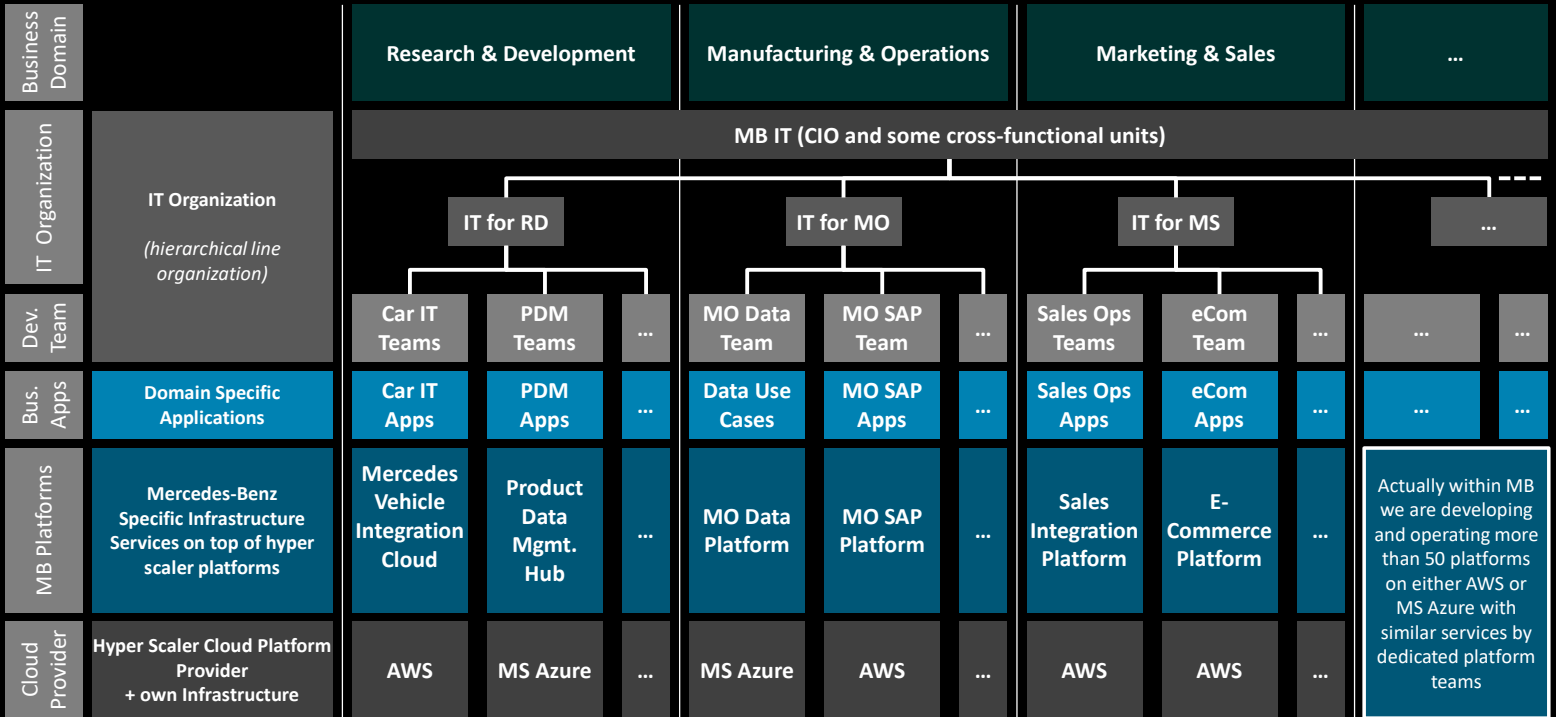
His most important contribution to the digital world!!

Conway's Law

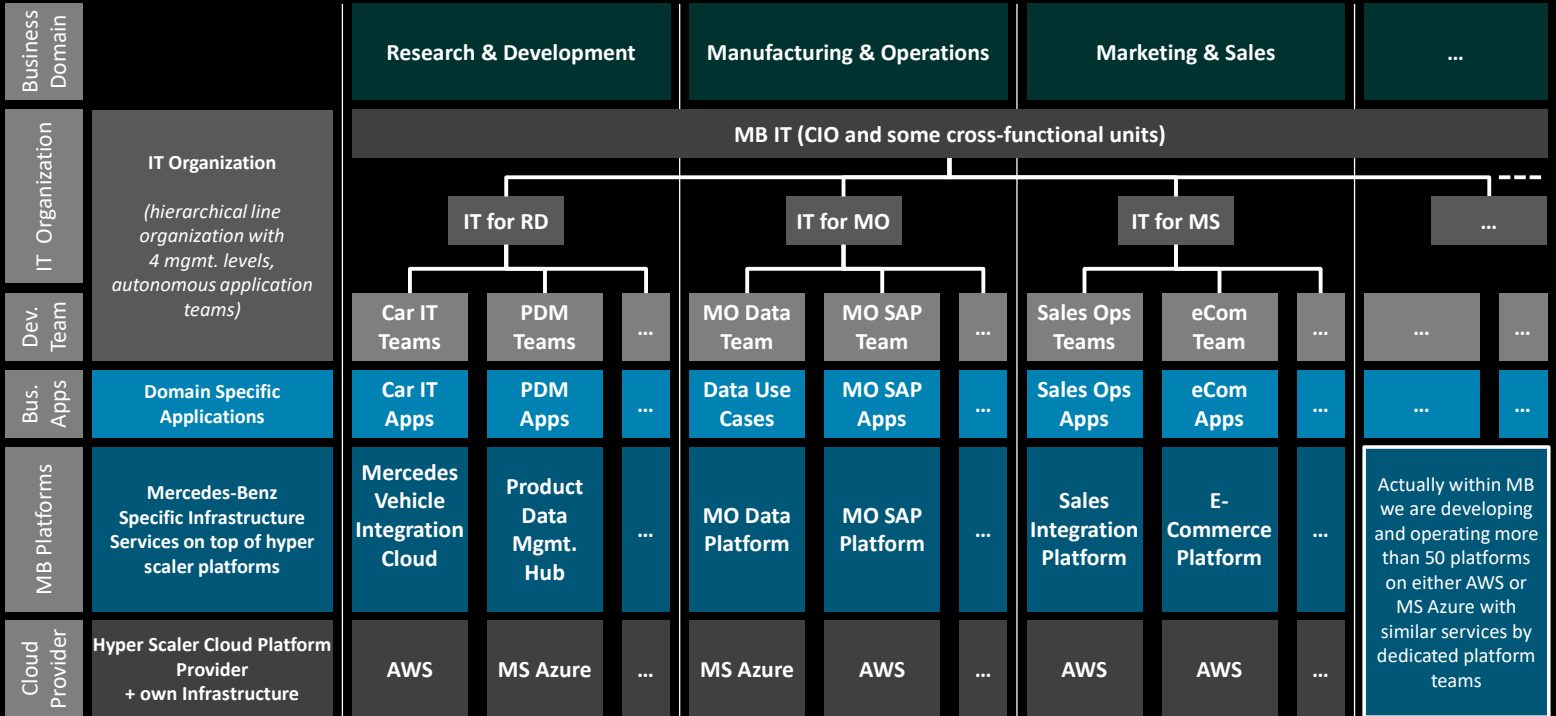
“organizations which design systems ... are constrained to produce designs which are copies of the communication structures of these organizations.”

M. Conway – 1968

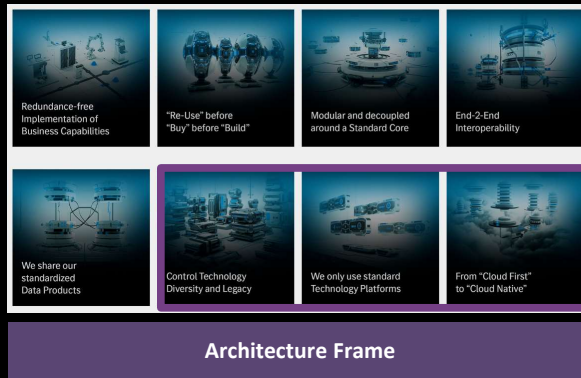
Our Platform Consolidation Challenge – Current Landscape



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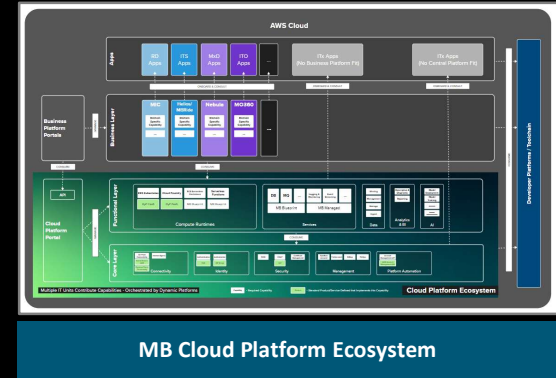


Driven by our **IT-Strategy** especially „**Radical Standardization**“ we (the EA squad) defined a set of **8 key principles** addressing all layers of our architecture. Concerning platforms we are targeting the **consolidation to some MB standard platforms**.

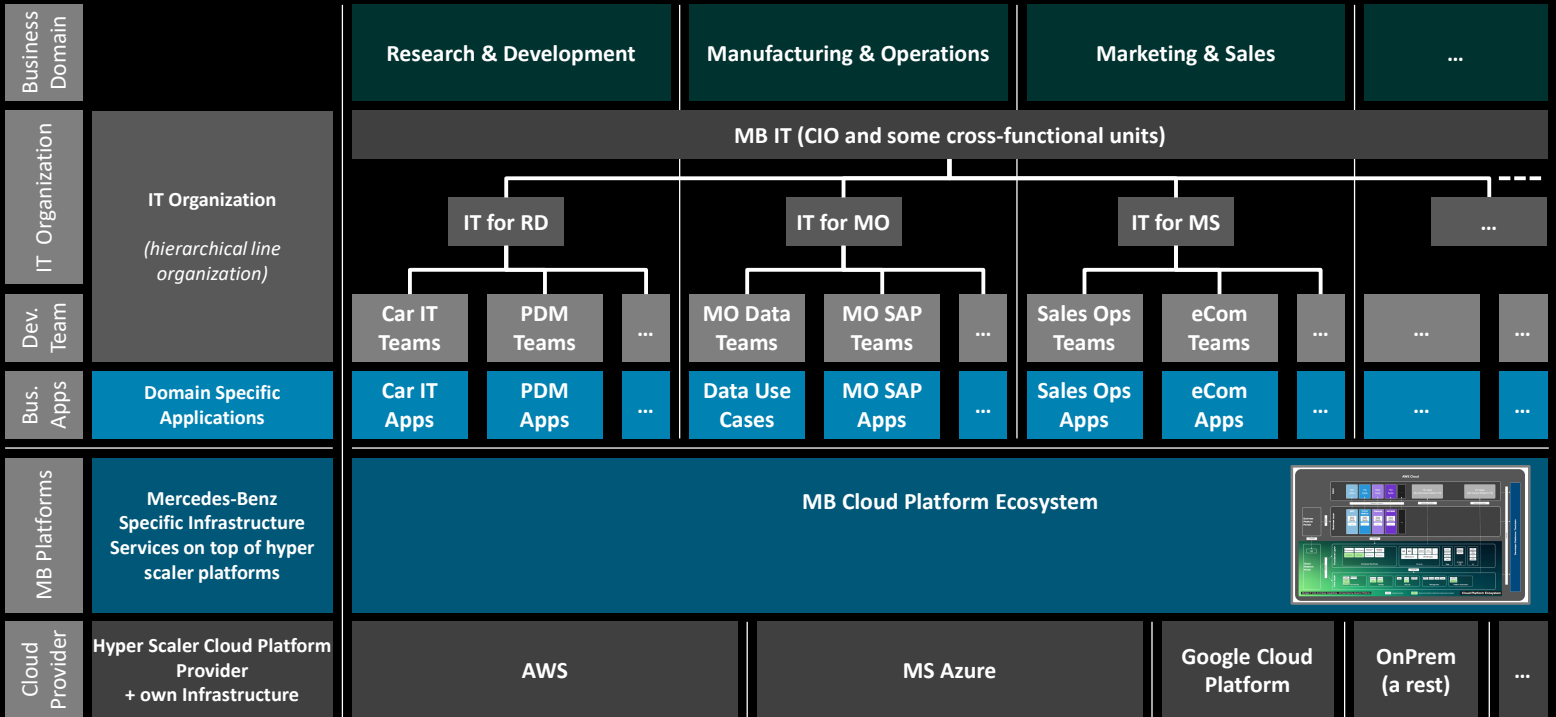


Principle #7: We only use standard Technology Platforms

Rather than building or acquiring new platforms for case by case requirements, we focus on a minimal standard set of defined and managed technology platforms that leverage economies of scale and drive radical standardization.



Our Platform Consolidation Challenge – Target Picture

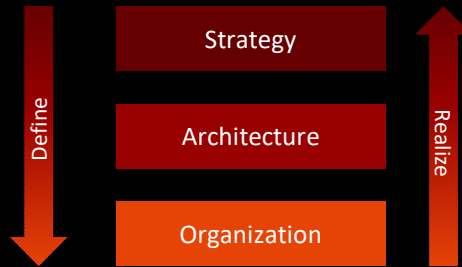


Inverse Conway Maneuver

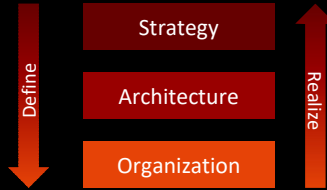
“Define your target architecture driven by your strategic objectives ...
and setup your product organization accordingly.

Then you have a great chance that this product organization will realize
your target architecture and hence support your business objectives.”

My Formulation

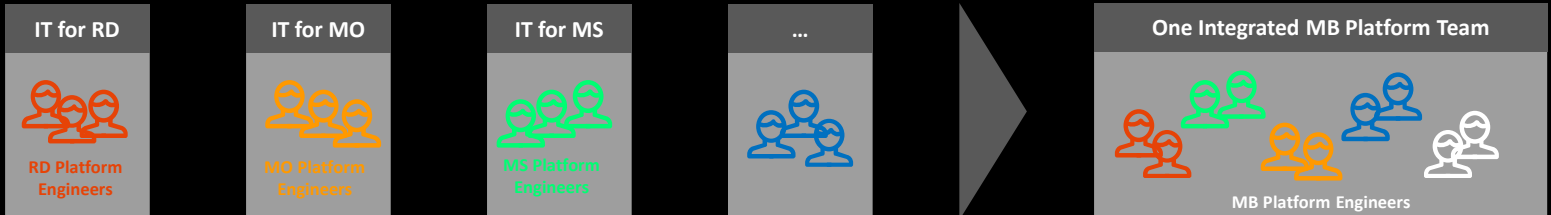


Our Platform Consolidation Challenge = Target Organization Challenge

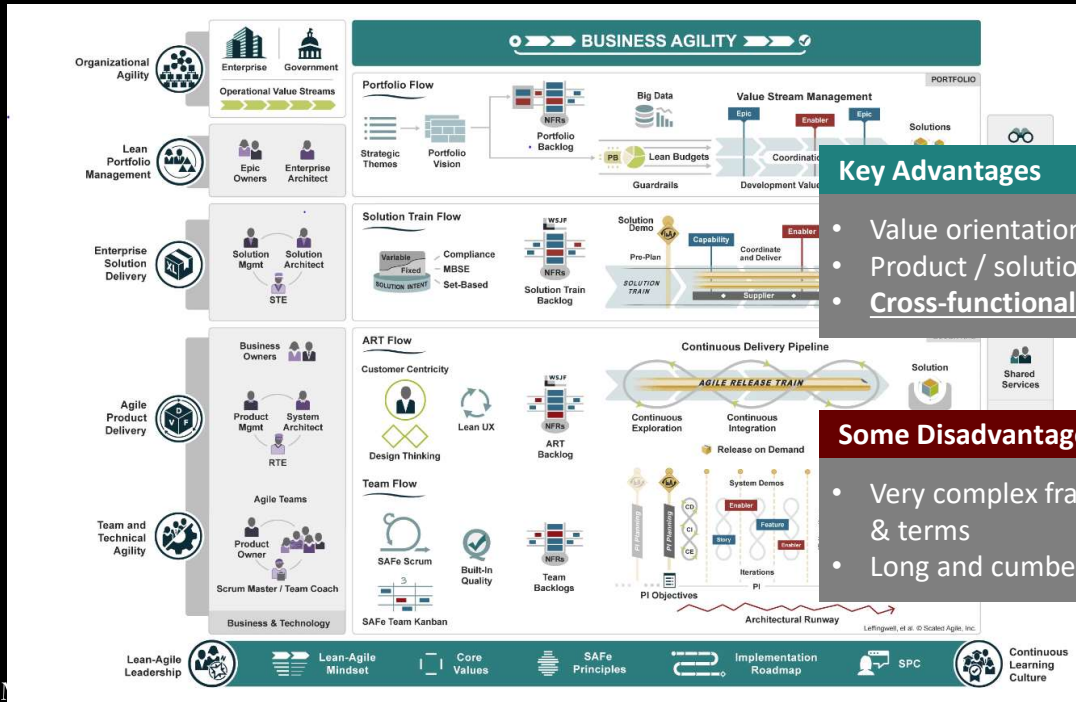


Applying the Inverse Conway Maneuver to our Platform Challenge means:
Setting up a new integrated platform team recruited from the platform engineers
actually building platforms in our decentral IT units.

This is the real challenge!



The Inverse Conway Maneuver is a key motivator of implementing a **cross-functional and adaptive delivery organization** horizontal to the (somehow stiff) line organization! E.g. based on SAFe or any other scaled agile framework.



Key Advantages

- Value orientation across all layers
- Product / solution orientation
- Cross-functional delivery organization

Some Disadvantages

- Very complex framework with a lot of new concepts & terms
- Long and cumbersome implementation



Some Examples

Some Transformation Examples

Consolidating Business Capabilities

Just a small excerpt

Topic	Challenge	Solution Approach
Identy & Access Management	Consolidation of about more than 20 different IAM solutions worldwide. High security impact.	<ul style="list-style-type: none">• Actual landscape analysis• Business case for one central IAM solution• Formation of one central IAM team (ART) – Inverse Conway• Iterative migration of existing solutions to target solution
Confluence / Jira Consolidation	Over decades several Confluence/Jira instances (onPrem & Cloud) have been setup. Consolidation need for run-cost optimization.	<ul style="list-style-type: none">• Identification of the most modern and comprehensive Confluence/Jira implementation so far → MB.OS Collab ART• IT Management Decision• Enforce all existing Confluence/Jira implementation to migrate
oneKafka Consolidation	Many Kafka and MQ implementations on different platforms. Strategic change of our integration architecture. Cost-Reduction.	<ul style="list-style-type: none">• EA Decision to focus on a view integration pattern and technologies including Event Streaming based on Kafka.• Setting up a central Kafka team impl. oneKafka/AWS & Azure• Stepwise migration of local Kafka & MQ implementations
Data Platform Harmonization	Several (> 30) data platforms have been realized with a huge number of redundant implementations of data services Run-cost optimization	<ul style="list-style-type: none">• Observation: any department implemented several data platforms.• Define target architecture (MB cloud platform ecosystem)• Start consolidation of local platforms into the target ecosystem

STATE:  Done  In Work  Open

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THANK YOU.