



Digital Transformation in the Automotive Industry

Digitale Transformation in der Automobilindustrie

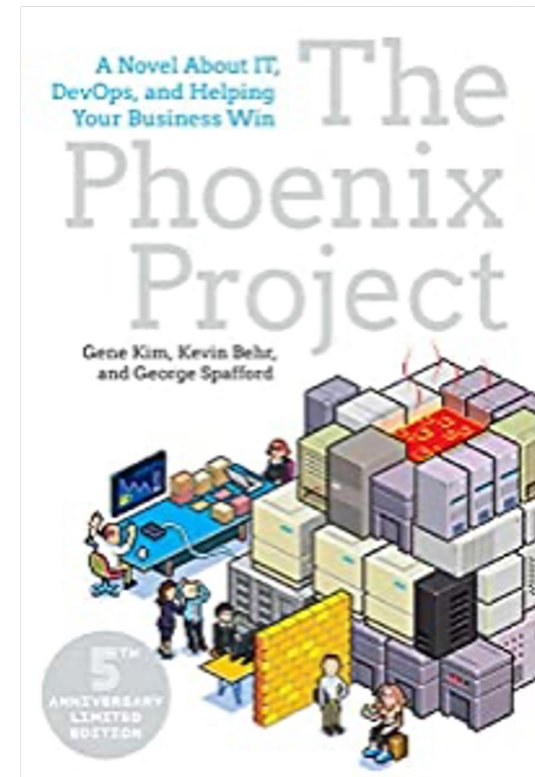
Dr. Michael Nolting
Lecture 6



Tutorials

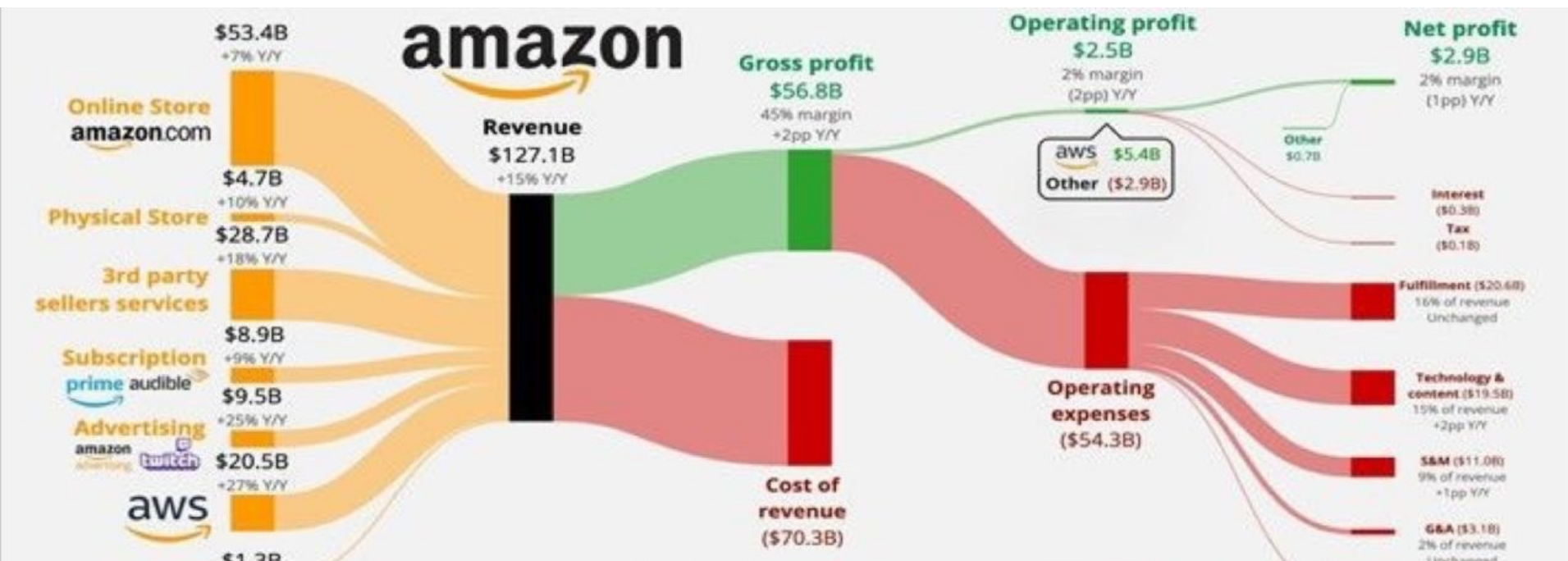
- Homework will be reading the book from Gene Kim „The Phoenix Project“

The homeworks are optional and not relevant for the exam

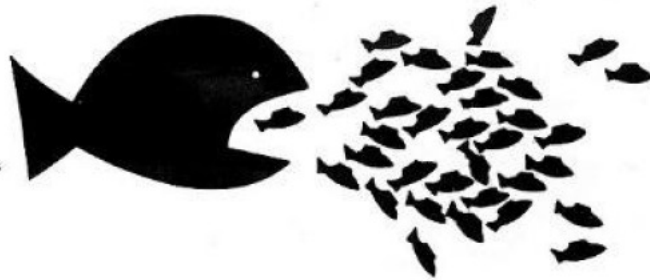


Lecture Overview

1. Introduction: Why Digital & Data Transformation	7. Culture & Organization
Homework 1: Reading 60 mins the Phoenix Project	Homework 7: Reading 60 mins the Phoenix Project
2. The World is Changing: ACES & VUCA	8. Examples of Digitalization Projects I
Homework 2: Reading 60 mins the Phoenix Project	Homework 8: Reading 60 mins the Phoenix Project
3. The Technological Disruption	9. Examples of Digitalization Projects II
Homework 3: Reading 60 mins the Phoenix Project	Homework 9: Reading 60 mins the Phoenix Project
4. Challenges for the Transformation - Innovation	10. TESLA as THE Digital Player
Homework 4: Reading 60 mins the Phoenix Project	Homework 10: Reading 60 mins the Phoenix Project
5. Challenges for the Transformation - Legacy	11. Q & A – Exam
Homework 5: Reading 60 mins the Phoenix Project	
6. How to Transform Into a Techgiant	
Homework 6: Reading 60 mins the Phoenix Project	

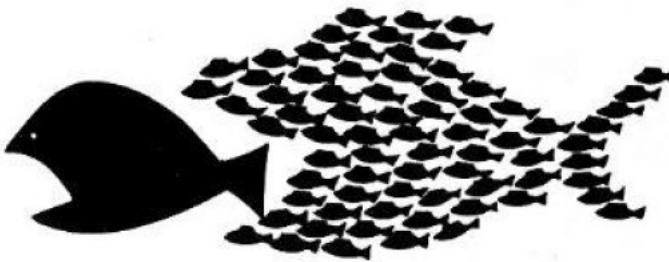


Mindset



„It is sometimes difficult in a big successful organization to have the sense of urgency and hunger. (...) However, if you have a high market share and you are a market leader, if you start defending, you cannot sustain.“

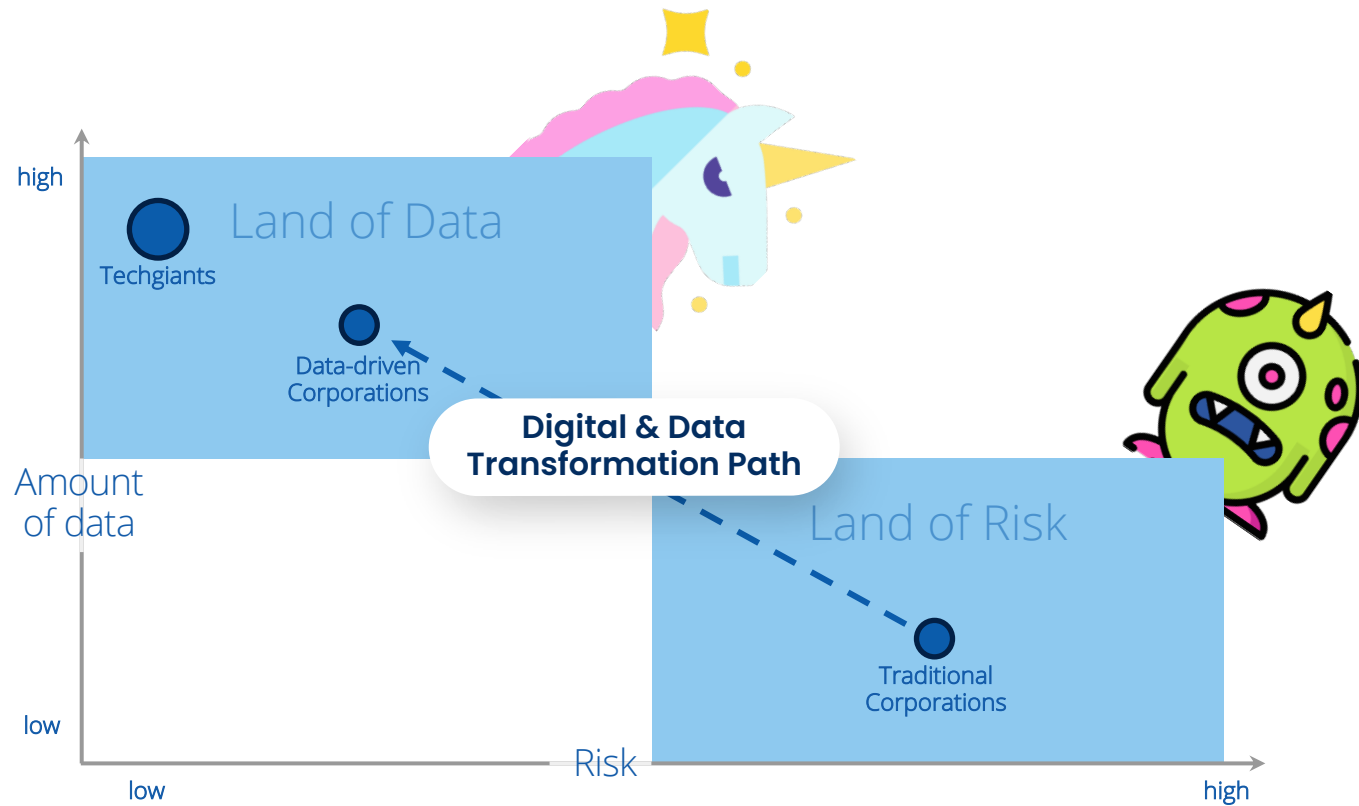
(O.-P. Kallasvuo, former CEO Nokia)



Lead Time of Techgigants and Corporations

Company	Deployment frequency	Lead time	Stability	Customer-centricity
Amazon	23,000 / day	minutes	high	high
Google	5,500 / day	minutes	high	high
Netflix	500 / day	minutes	high	high
Facebook	1 / day	hours	high	high
Twitter	3 / week	hours	high	High
Typical enterprise	Every 9 months	months	Low/medium	Low/medium

How to leave the Land of Risk ASAP



Agenda

01

Group Level

02

Brand Level

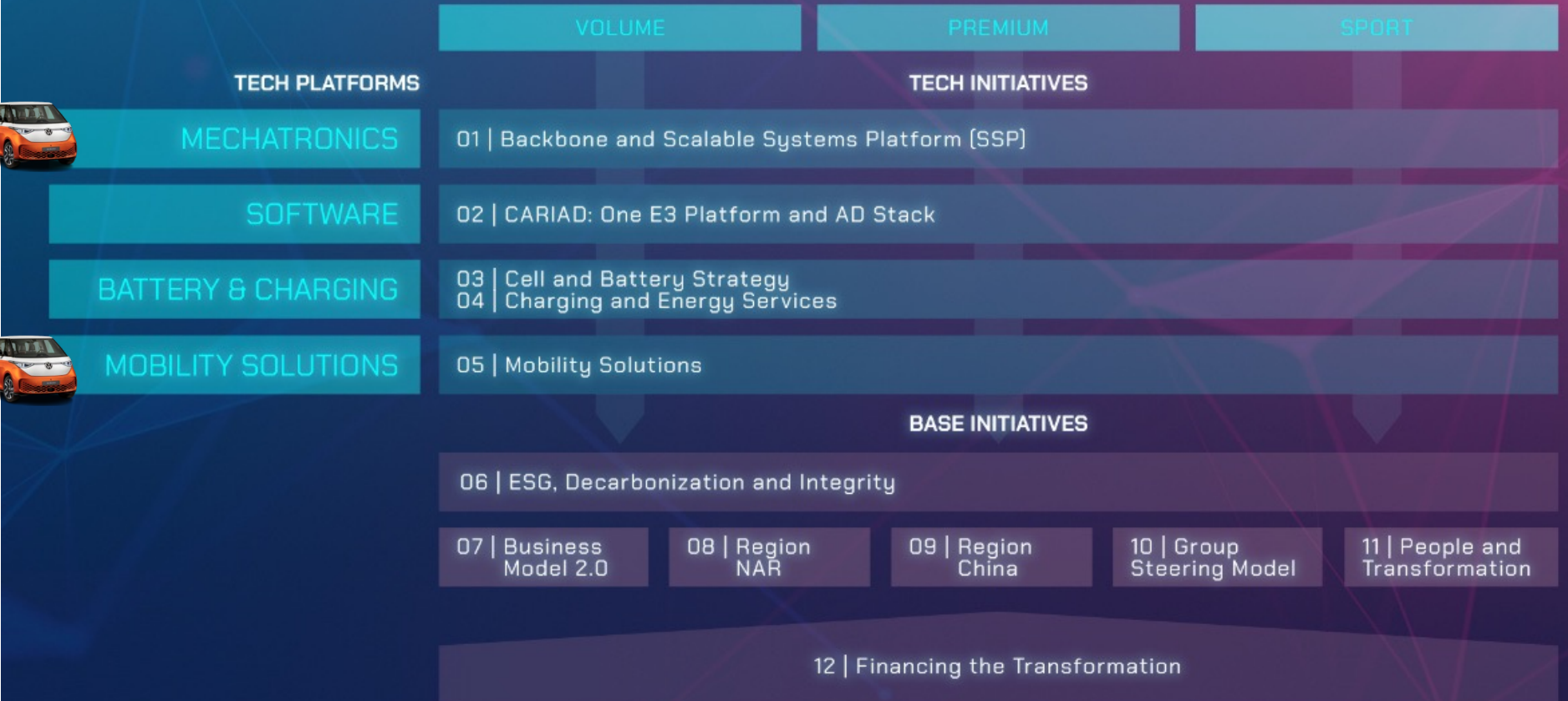
03

Department Level

04

Summary

THE NEW AUTO STRATEGY



<https://www.volkswagenag.com/en/strategy.html#>

We Transport
Success,



Freedom



and Future



Volkswagen Nutzfahrzeuges GRIP 2030 Strategie



<https://logistra.de/news/nfz-fuhrpark-lagerlogistik-intralogistik-vw-nutzfahrzeuge-elektrostrategie-von-eins-auf-55-prozent-acht-jahren-141185.html>

Agenda

01

Group Level

02

Brand Level

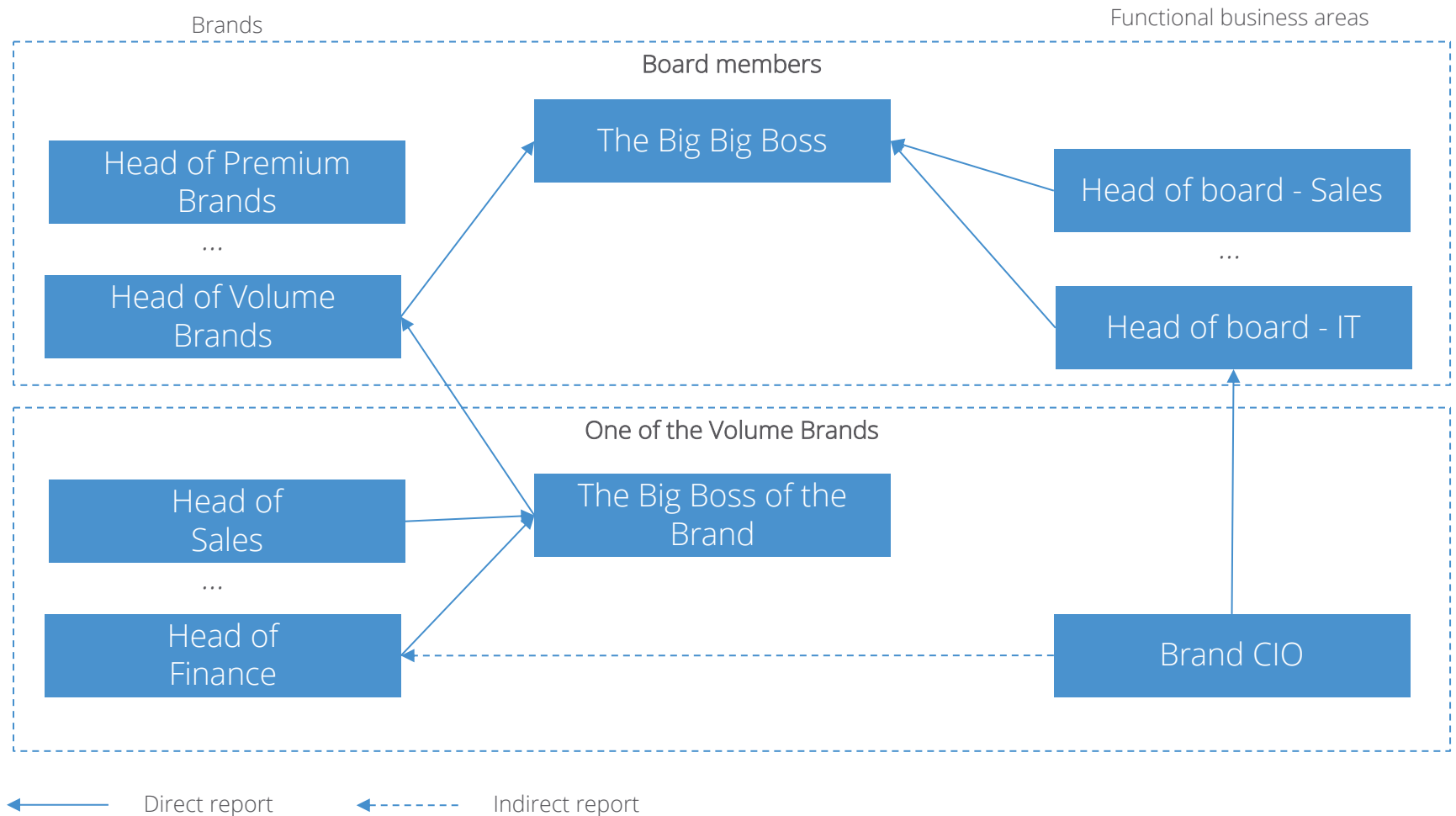
03

Department Level

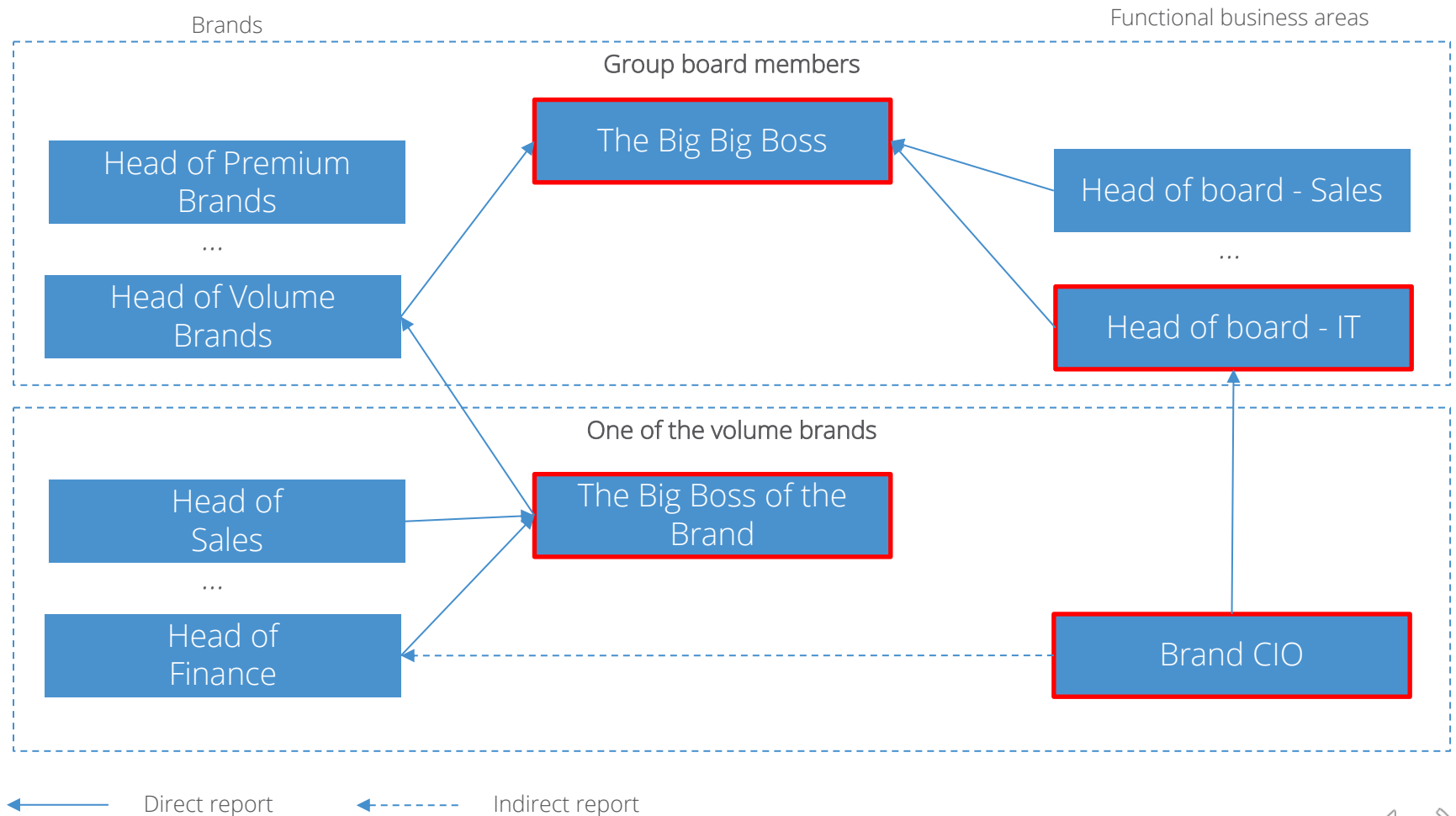
04

Summary

A Complex World

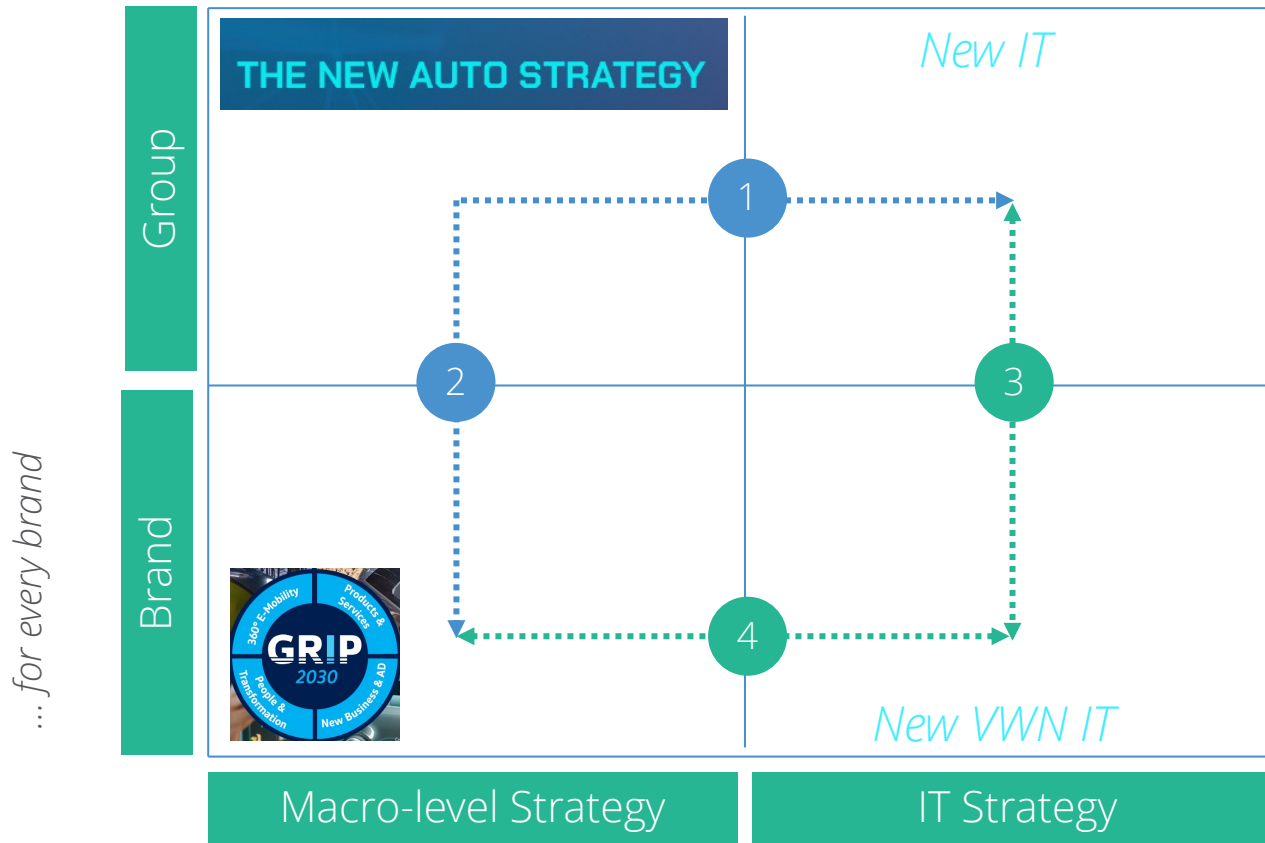


A Complex World



The Strategy Cycle

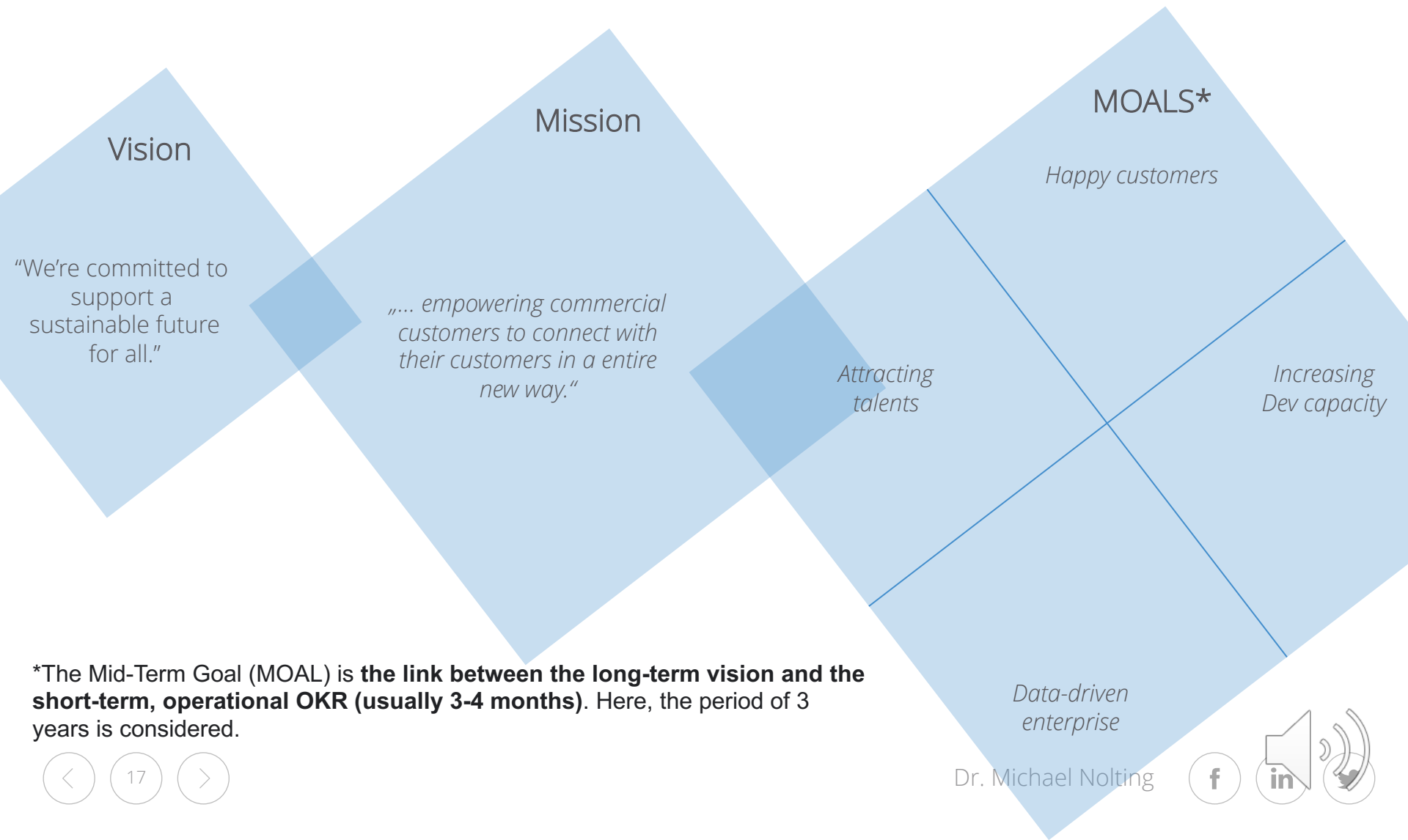
... for every functional
business department



16 weeks to nail it down

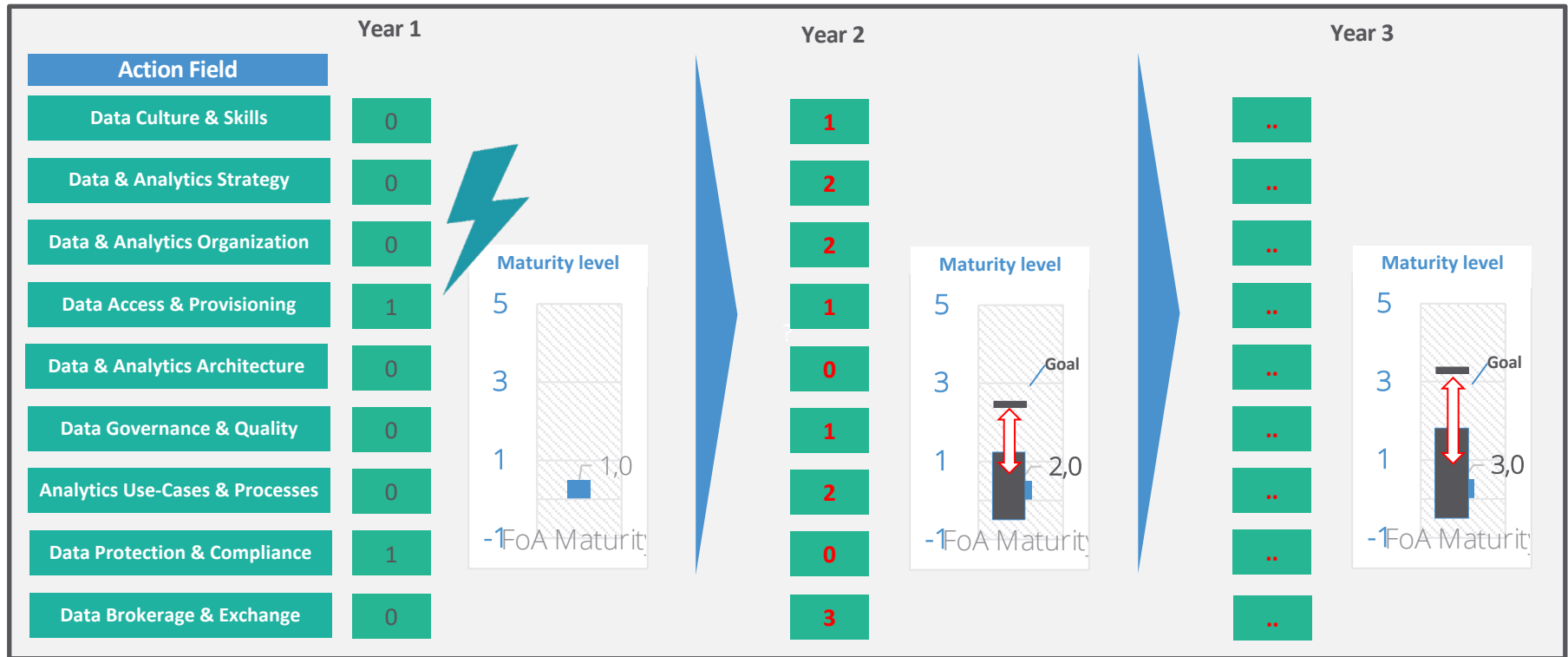
- 1) Organisation & Timetable
- 2) SWOT analysis
- 3) Strategic goals and KPIs
- 4) Vision & mission
- 5) Initiative and action points
- 6) OKRs

The Brand IT Strategy



*The Mid-Term Goal (MOAL) is **the link between the long-term vision and the short-term, operational OKR (usually 3-4 months)**. Here, the period of 3 years is considered.

Data Maturity Index



Teilnahme



Teilgenommen: 42 von 124

Maturity level: 0 1 2 3 4 5

Non-Existent Defined Optimizing

Data Culture & Skills	Requirements of Maturity Level	Maturity Level today (x)
Level 5 = Optimizing	<ul style="list-style-type: none"> - Data & Analytics transformation is driven by the CEO as chief evangelist - Employees develop and communicate ideas how Data & Analytics can improve their field of work - Internal talents are available in all relevant data fields (Data & Analytics strategy, data science, data integration, data architecture and applied A.I.) - Modular and customizable training offerings exist for job requirements of all Data & Analytics roles - There is a high level of automation in decisions and processes fuelled by data intelligence 	
Level 4 = Managed	<ul style="list-style-type: none"> - Top Management fully supports Data & Analytics transformation and the required change - Employees are willing to act as data stewards - Employees in Data & Analytics roles have state-of-the-art knowledge and skills - Training provides state-of-the-art knowledge and is evaluated very positively by participants - Decisions and processes are constantly improved with the help of Data & Analytics 	
Level 3 = Defined	<ul style="list-style-type: none"> - Top Management prioritizes Data & Analytics topics and projects and reserves time and attention - Employees understand the effect of data on company business success and support the data transformation - There is a clear strategy on how to attract, grow and retain Data & Analytics talents - Training courses encourage and motivate employees to participate - Management decisions are driven by facts (not feelings) 	
Level 2 = Developing	<ul style="list-style-type: none"> - Top Management communicates importance and business impact of Data & Analytics - Employees across departments understand the value of Data & Analytics and reserve time and attention on Data & Analytics projects and initiatives - Basic understanding of Data & Analytics across all employees - Budget for Data & Analytics trainings is available - Data & Analytics is occasionally taken into account by management decisions 	
Level 1 = Initial	<ul style="list-style-type: none"> - Top Management is aware of Data & Analytics topics - Employees show interest in Data & Analytics - Basic understanding of Data & Analytics by at least one third of the employees - Training courses are easily available and can be done within regular working hours - Data is occasionally taken into account by management decisions 	
Level 0 = Non-existent	<ul style="list-style-type: none"> - There is no support on Top Management level - There is no support on employee level - There is no basic understanding of Data & Analytics by the employees - There are no trainings offered - Data is not taken into account for decisions 	

Agenda

01

Group Level

02

Brand Level

03

Department Level

04

Summary

OKR - Objective

OKR is a management framework to make it clear the most important thing, organize everyone's effort, and collaborate.

Create the clear Objective and the collaborative teamwork.

- Focus

An organization with good OKR focus on the most important thing. OKR makes a leader choose. OKR brings a clear communication to department, team, and individual.

- Alignment

With the transparency system, OKR makes everyone's work open and transparent. Individual connects its objective to the company strategy and understands the complementary relations with other department.

- Tracking

OKR is based on data. Periodical tracking, objective evaluation, continuous assessment make it live. Avoid subjective view and make the responsibility very clear. Take actions if OKR is on risk or adjust the OKR if necessary.

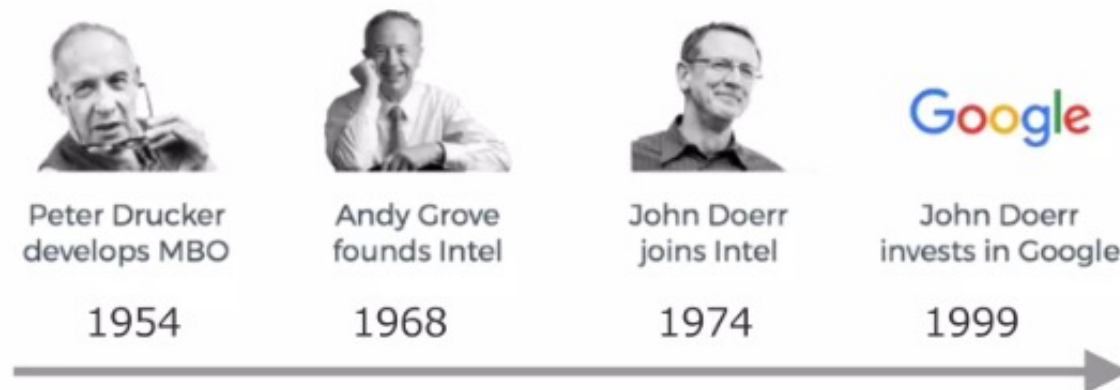
- Stretch

OKR encourages to achieve stretching performance. Drive creativity and aspiration by tackling with limitations and accepting failures.

What is OKR?

OKR (Objective and Key Results) is a management framework to make it clear the most important thing, organize everyone's effort, and collaborate. Create the clear Objective and the collaborative teamwork.

MBO is a management system developed by Peter Drucker. OKR is made by Andy Grove, one of the founders and the CEO of Intel. Then, John Doerr, a legendary Silicon Valley Venture Capital, introduced OKR to Google. Now, OKR is used in many Silicon Valley startups and globally.



What are the Key Feature of OKR?

Objective:

What we need to achieve. Winning aspirations.

It is ambitious, and we should feel somewhat uncomfortable

Key Results:

Measurements to monitor what extend we achieve the objective.

Good KR is measurable and clear with Achieving or Not achieving with clear timeline.

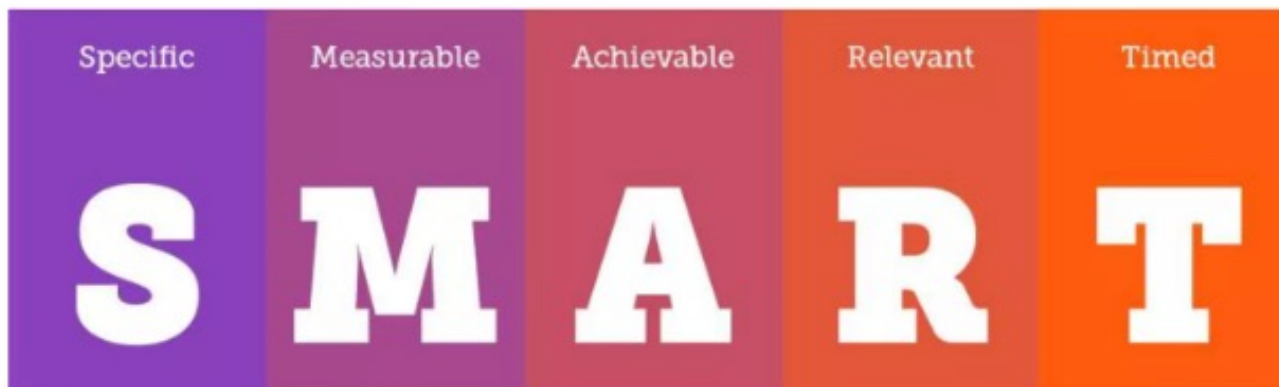
Review Cycle	Quarterly
Measurement	Quantitative
Openness	Everyone opens and shares
Success rate	Almost 50%

Key Points for Developing Key Results

Good Key Results follow SMART framework mentioned below.

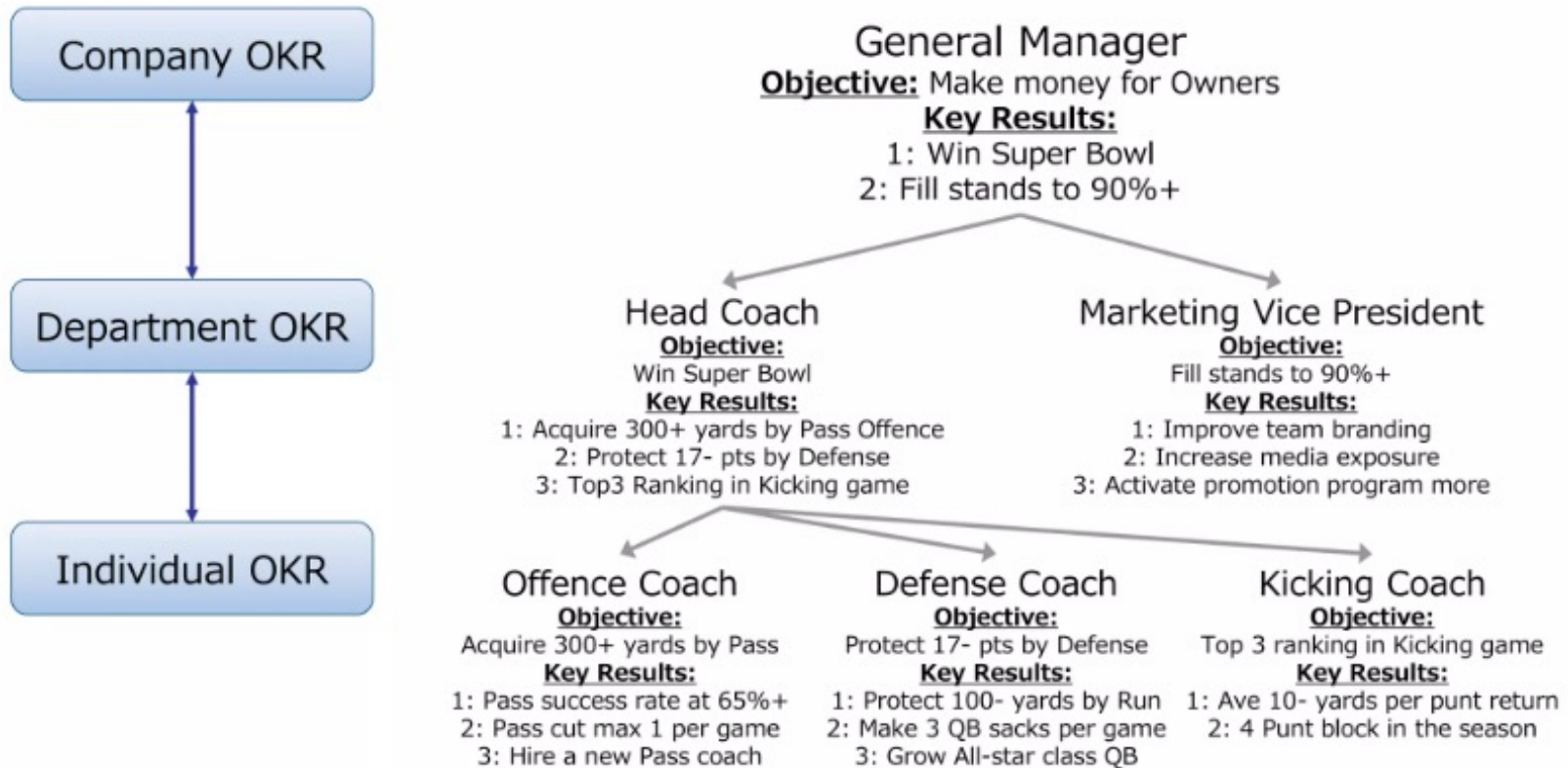
Key Result types:

- 0-100% progress
- Any % value, or X% to Y% change
- Numbers
- Items, units, articles, people
- Grade, Rating
- Milestones, project phases, deliverables



How to break OKRs down?

OKR has clear structure from Company to Individual.



OKR Mistakes

OKR has clear structure from Company to Individual.

General Manager

Objective: Make money for Owners

Key Results:

- 1: Win Super Bowl
- 2: Fill stands to 90%+



Objective is not aspirational nor motivating.

Marketing Vice President

Objective: Fill stands to 90%+

Key Results:

- 1: Improve team branding
- 2: Increase media exposure
- 3: Activate promotion program more



Key Results are not measurable.

OKR and CFR

CFRs and OKRs reinforce effectively. CFR provides transparency, responsibility, empowerment, and teamwork. We will conduct the CFR process together with OKR.

Conversations – exchanges between managers and employees with the goal of driving performance.

Feedback – bidirectional feedback, similar to bottom-up goal setting in OKRs, to evaluate progress and course correct for future efforts.

Recognition – expressing appreciation to individuals for their contributions. Together the three components foster transparency, accountability, engagement, and teamwork throughout the organization.

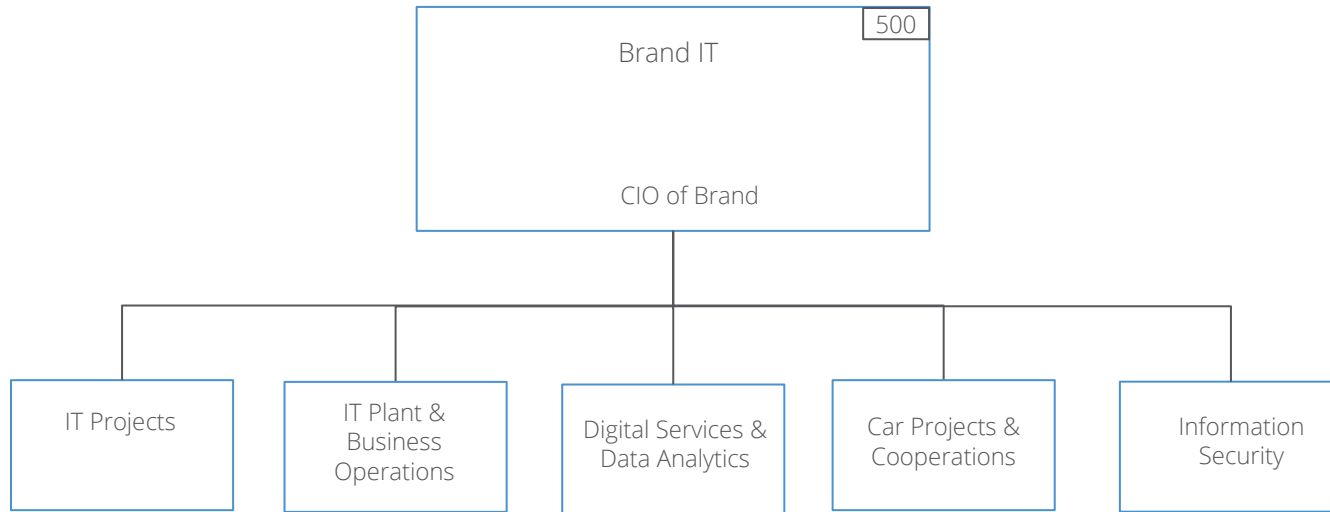
OKR and Evaluation

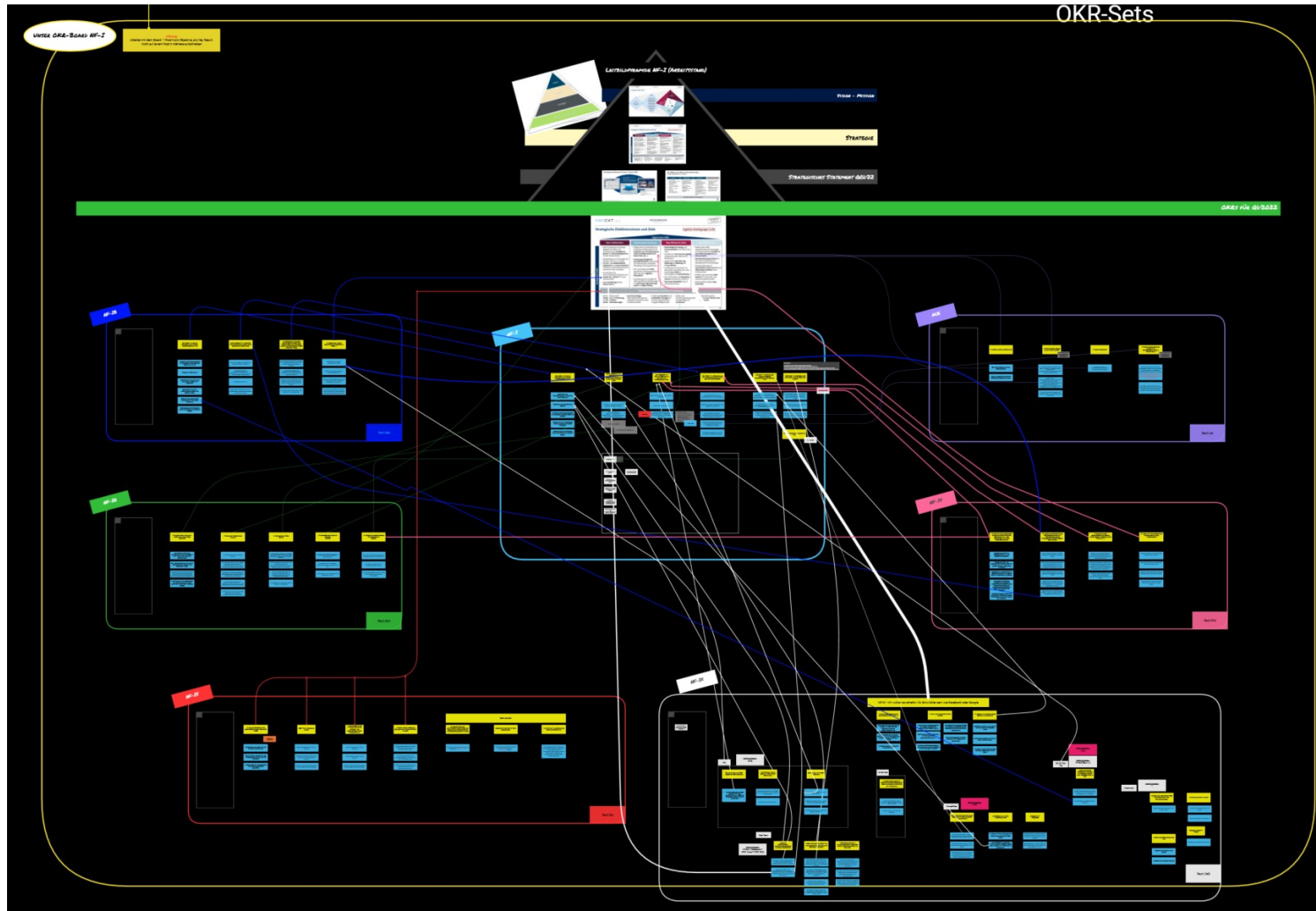
OKR progress / result do not correlate to Evaluation because the main objective of OKR is connecting everyone's effort to one direction.

OKR progress and Evaluation example

Key Result	Progress	Evaluation	Assessment
Acquire 10 new customer	70%	5	The economy went down, and the market was very tough. Acquiring 7 new customers is a good performance.
Acquire 10 new customer	100%	4	He achieved the KR in 6 weeks. The KR was not stretching enough.
Acquire 10 new customer	80%	3	He acquired 8 new customers by luck because one customer brought 5 new customers.
Acquire 10 new customer	90%	2	He acquired 9 new customers, but 7 customers do not create any revenue.

Brand-IT Level





Department Level

Ca. 80 - 100

Digital Services & Data Analytics

Connectivity

Infrastructure & Plattform

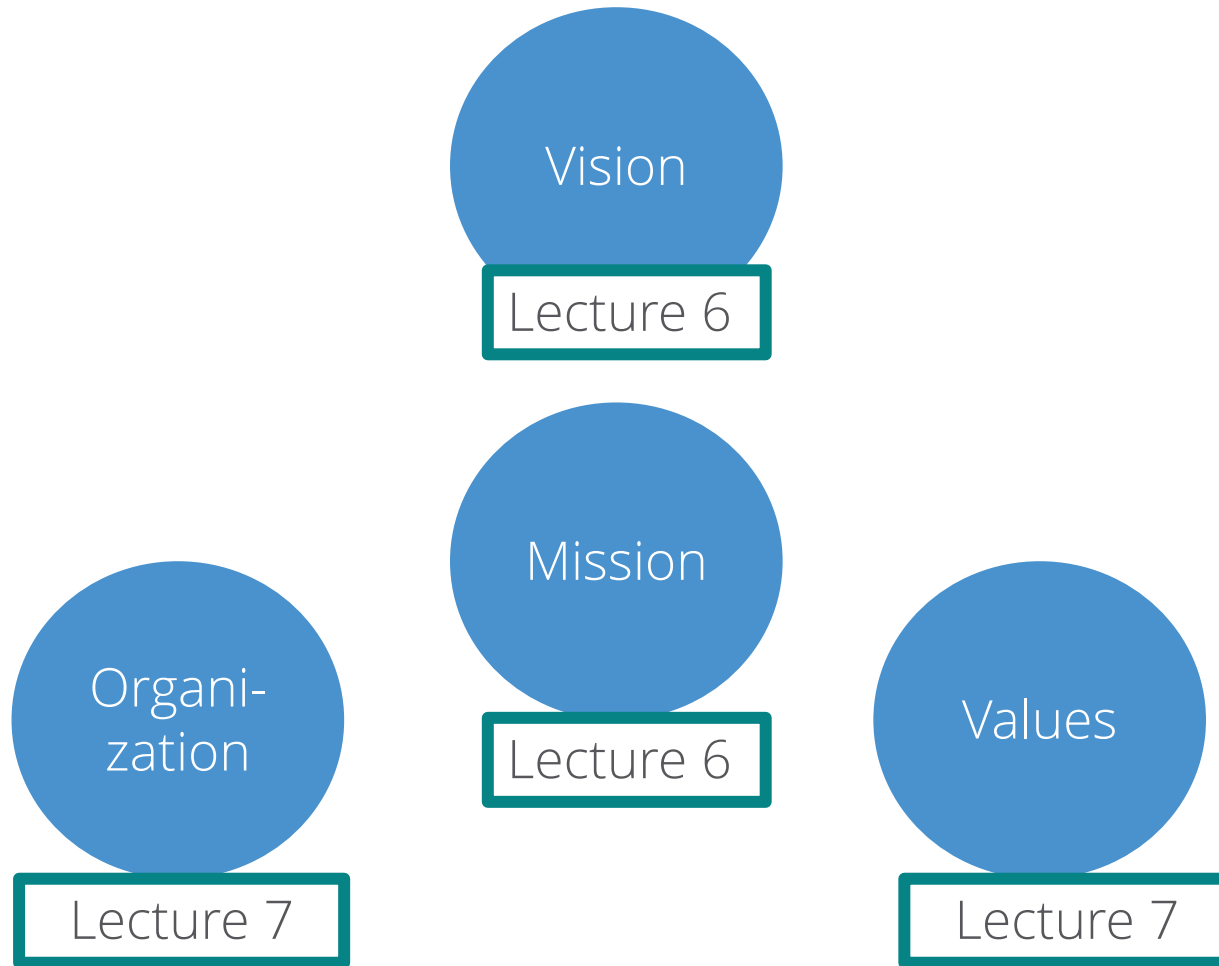
Frontend & App

Backend & Test Automation

Data & AI



Vision, Mission, Organization & Values

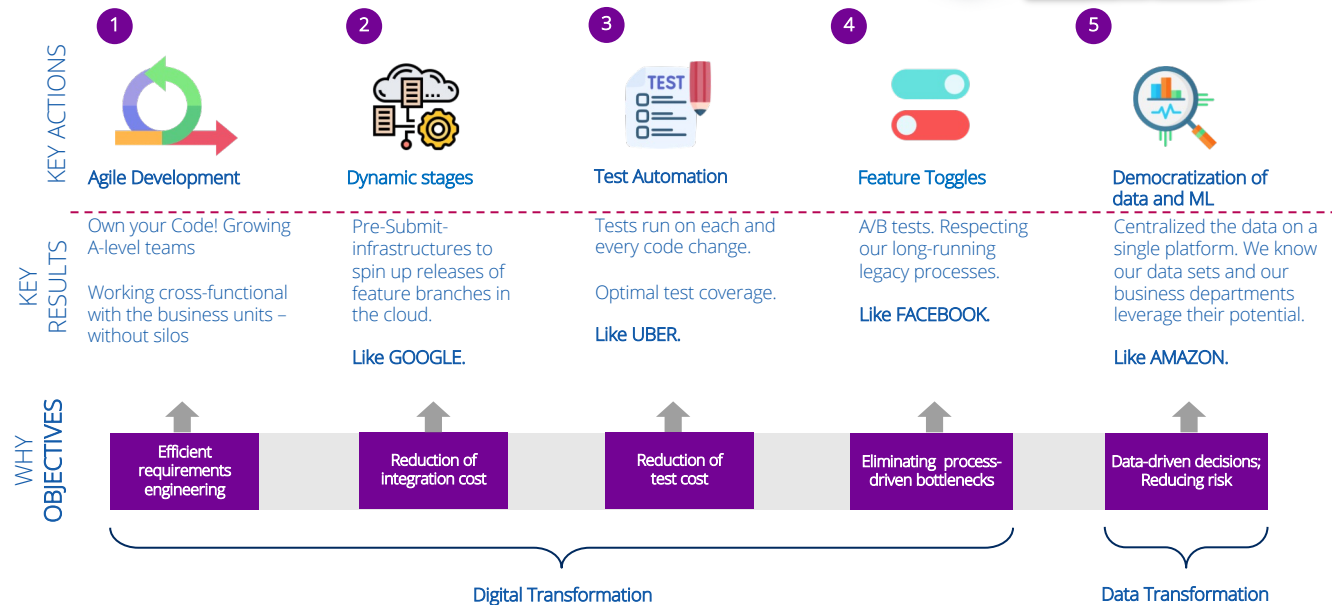


K-DMNX Vision: 1 (digital) SOP per Day

Own your code! Own your data!



The books from Gene Kim:
The Phoenix Project &
The Unicorn Project



**High-level strategic brand goal:
Agile, performance-driven digital enterprise**

Digital Data Products B2B & B2C

Almost 100 people sharing the same mindset of modern software development!
We develop customer-centric, scalable and robust mobile online services for thousands of commercial customers; and transform VWCV into a data-driven company.

I. Design & Development

We work very close with the business departments and are co-located. We develop digital services for B2C- and B2B-markets.

Cross-functional

We work in cross-functional teams and leverage modern agile frameworks such as SCRUM, SAFe, LEAN etc.

However, what really matters is output.

III. Think like a Start-Up, act like a Grown-Up

We act fast. If we make failures, we learn from them. We are not afraid of making failures. We share and do not hide failures. We comply to the corporate processes.

IV. Continuous improvement & customer obsession

Continuous improvement is in our DNA. We are customer obsessed and are a core-cell of the ongoing transformation of Volkswagen.

MOD
PROJEKTHAUS

OKR example

- **C-Level**

- **Objective:** Agile, performance-driven digital enterprise
- **Result 1:** Increase turnover share of digital services to 10% within the next 5 years
- ...

- **C-Level - 1**

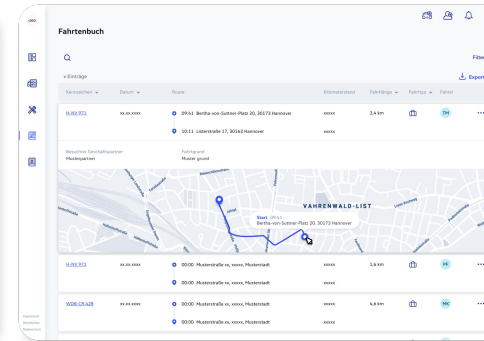
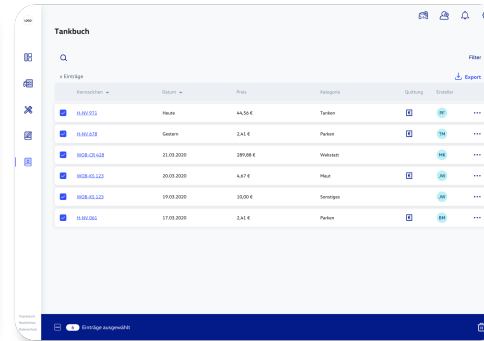
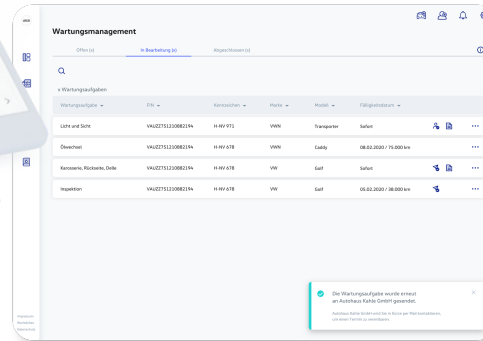
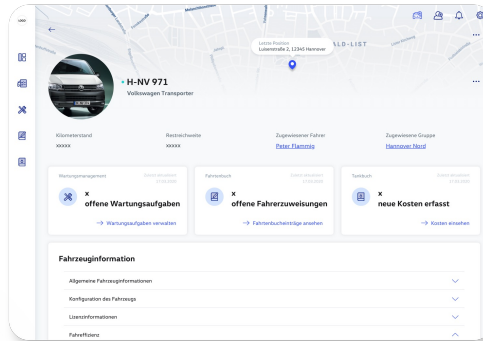
- **Objective=Result 1:** Increase turnover share of digital services to 10% within the next 5 years
- **Result:** Founding a co-located business and IT unit within the next year

- **C-Level – 2**

- **Objective:** Founding a co-located business and IT unit within the next year
- **Result:** Found a least three matching locations with at least 800 square meters in Hanover ...

...

Connect Fleet – Fleet Management System



Connect Fleet

Digital Logbook

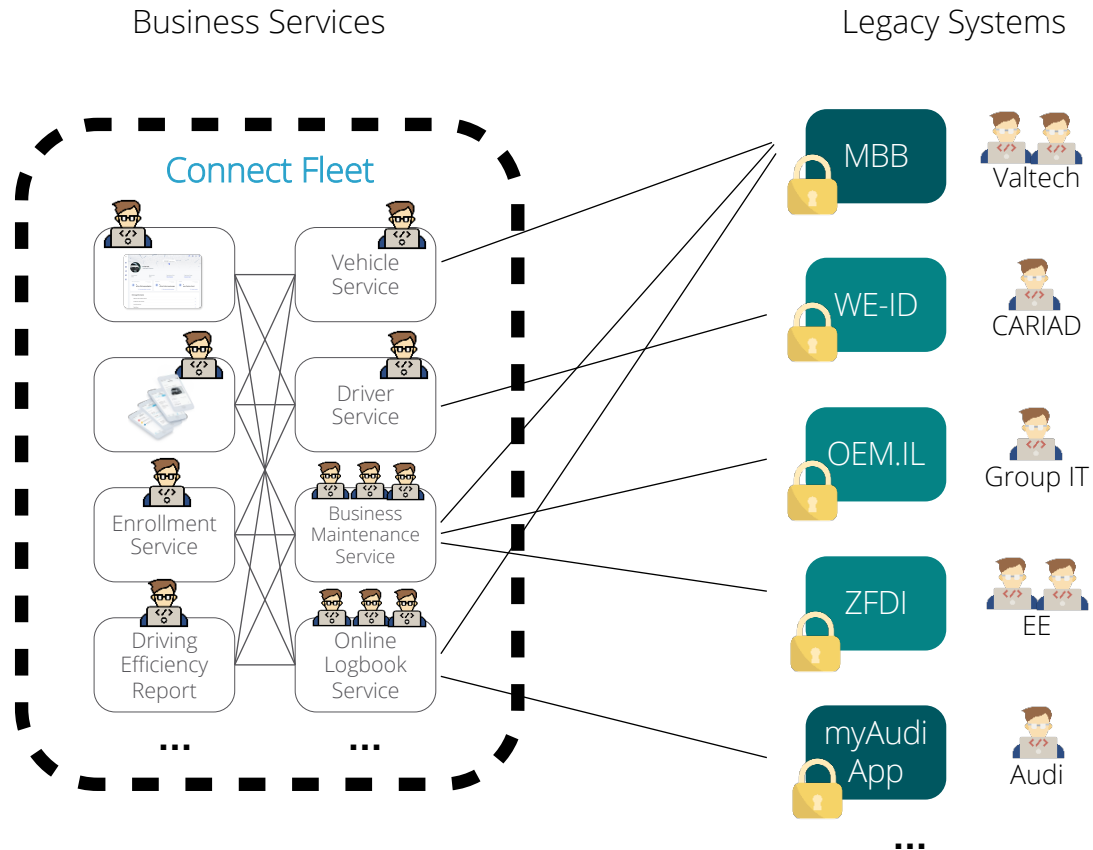
Business Maintenance
Scheduling

GPS Tracking

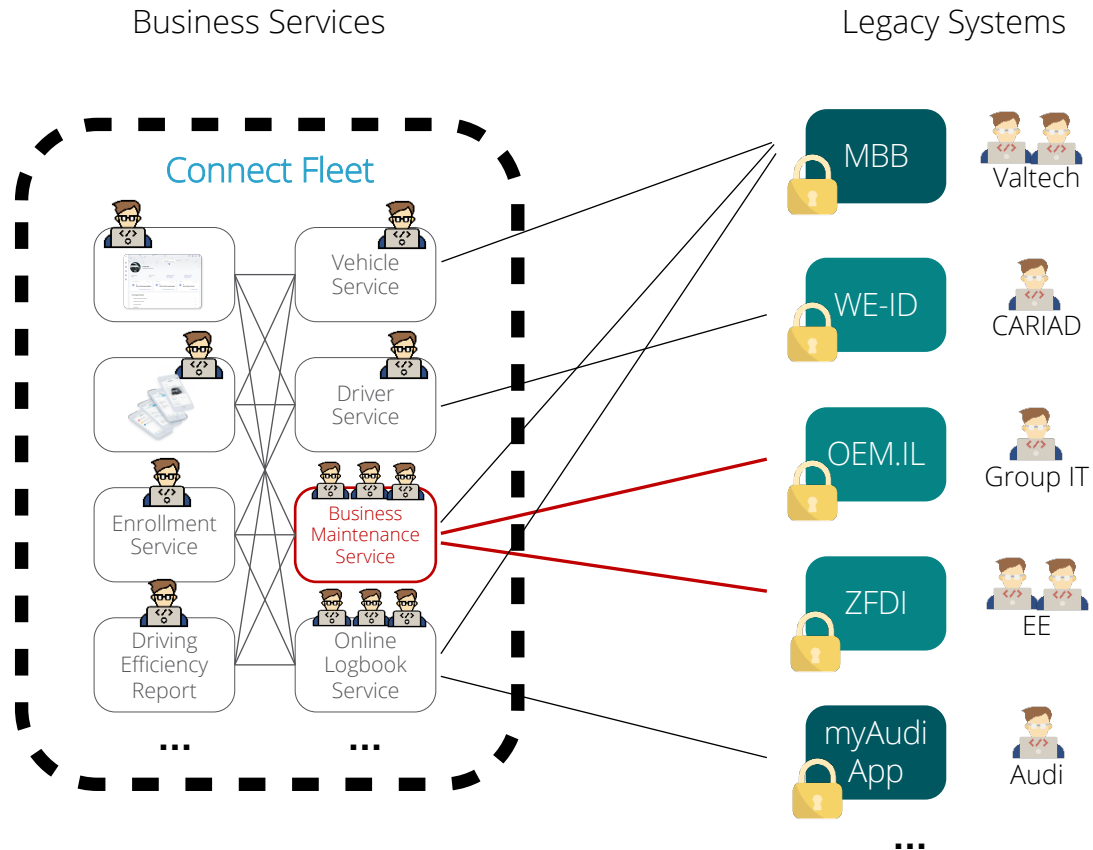
...

The Developer Journey: „I am Susi and I love CODING.“

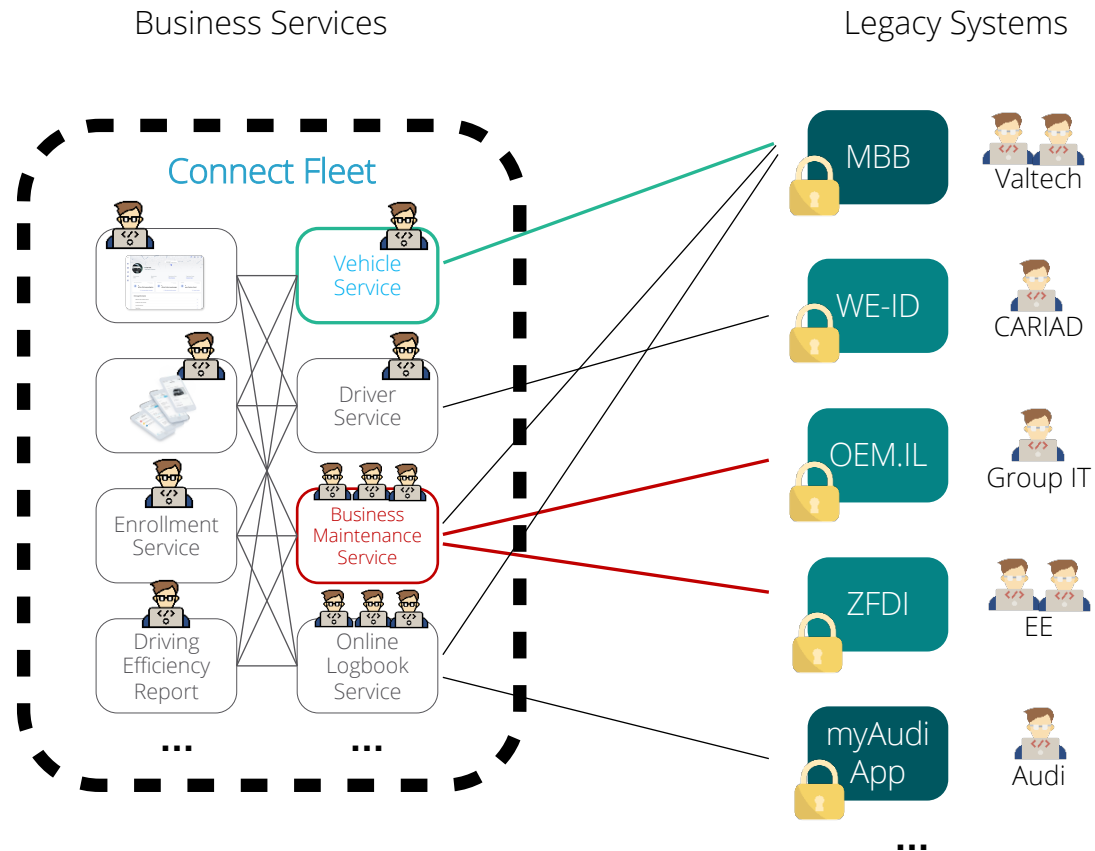
High-level strategic brand goal: Leading provider of inspiring software-enabled solutions for family & business



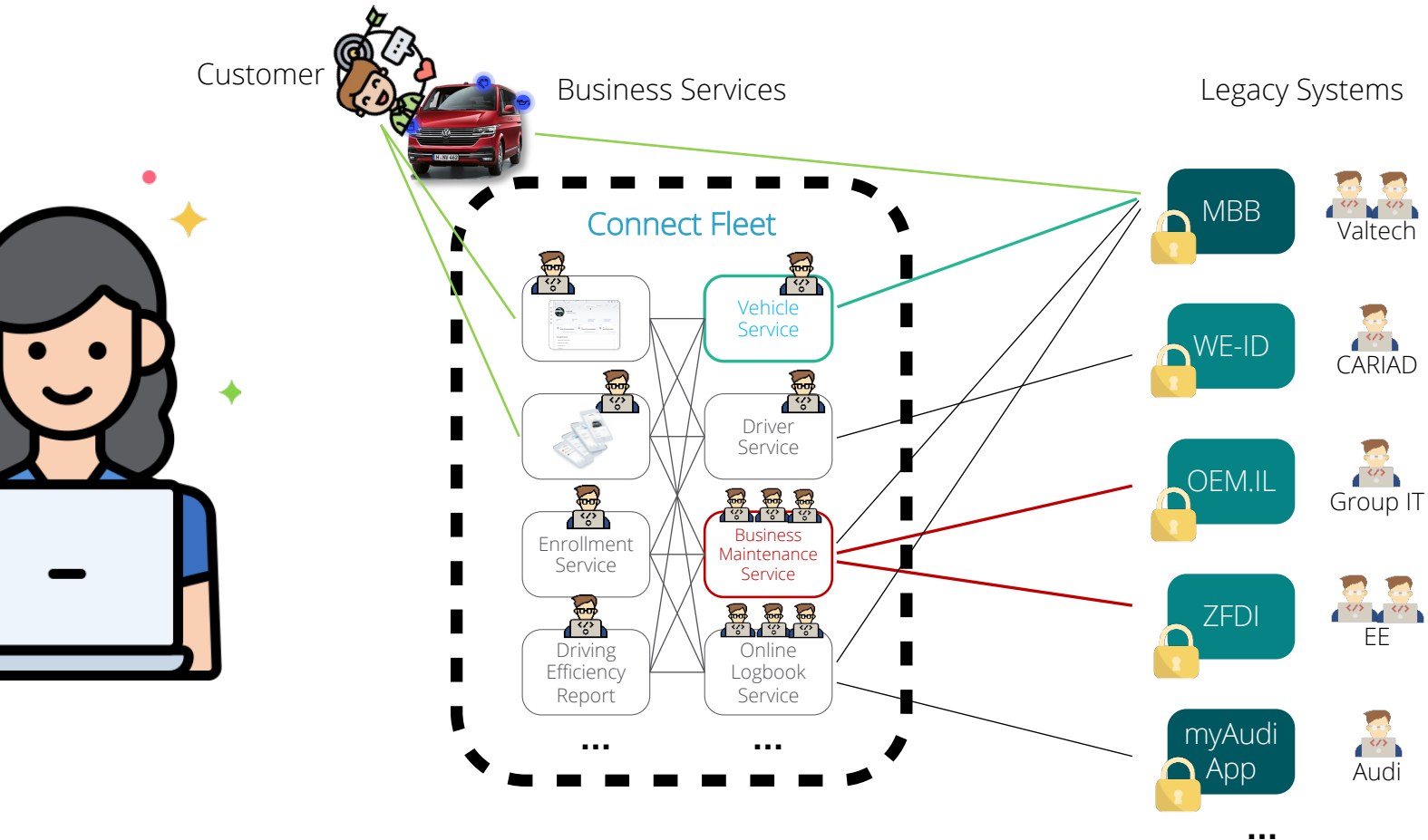
The Developer Journey: „I am Susi and I STILL love CODING.“



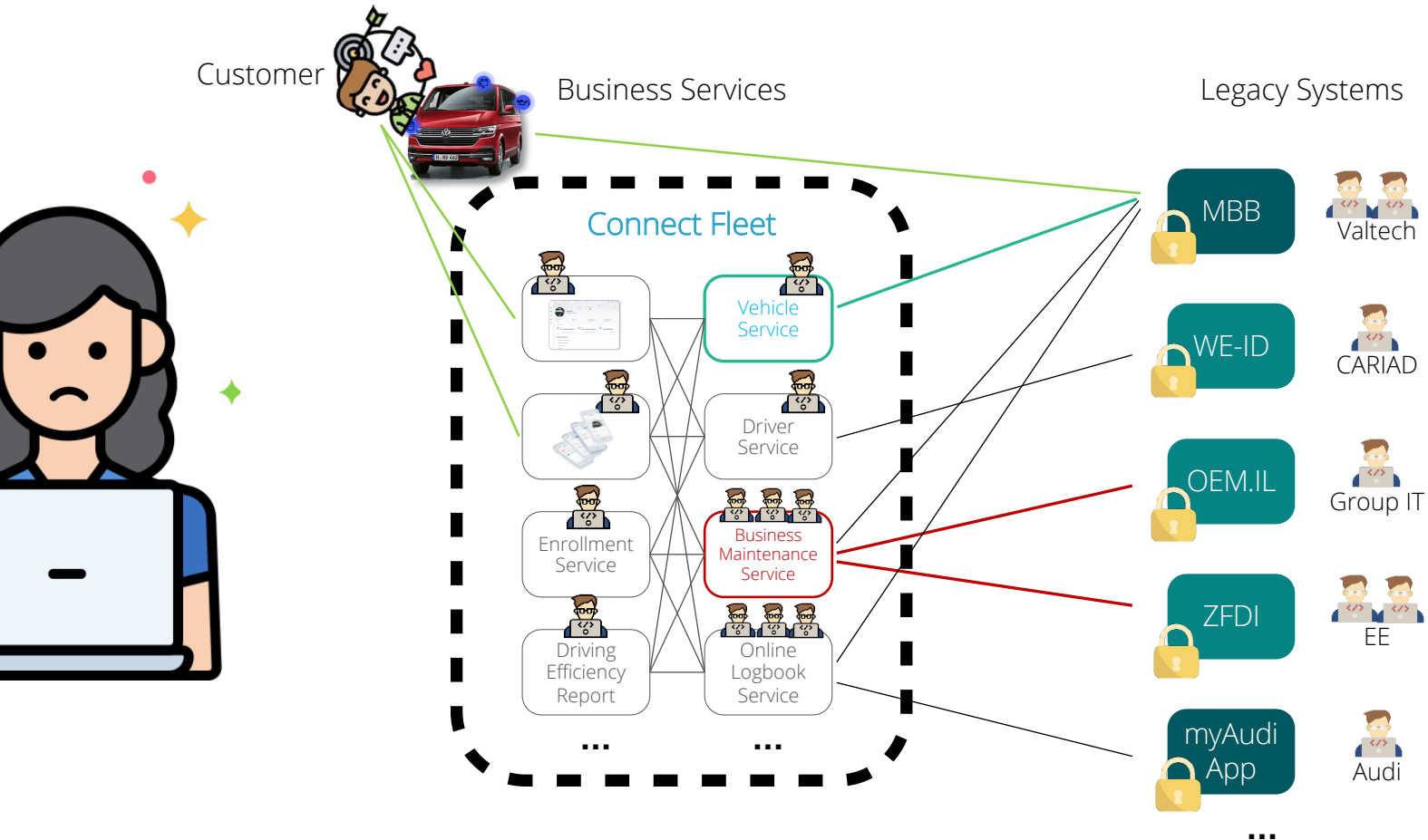
The Developer Journey of Susi: „I am Susi and I STILL love CODING.“



The Developer Journey: „I am Susi and I STILL love CODING.“



"I wanted to write code! Not requirements!"

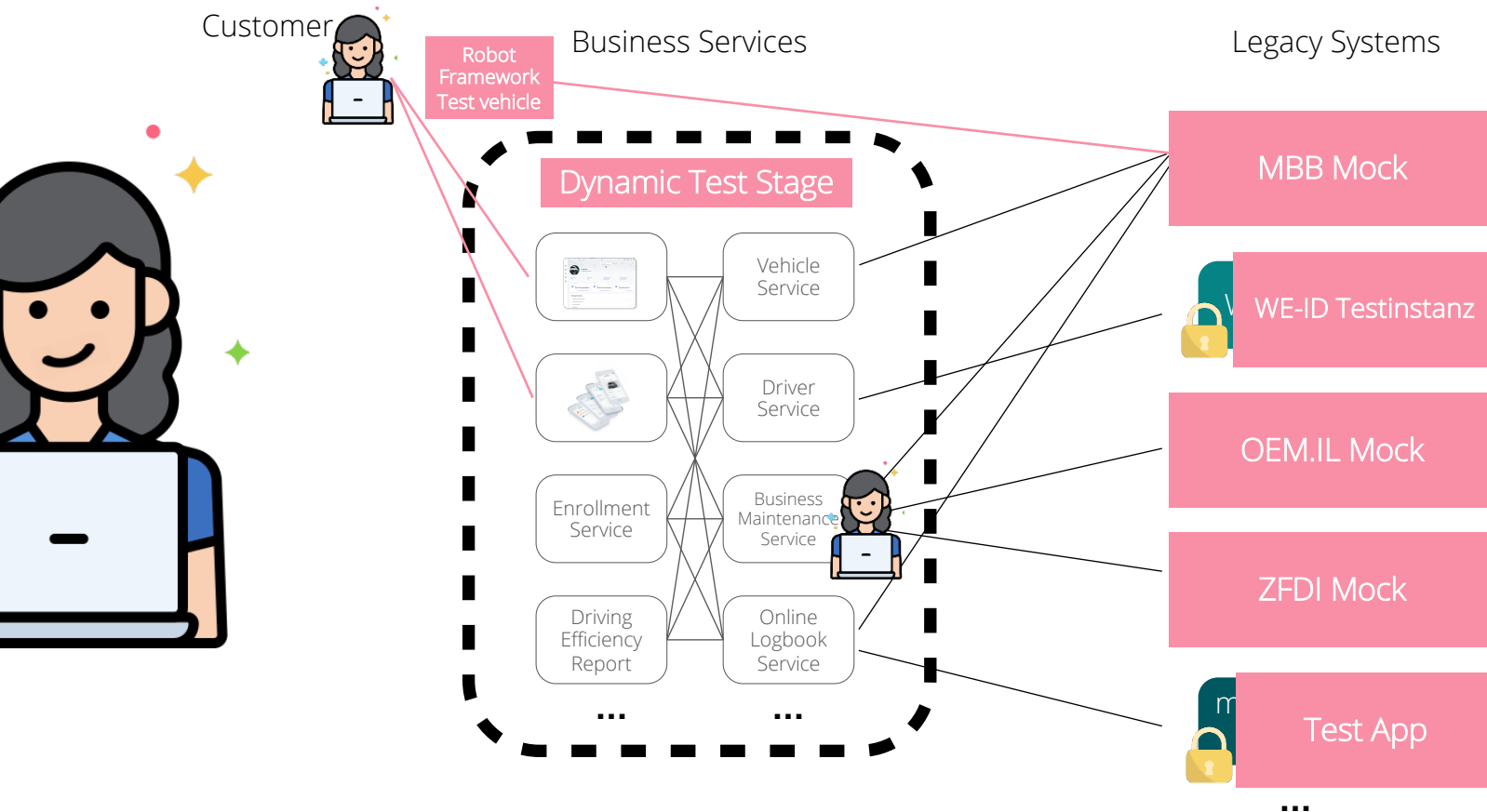


Why is Susi unhappy now?

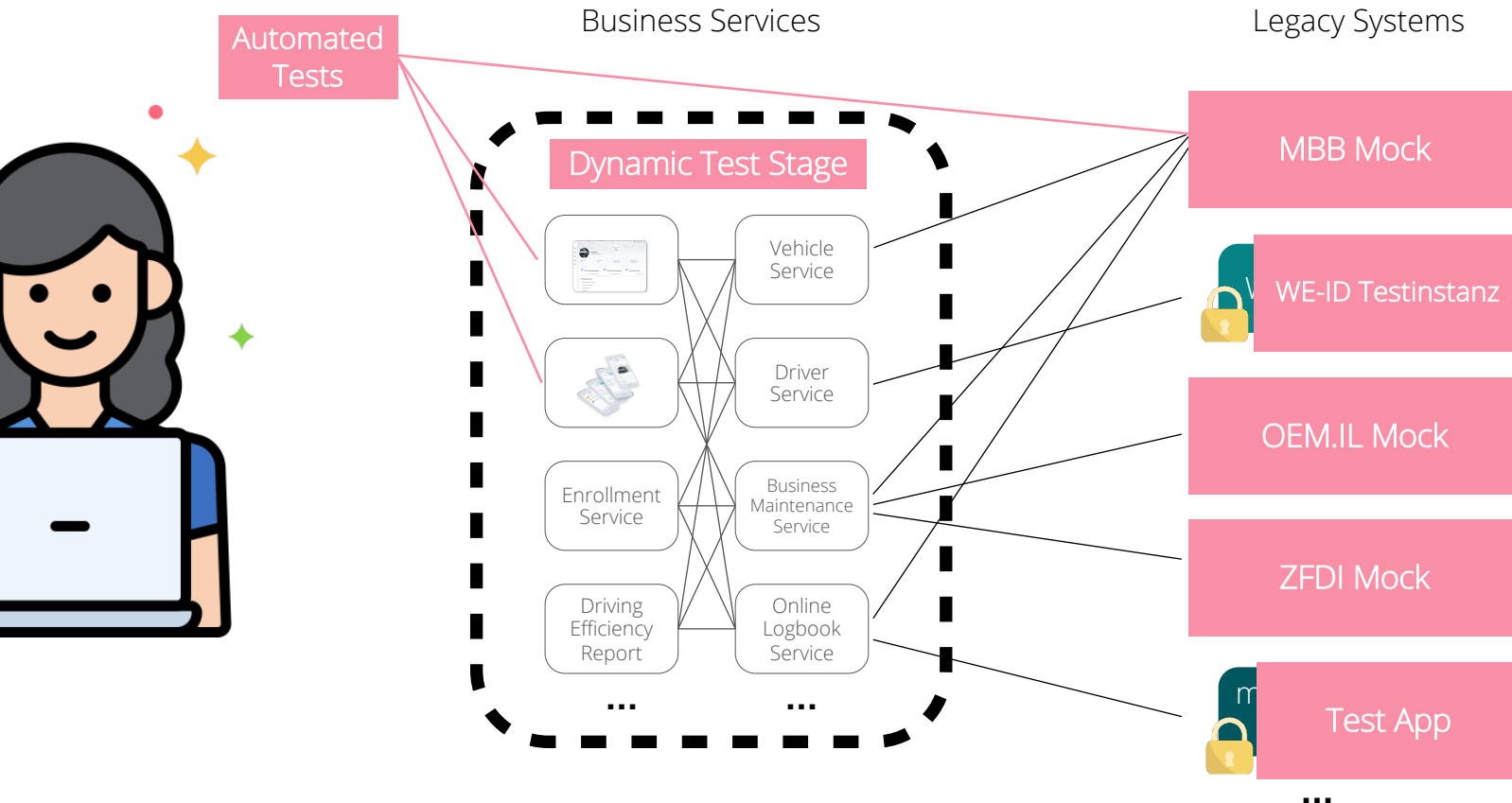
1. No end-to-end-testing during development phase
 2. Many dependencies on legacy systems
 3. Integration happens briefly for going live
 4. A lot of effort for the simulation of interfaces
 5. Every error leads to delays
 6. No automated end-to-end testing is possible
- → She mainly writes requirements instead of code. She has to talk to requirements engineers of other departments / groups etc.



How to Make Susi a Little Bit Happier? Mocks!

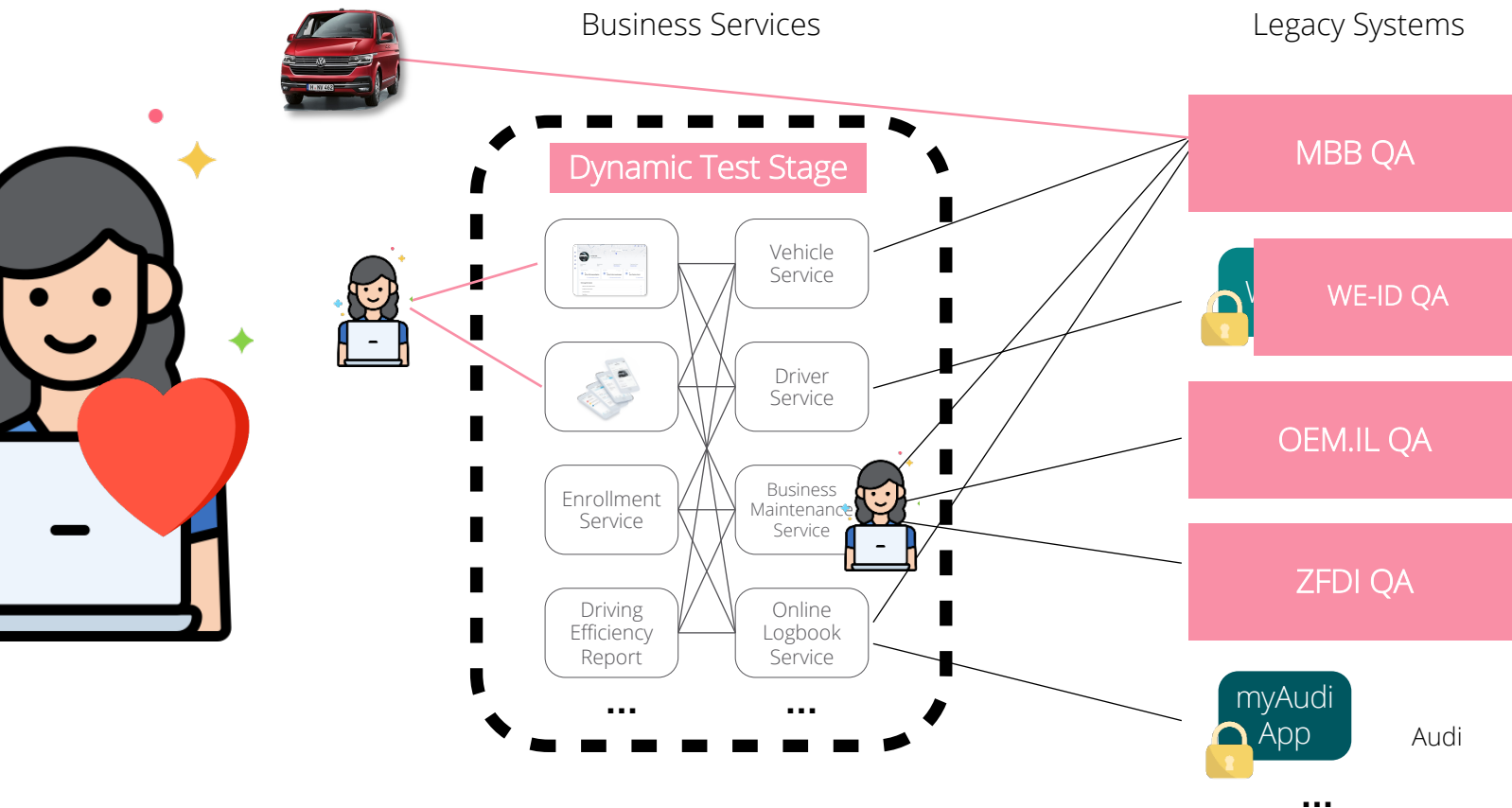


How to Make Susi EVEN MORE Happier? Automated Tests!



How to Make Susi the happiest Developer in the World?

Integration with QA!



How to Fix our Complex Enterprise World for Developers?

1. Dynamic stages
2. Functional mocks -> enables local testing
3. Automated test -> on every code change
4. With legacy systems -> testing before approval



Agenda

01

Group Level

02

Brand Level

03

Department Level

04

Summary

Summary

1. Defining a strategy in a corporation is a complex process due to the direct and indirect reporting lines
2. On group level high-level strategies are defined to convince shareholders; brands specify these strategies based on all context information (VWN IT strategy)
3. On CIO-/department-level methods like OKR are used to make objectives SMART