# Berlin Delivery Center Tour

**September 18, 2018**

LUXOFT

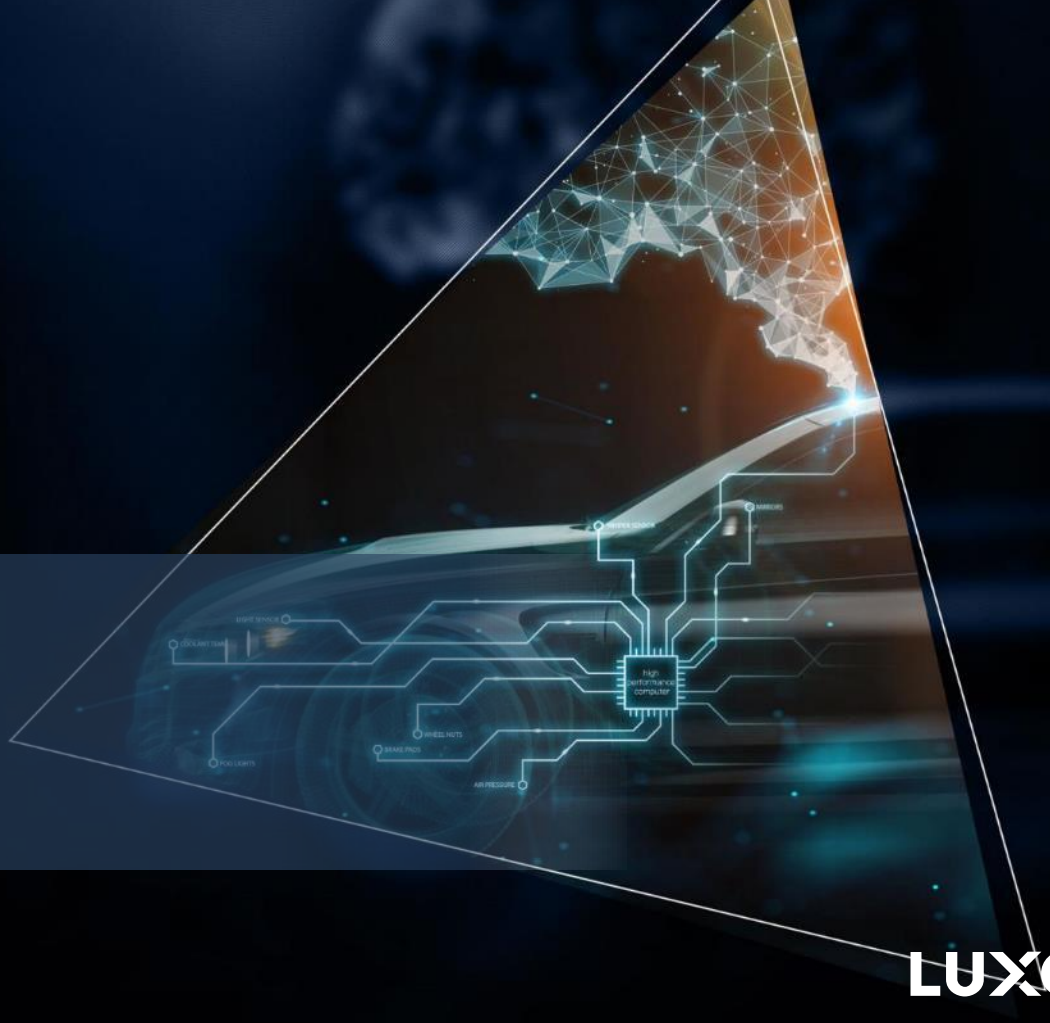
# Disclaimer

**Forward-Looking Statements**

In addition to historical information, this presentation contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, and Section 21E of the Securities Exchange Act of 1934. These forward-looking statements include information about possible or assumed future results of our business and financial condition, as well as the results of operations, liquidity, plans and objectives. In some cases, you can identify forward-looking statements by terminology such as "believe," "may," "estimate," "continue," "anticipate," "intend," "should," "plan," "expect," "predict," "potential," or the negative of these terms or other similar expressions. These statements include, but are not limited to, statements regarding: the persistence and intensification of competition in the IT industry; the future growth of spending in IT services outsourcing generally and in each of our industry verticals, application outsourcing and custom application development and offshore research and development services; the level of growth of demand for our services from our clients; the level of increase in revenues from our new clients; seasonal trends and the budget and work cycles of our clients; general economic and business conditions in our locations, including geopolitical instability and social, economic or political uncertainties, particularly in Russia and Ukraine, and any potential sanctions, restrictions or responses to such conditions imposed by some of the locations in which we operate; the levels of our concentration of revenues by vertical, geography, by client and by type of contract in the future; the expected timing of the increase in our corporate tax rate, or actual increases to our effective tax rate which we may experience from time to time; our expectations with respect to the proportion of our fixed price contracts; our expectation that we will be able to integrate and manage the companies we acquire and that our acquisitions will yield the benefits we envision; the demands we expect our rapid growth to place on our management and infrastructure; the sufficiency of our current cash, cash flow from operations, and lines of credit to meet our anticipated cash needs; the high proportion of our cost of services comprised of personnel salaries; our plans to introduce new products for commercial resale and licensing in addition to providing services; our anticipated joint venture with one of our clients; and our continued financial relationship with IBS Group Holding limited and its subsidiaries including expectations for the provision and purchase of services and purchase and lease of equipment; and other factors discussed under the heading "Risk Factors" in the Annual Report on Form 20-F for the year ended March 31, 2018 and other documents filed with or furnished to the Securities and Exchange Commission. Except as required by law, we undertake no obligation to publicly update any forward-looking statements for any reason after the date of this presentation whether as a result of new information, future events or otherwise.

# Tracy Krumme

## VP, Investor Relations

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# Berlin Delivery Center Agenda

| Speaker | Description |
|---|---|
| Demonstrations | |
| Tracy Krumme | Welcome |
| Alwin Bakkenes, Luxoft | Empowering the Mobility Revolution |
| Michael Dinkel, Luxoft | Digital Cockpit |
| Miro Bogdanovic, MBition | MBition & LXFT Partnership |
| Alex Diebald, Luxoft | Silicon & Tech Vendors |
| Helen Choi & Sunghyn Cho, LG Electronics | webOS & LXFT/LG Partnership |
| Break | |
| Brian Marr, Smashing Ideas | Smashing Ideas + ReachNow Demo |
| Marek Jersak, Luxoft | Autonomous Drive |
| Clemens Dannheim, Objective Software | Objective |
| Alwin Bakkenes, Luxoft | Closing |
| All | Q&A |

# Empowering the Mobility Revolution

Alwin Bakkenes
Managing Director, Automotive

LUXOFT
AUTOMOTIVE

# Alwin Bakkenes

**Managing Director, Automotive**

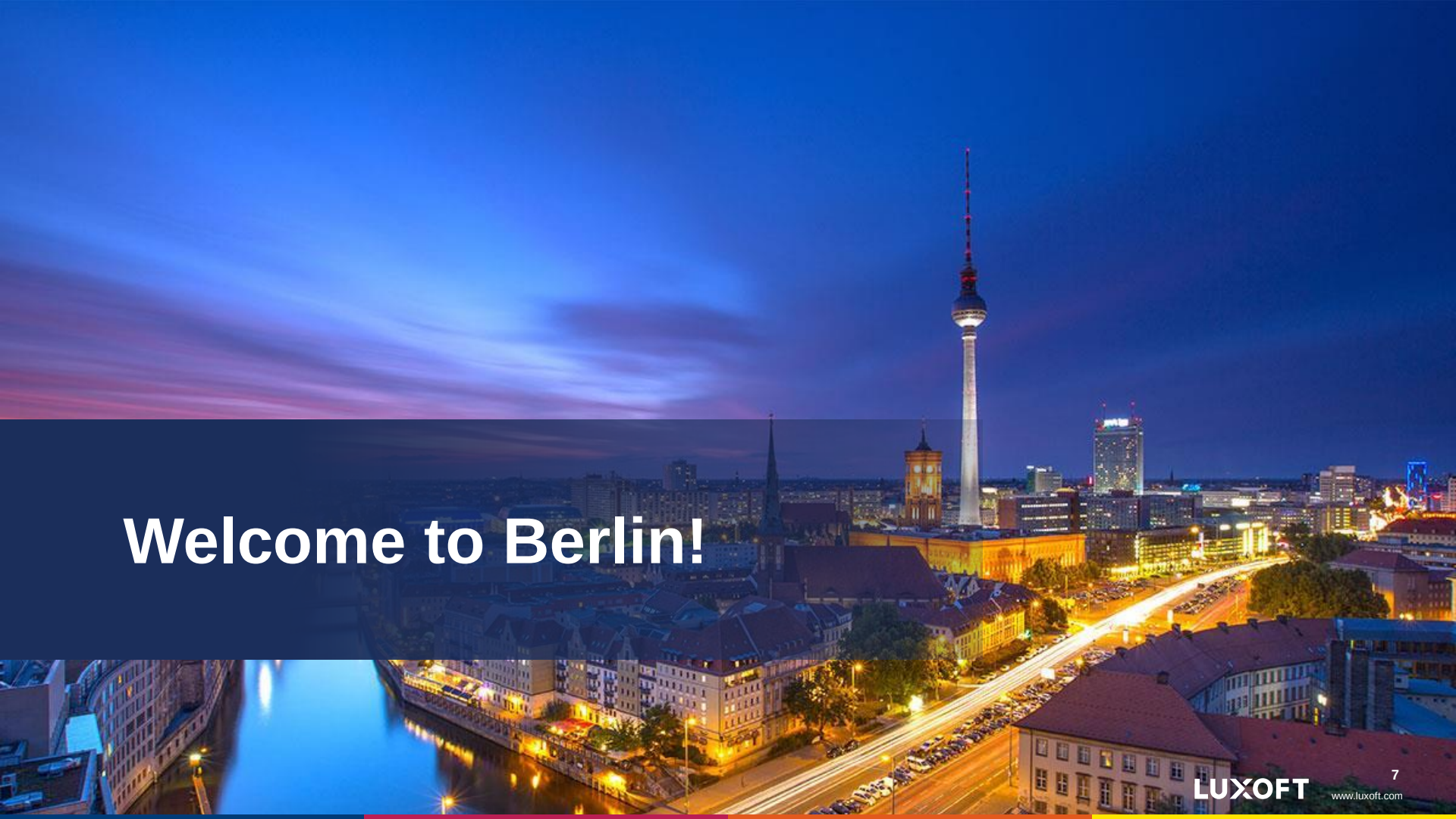
*"As a trusted deployment partner, we empower our clients to become providers of sustainable mobility solutions by co-creating technology platforms of tomorrow."*

PELAGICORE Experience Change

WirelessCar

VOLVO

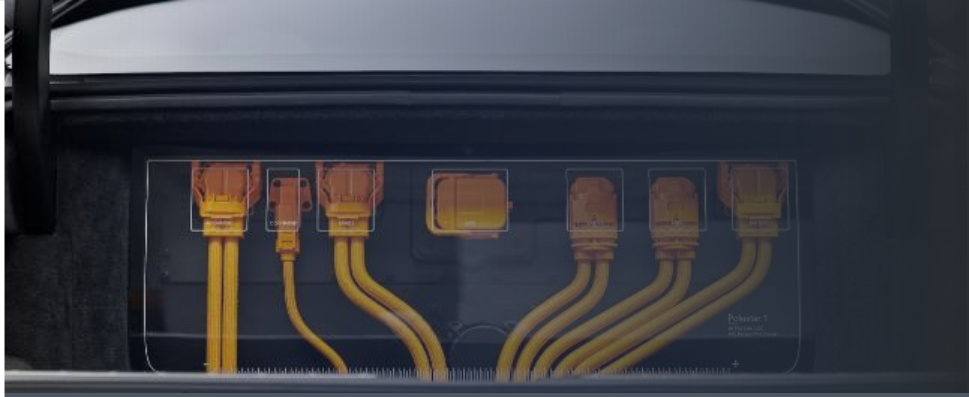
Netscape



# Welcome to Berlin!

# The Mobility Revolution

PERSONAL DIGITAL LIFESTYLE



ELECTRIFICATION

# The Mobility Revolution

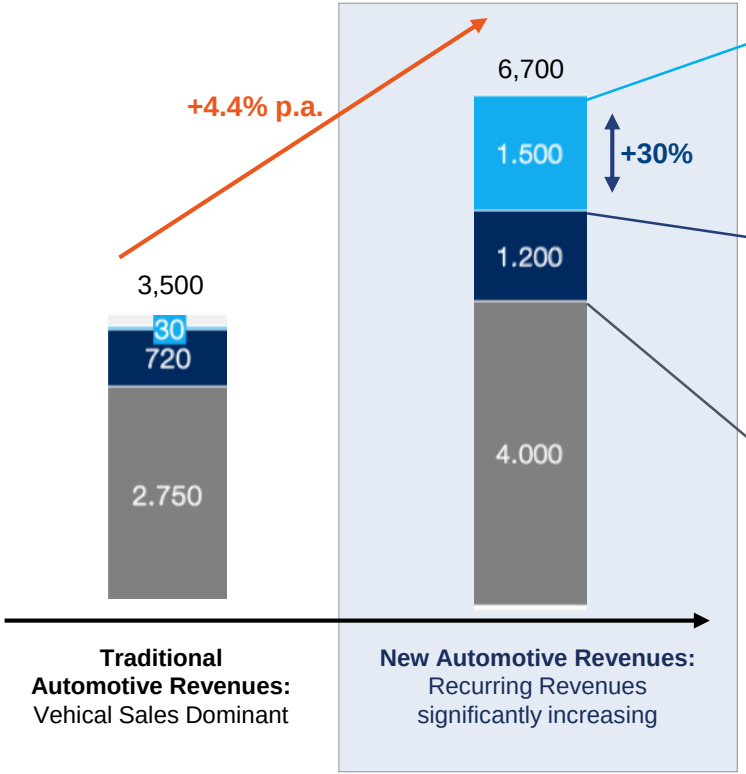
SHARING ECONOMY

AUTONOMY

# The Automotive Revenue Pool will Continue to Grow & Diversify

HIGH-DISRUPTION SCENARIO

▶ **Potential to become a ~$1.5 trillion market by 2030**




## Recurring Revenues

- Shared mobility penetrates dense and suburban cities with new car sharing and e-hailing business models
- >$100 billion from data connectivity services, incl apps, navigation, entertainment, remote services, and software upgrades

## Aftermarket

- Growth with increased vehicle sales
- Higher annual maintenance spend for shared vehicles
- 20-30% lower maintenance spend on electric powertrains
- Up to 90% lower average crash repair per autonomous vehicle

## One-time vehicle sales

- ~2% annual global increase in vehicle unit sales driven by macroeconomic growth in emerging economies
- Price premiums paid for electric powertrains and autonomous driving technology features

Source: McKinsey 2016

# Key Industry Trends

**1.**

Automotive companies become Software Companies.

**2.**

Autonomous Driving & ECU consolidation drives the need for new software platforms and talent.

**3.**

Sharing economy drives digitalization of customer experience for car industry.

**4.**

Eco-systems need to be built to satisfy Personal Digital Lifestyles, no longer “one company does all”.

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# think.
# create.
# accelerate.

Empowering the Mobility Revolution

**Seattle Washington**
Since 1996

**Where We Specialize**
Lean Strategy
User-Centered Design
Motivational UX (MUX)
Full Stack Development
In-Market Launch

**65 Employees**

**Global Clients**
Spanning 4 continents


STUDIO

smashing ideas

# Luxoft Acquired Objective Software GmbH

## Same Journey
## **New Objective**

Luxoft acquires autonomous drive and connected mobility specialist Objective Software GmbH

**August 7, 2018** LUXOFT announced the acquisition of Objective Software GmbH, a provider of software development services and IP based solutions for autonomous vehicles, Advance Driver Assisted Systems (ADAS), high-accuracy positioning, innovative mobility and smart city applications.

Given close synergies with LUXOFT's service-led model, backed by in-house application development, we anticipate opportunities to significantly scale Objective's existing projects in autonomous driving and connected mobility. In particular, the acquisition further strengthens our presence in Munich where we intend to expand software development services for BMW and their Tier1s, thereby delivering software effectively across the full value chain.

# Building Eco-systems With Technology Partners

*Thanks to our collaboration with Luxoft, we are able to bring webOS into automotive and beyond,”*
*said **I.P. Park,** CTO at LG Electronics.*


09:21
20.5°C
Consumption
ECO display
CONSTANT
ACCELERATION
COASTING
24 | 7 Cool
Daniel R.
Comfort
Mercedes me & Apps

# Automotive at a Glance

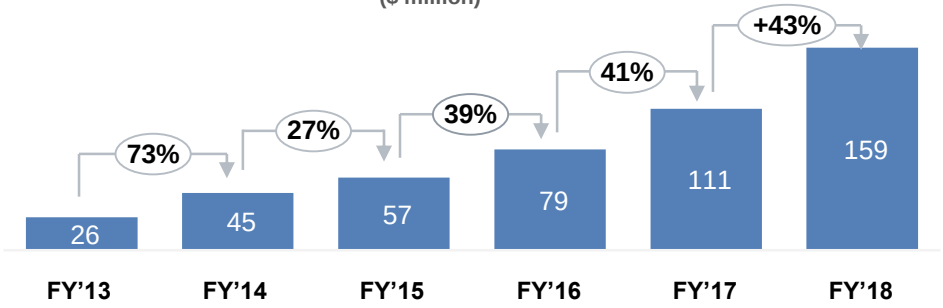
DAIMLER Ford HARMAN Visteon Valeo

**+6 OEM Clients**

**+6 Tier-1 Clients**

## REVENUE DEVELOPMENT

($ million)




| Number of Clients | | | | | | |
|---|---|---|---|---|---|---|
| **OEM** | 1 | 1 | 1 | 4 | 9 | 15 |
| **Tier1** | 3 | 3 | 5 | 6 | 12 | 18 |

## Our strengths

- Deep industry & technology know-how
- Focused on the high-value segments of the business
- Co-creation and Deployment partner
- Top-tier customer base
- Global delivery centers
- Effective Integration of M&As
- Independent partner to OEMs & Tier-1s

## Our next steps

- Scale our geographical footprint & client base
- Scale up the new accounts with extended offerings
- Establish industry wide reference platforms with partners

# Executing On Our Strategic Goals

## Growth Strategy

- Growing the newly opened accounts
- Geographical expansion in Americas and JAPAC
- Grow our share of the OEM business with our unique offering
- New client acquisition through technology partners
- Expand offering for Mobility Services for future growth
- Selective M&A focusing unique skills & services

## Objective

Establish ourselves as the leading software development company **empowering the mobility revolution**

Continued **35%+** organic growth with sustained margins

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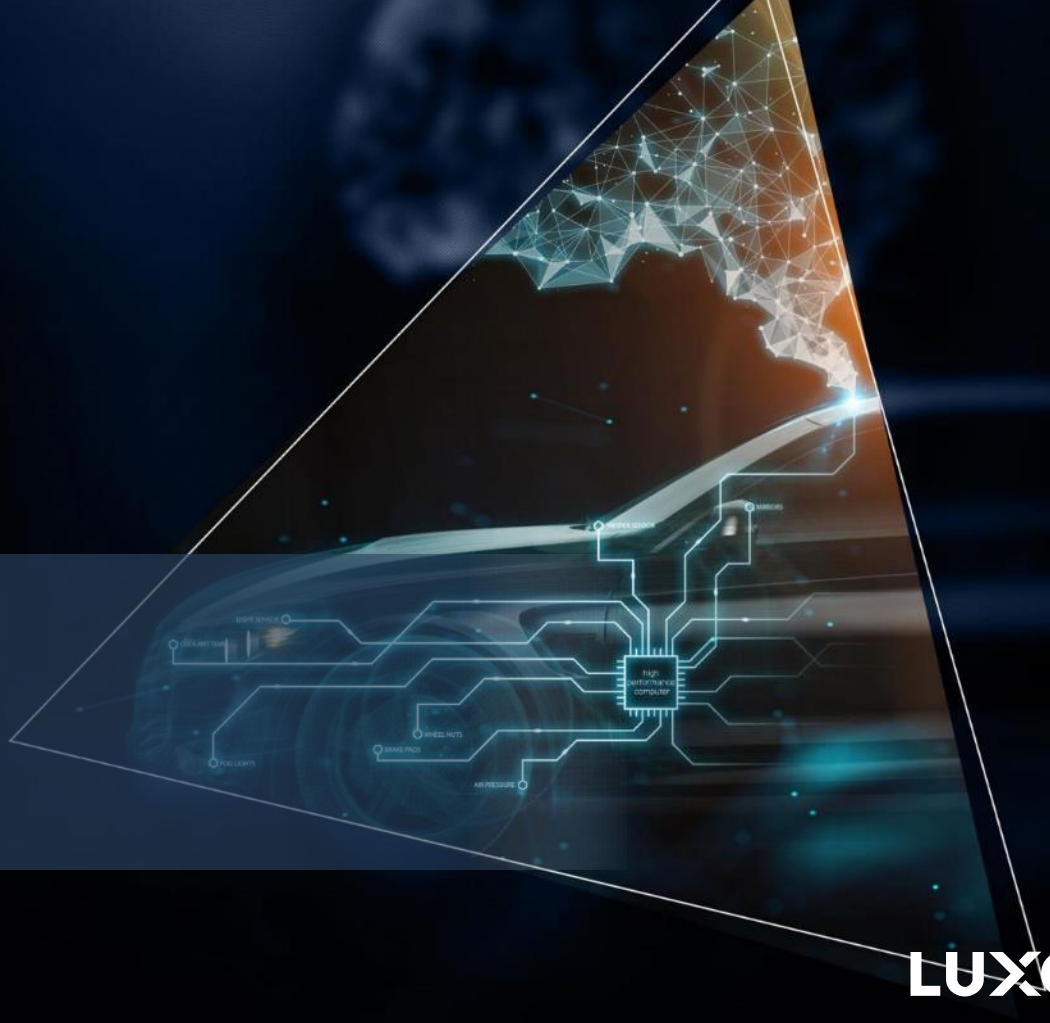
# Digital Cockpit

**Michael Dinkel**
Head of Digital Cockpit

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## Dr. Michael Dinkel
# Head of Digital Cockpit

MIDI

*"The automotive industry needs to evolve in order to succeed in the global competition for smart software-enabled solutions."*


# We put stunning user experiences on the road from pixel to silicon

# **Automotive Builds SW Focus** – Luxoft co-creates and enables

DIGITAL LIFESTYLE | ELECTRIFICATION
SHARING ECONOMY | AUTONOMY

Trends

**Differentiation**

- Great User Experience
- Features
- Security
- Time to Market
- Connectedness

become
"SW-Savvy"

**Challenges**

- Mechanical Heritage
  - Mindset of People
  - Management
  - Processes
  - Technology

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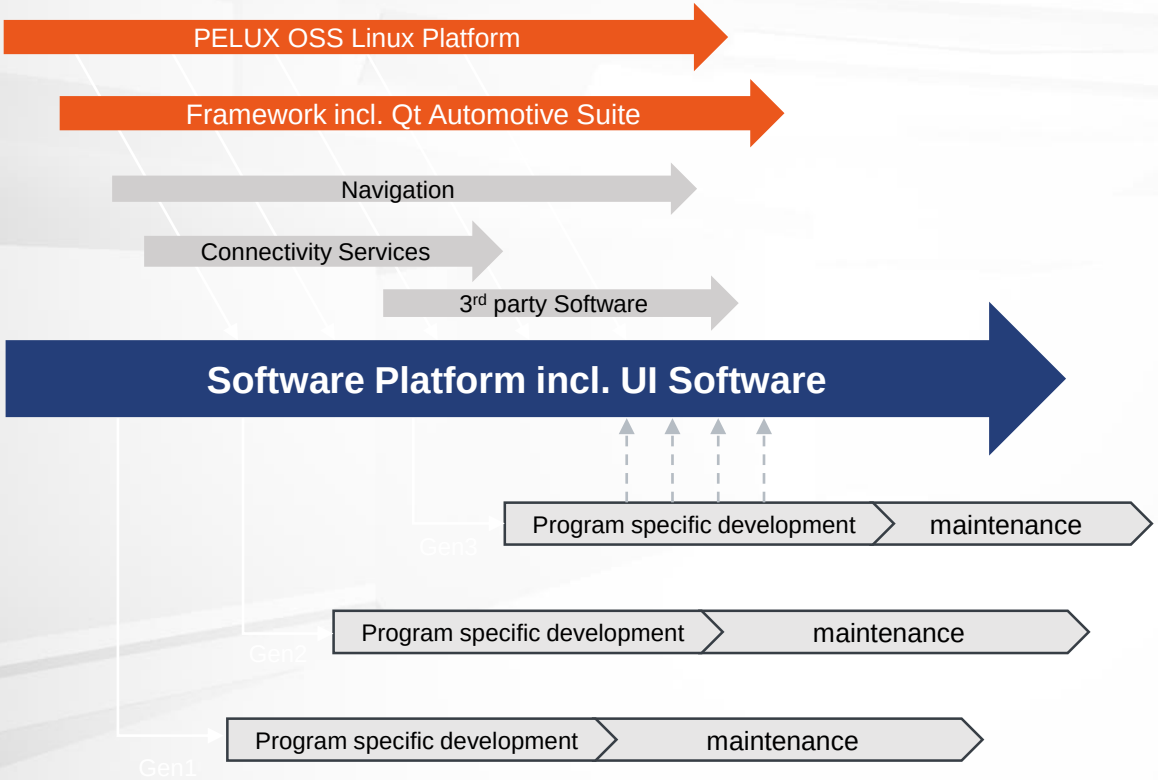
**Think.**
- UX Design
- Concept Creation

**Create.**
- Technology Consulting
- Process Consulting

**Accelerate.**
- Solution Accelerators
- Automotive Delivery
- Global Scalability

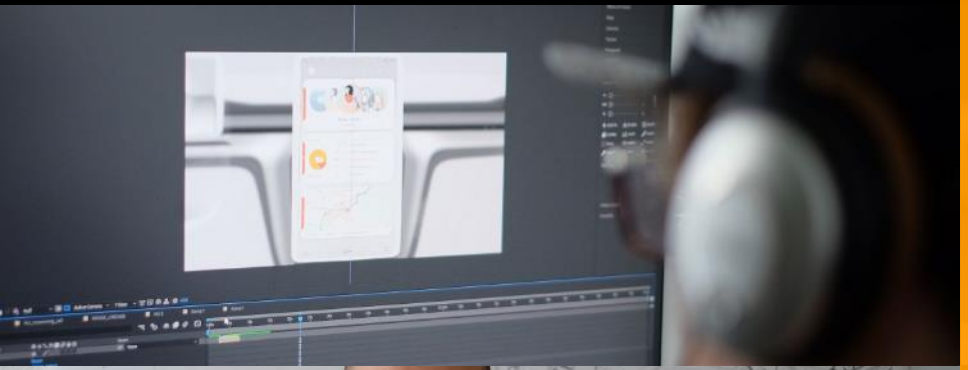
# Platform Strategy




## Benefits

- Software Factory enabling Continuous Software Integration & Delivery
- Structure enforces solid architecture
- Increased platform focus enables shorter program time-to-market
- Integration of new innovations outside of program delivery pressure

# UX Design




Psychologists

Industrial Designer

Usability Architect

UX Experts

Screen Designer

Motion Designer

Technical Writer

3D Designer

Usability Engineers

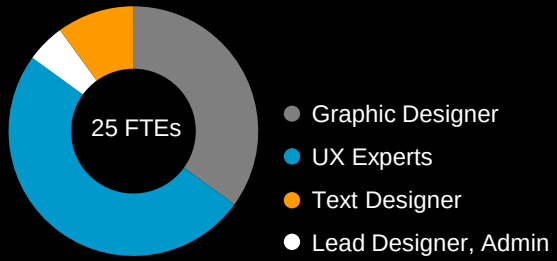
# Case Study

## Mercedes Benz

### Tasks

1. Support with design creation
2. Graphics roll out and asset preparation for software integration
3. Style guide creation
4. Animation development, specification

### UI/UX Team




### Project Team setup

Main project team (OEM, Software, UI/UX Stuttgart), Stakeholders in Ukraine, US and China.

# One Process for UX & Software

Software Team

UX Team

## Strategy

- Scope defined and prioritized
- Basic interaction concept
- Defined input devices
- Direction of visual design

## Concept

- Interaction flows
- Layout wireframes
- Low level prototypes

## Refinement

- Visual drafts
- Adjustment prototypes
- Adjustment interaction concept

## Finishing

- Final graphics
- High level prototypes
- Final interaction concept

## Production Data

- Master files
- Assets
- Design guidelines
- Specification
- Text Data base

# Agile Setup Consulting

**Agile Organization Blueprint**
How will the teams work together?

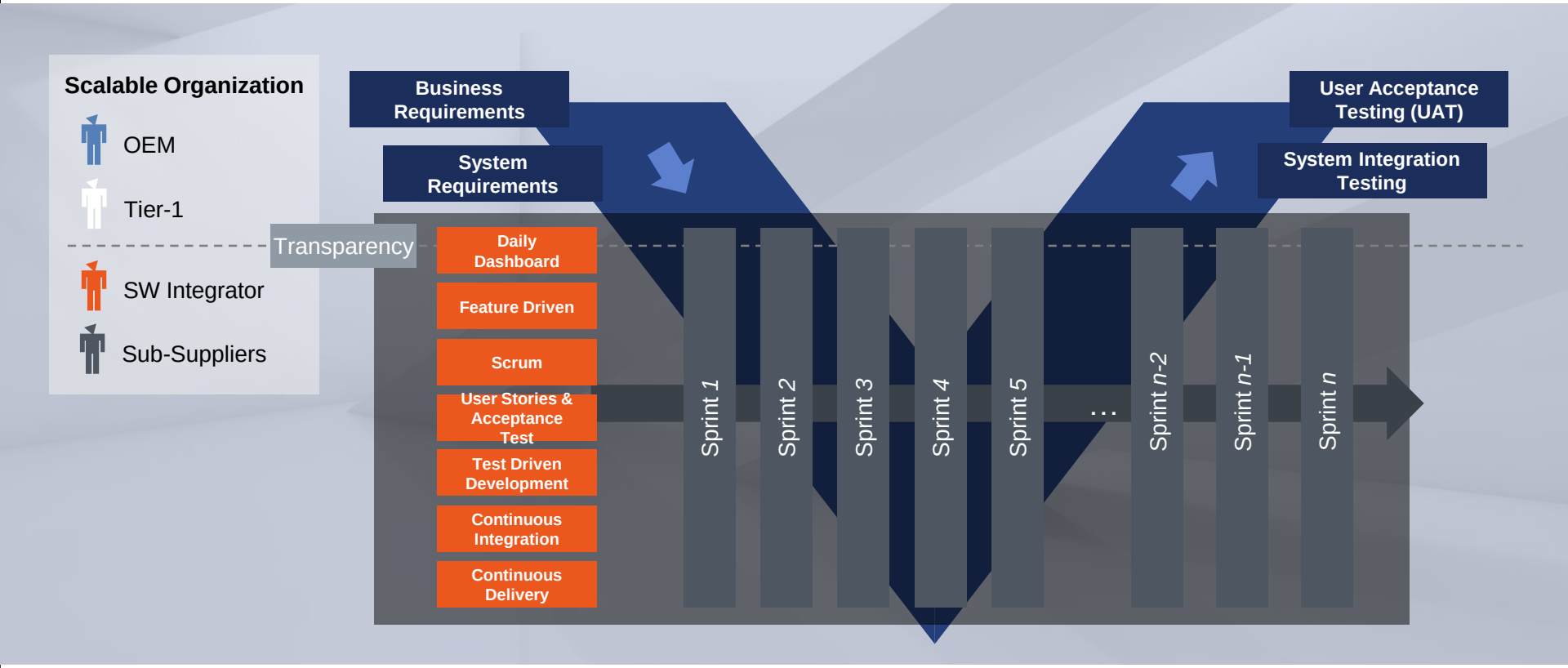
**Agile Projects**

- Multi-Party projects
- Effective collaboration
- Transparency

**SW Factory**
How to automate and scale processes?

**System Architecture**
How to technically split responsibilities?

# Development Strategy for Scaled Agile teams



# Solution Accelerators – Platforms and Open Source

Customer Value

Customize

Solution Blueprint

- Reusable Software Stacks
- Technology Expert Knowhow
- Process Expertise
- Tooling & Automation
- Consulting Services



**PELUX** – Operating System and Development Platform

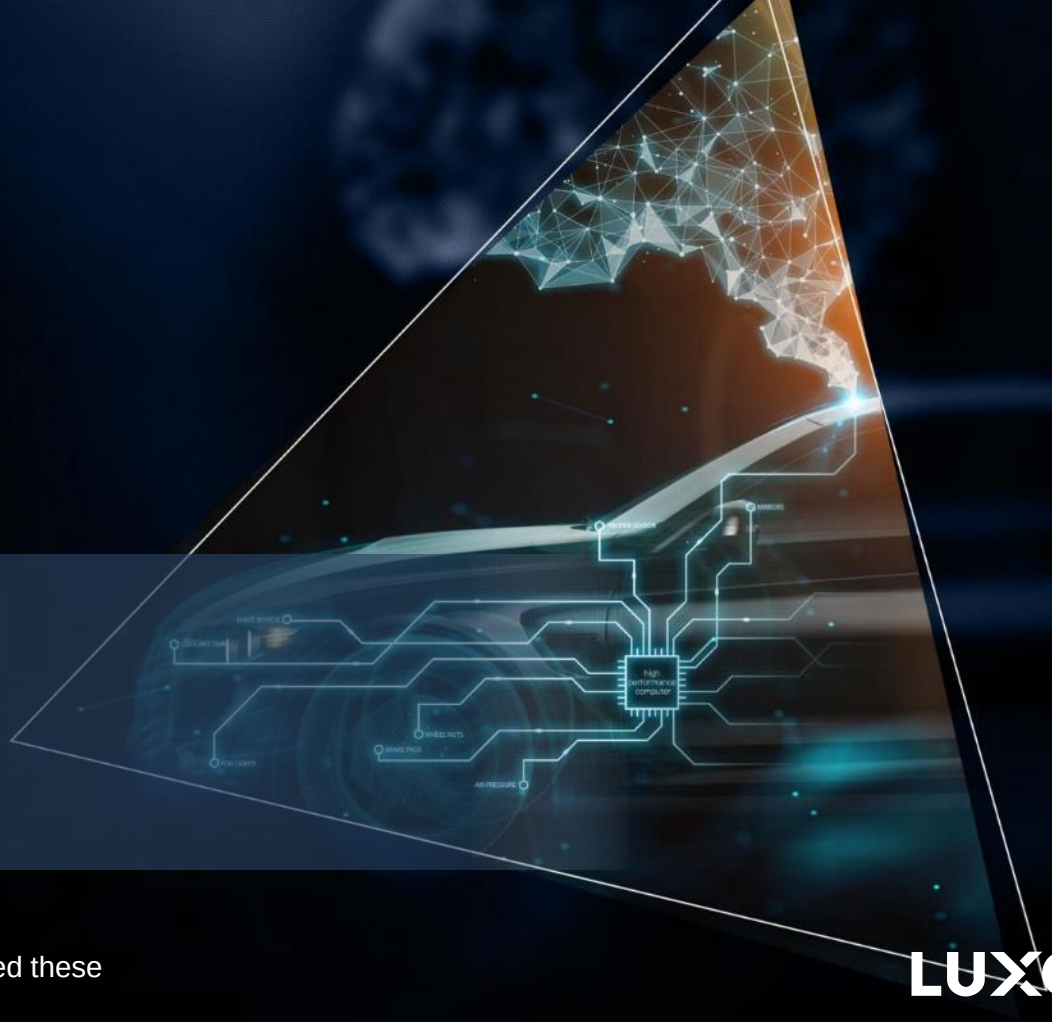
**Qt Automotive Suite** – platform for HMI

# #MBUX

## Success Factors.

- Agile Project Setup
- Cross-skilled teams (UX, SW, Test)
- Close agile collaboration and transparency
- Fast ramp-up
- From idea to product
- Near-shore & customer vicinity
- Open Source the right way

# MBition GmbH




At the request of the client, we have removed these slides from the public presentation.

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# Silicon & Technology Vendors

**Alex Diebald**
**Senior Director, Silicon & Tech Vendors**

LUXOFT

# Alex Diebald

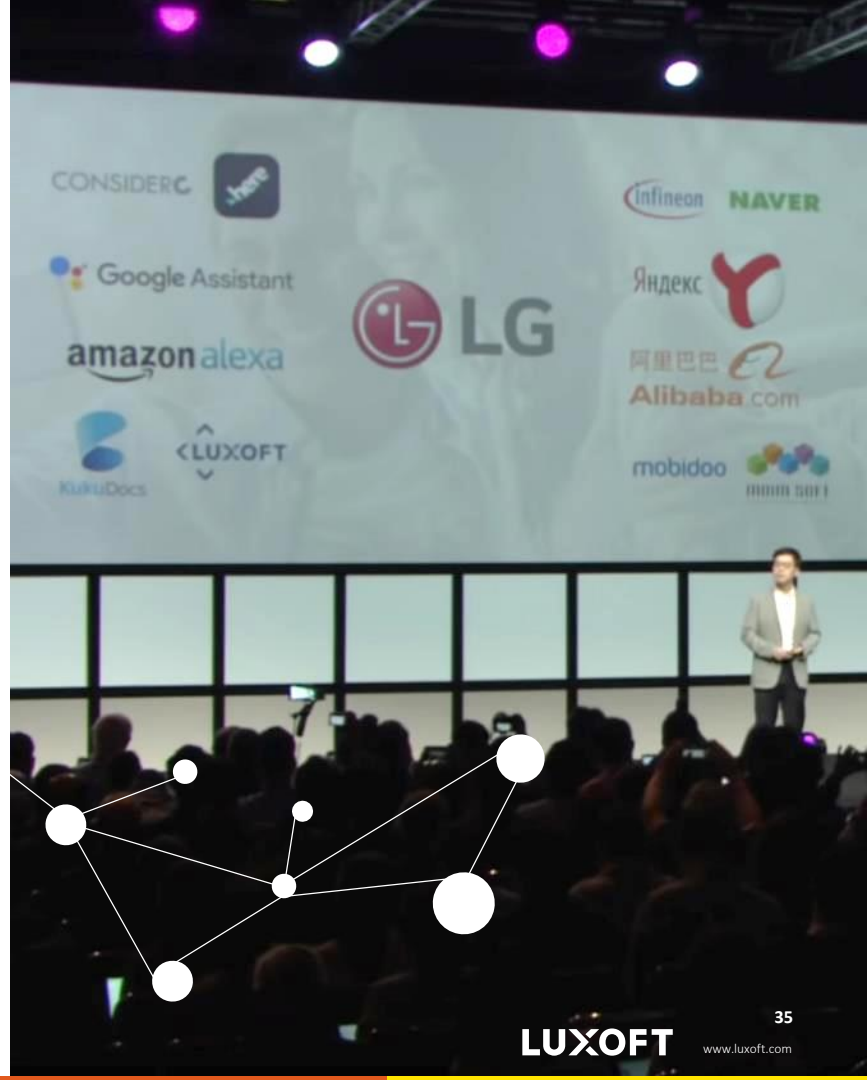
**Senior Director,**
**Silicon Vendor and Technology Partners**

# Co-creating Smart Solutions

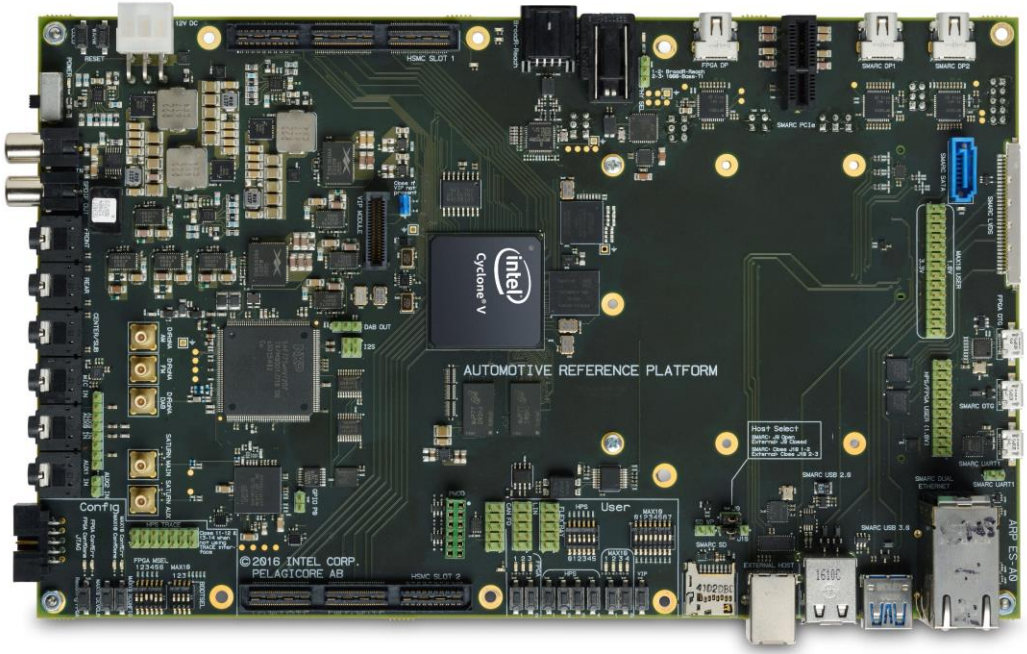
> *The world has become far too complex and far too diverse for any one company to be able to meet all the demands of customers.*
>
> **Dr. I.P. Parks, LG President & CTO, Opening Key Note Speaker at IFA, Berlin, Aug. 31, 2018**

**Co-creating** smart solutions in practice – together with an **ecosystem** of technology, product, and platform partners.

Two cornerstones: **next generation silicon** and **software platforms**



# The Automotive Reference Platform (ARP)



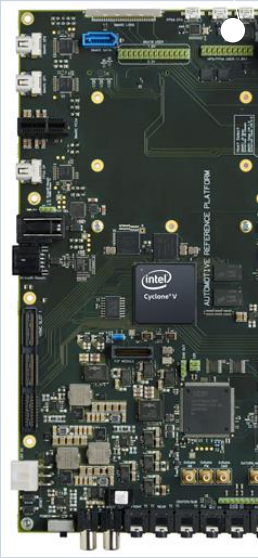
# Silicon Is Defining Capabilities of Next Generation Products

**Trends:**

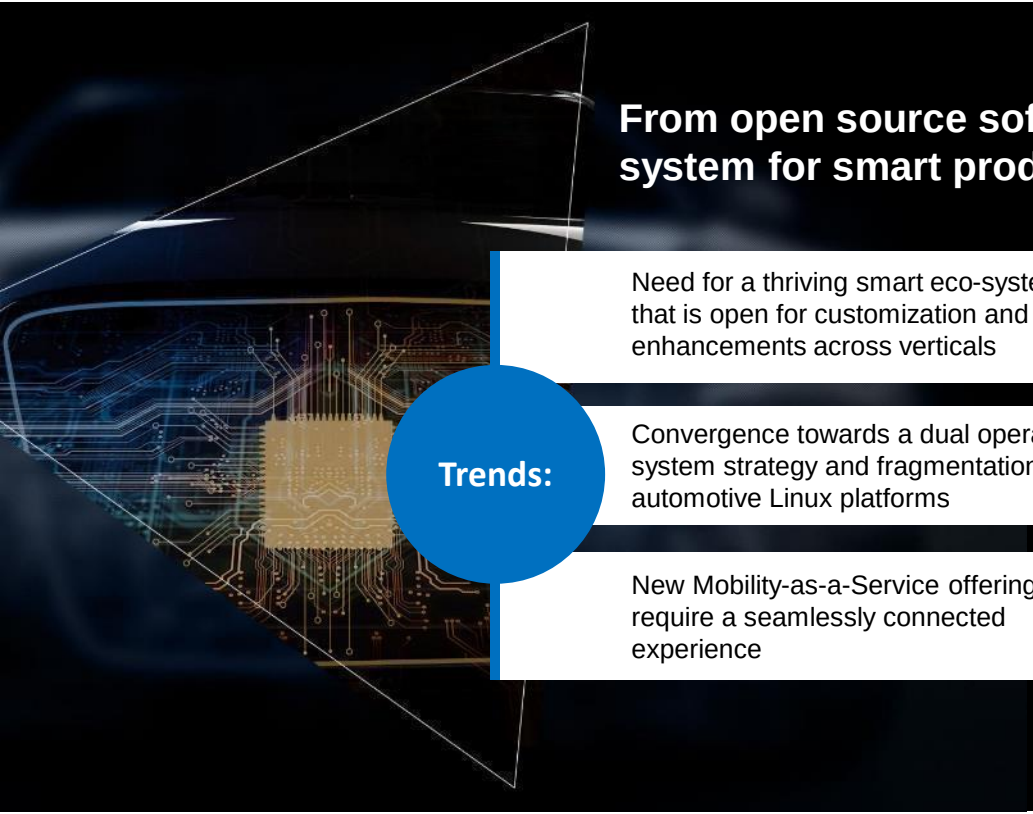
- Mobile phone hardware moves into automotive
- Race to 7nm chips is heating up
- Shifting focus between autonomous and digital cockpit opens opportunities
- Bundling hardware and software platforms differentiates

**Approach:**

- Hardware enablement, board support packages, and software platform integration
- Luxoft Automotive Reference Platform (ARP) co-created with Intel
- **ARP key benefits:** flexibility in terms of integrating sensors, displays, and CPUs
- **Car manufacturers** evaluate next generation silicon features and advanced UX concepts
- Luxoft is curating an ecosystem of **technology partners and start-ups** around ARP



# Invisible Engines: Software Platforms Drive Innovation



**From open source software platform blueprints to an operating system for smart products that make life better**

**Trends:**

- Need for a thriving smart eco-system that is open for customization and enhancements across verticals
- Convergence towards a dual operating system strategy and fragmentation of automotive Linux platforms
- New Mobility-as-a-Service offerings require a seamlessly connected experience

**Approach:**

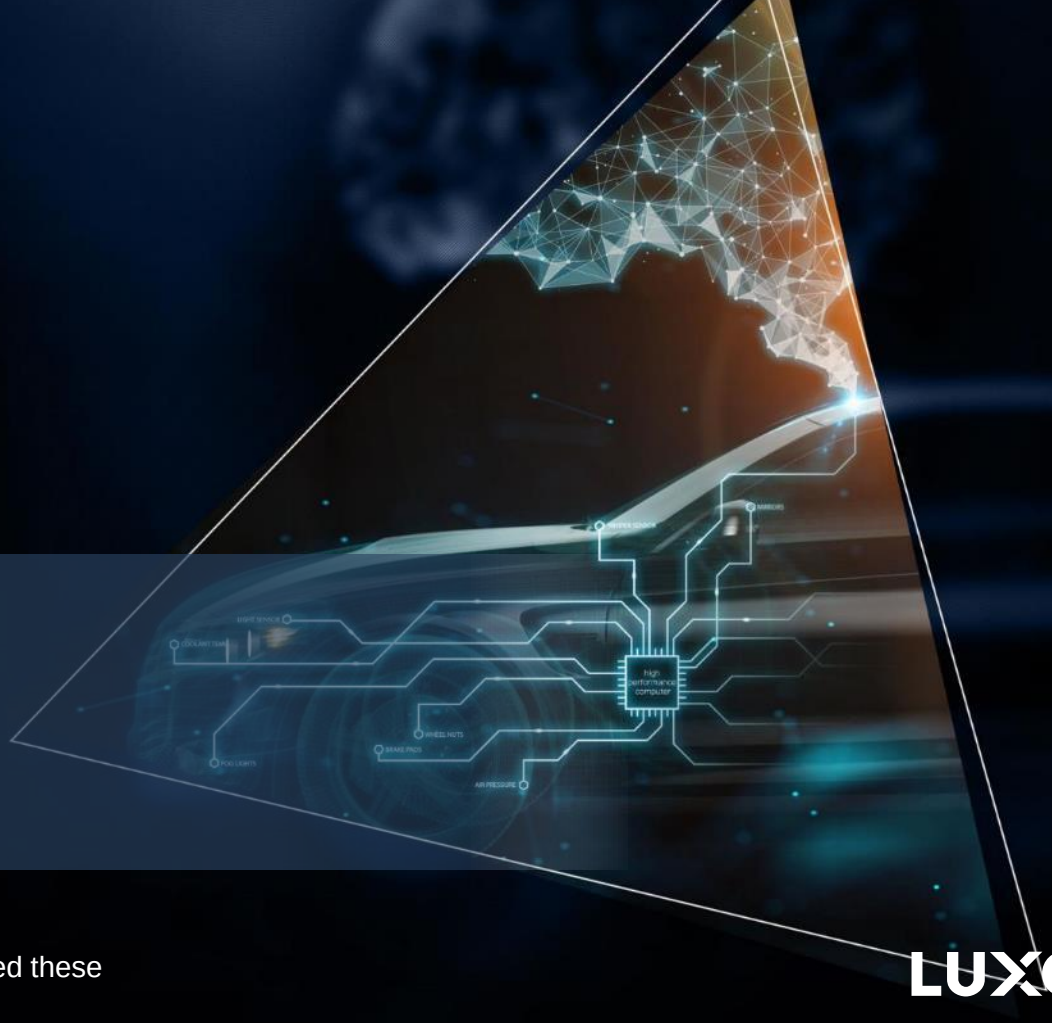
- Contributing Luxoft technology to webOS and jointly enter automotive and more
- Complementing LGE's ability to deploy webOS into new industries
- Provide car makers access to webOS for better autonomous mobility services

# LGE’s webOS for Automotive, Robotics, and Smart Home Electronics

# Making Life Better

*As we are entering this new era of a driverless mobility customer experience, taking us beyond instrument cluster and head-unit experiences into immersive entertainment and engaging productivity – we are truly making life better!*

# webOS & LG Electronics




At the request of the client, we have removed these slides from the public presentation.

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# SMASHING IDEAS

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Brian Marr
Chief Strategy Officer

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BRIAN MARR

## An introduction to Smashing Ideas

Luxoft acquired digital innovation agency Smashing Ideas in June, 2018

**Brian Marr**
Chief Strategy Officer,
Smashing Ideas

smashing ideas

# INNOVATION CATALYST FOR THE GLOBAL 500

— 01

## Digital products, services, & experiences

smashing ideas

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# WHAT WE OFFER

— 02

## Lean Strategy

Market Research
Contextual Research
Market Trends Analysis
Competitve Analysis
Buisness Modeling
Product/ Service Envisioning

## Experience Design

Product, Service, & Connected
UX Research
Concept Testing
UX & Visual Design
Low & High Fidelity Prototyping
Experience Mapping Workshop
Value-mapping Workshop

## Product Realization

Technology & Design
Systems Design
Platform Architecture
Web & Mobile Developement
Agile Development
Digital Quaility Assurance

## Managed Services

Enterprise Infrastucture Management
Mission-critical Support services
Maintenance Management &
Adivsory Services

si

— 03

## Seattle Washington

Since 1996

## Where We Specialize

Lean Strategy

User-Centered Design

Motivational UX ( MUX)

Full Stack Developement

In-Market Launch

## 65 Employees

## Global Clients

Spanning 4 continents

# CLIENTS

— 04

SONY PICTURES TELEVISION

PHILIPS

Johnson Controls

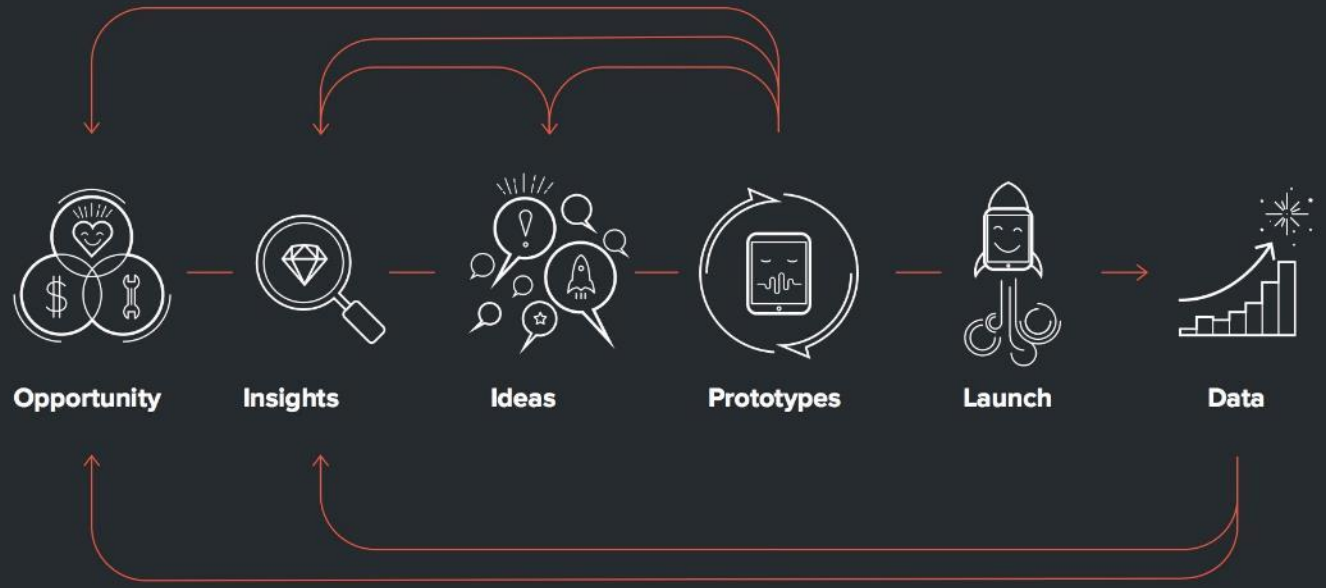
Microsoft

BLUE NILE

ReachNow

# Approach

— 05



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— 07

# MUX ™

Motivational User Experience Design

smashing ideas

# Art & Science.

— 08

Motivtional UX™ is a customer-centric approach to innovation that applies decades of multi-disciplinary research in behavioral psychology, user experience, and game design thinking to technology solutions, giving you a strategic edge over your competition.

# 9 PRINCIPLES

— 09

## ADAPTIVE

I want to a product that works for me

Create content-aware products

## SELF-EXPRESSION

I want to make a product my own

Let people showcase their uniqueness

## EXPLORATION

I want to discover things and be amazed

Create moments of curiosity and delight

## CHALLENGE & REWARD

I want to master a skill

Let people compete with themselve and others

## AESTHETICS

I want a unique and beautiful experience

Appeal to our human senses

## DECISION-MAKING

I want to be empowered in my choice

Provide easy and simple points of choice

## BELONGING

I want to be part of something bigger

Encourage connections and comparisons with others

## REPEATED ENGAGEMENT

I want to do that again

Let people build and enhance experiences

## CONTENT & STORY

I want an emotional connection

Creative narrative to influence, educate and entertain

— 10

# CASE STUDIES

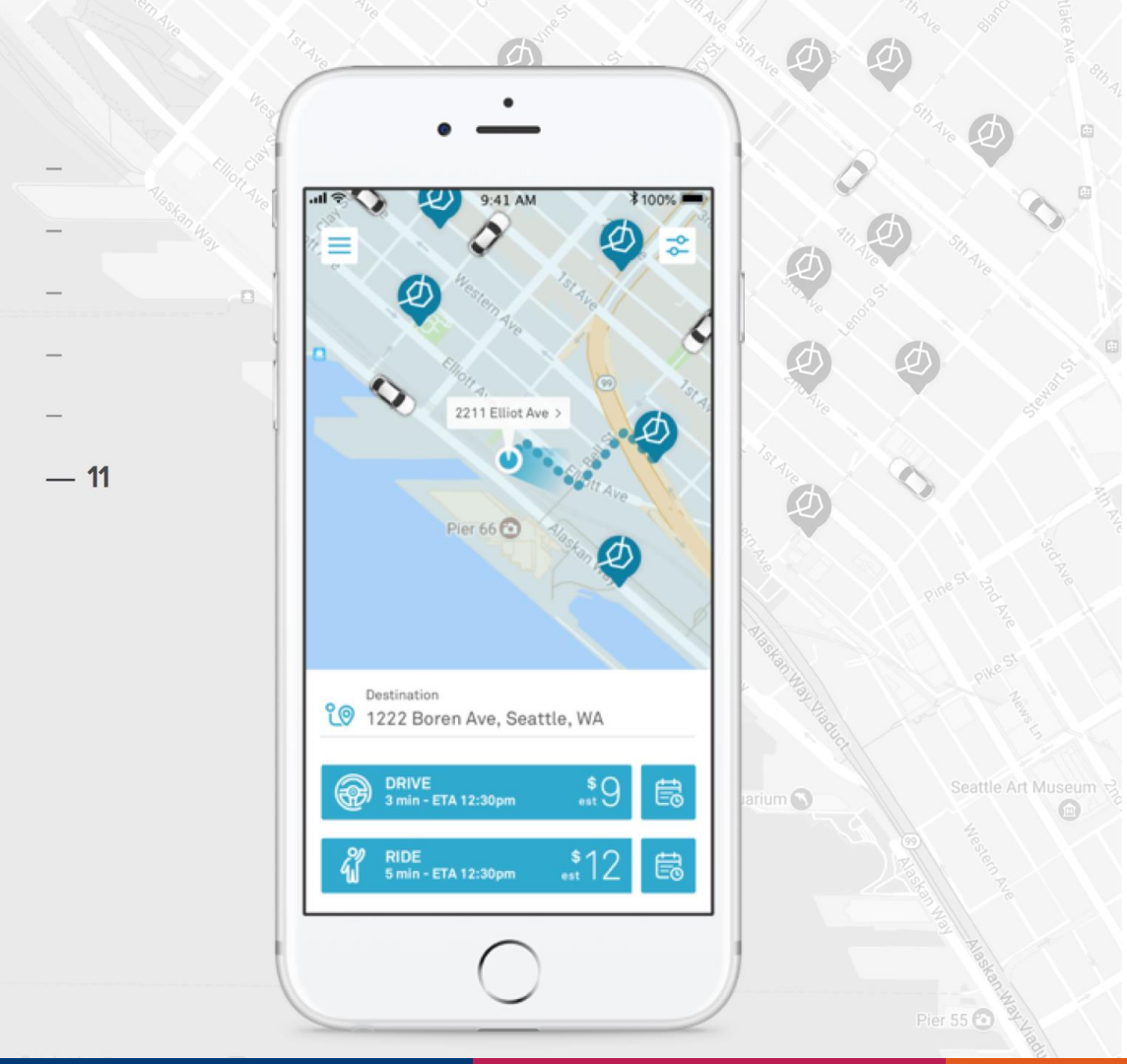
— 12

# Johnson Controls GLAS

**GLAS® smart thermostat by Johnson Controls; the perfect blend of form and function.**

Smashing Ideas was hired by Johnson Controls to help with visual design and UX for the GLAS thermostat. We worked collaboratively with the JCI UX design and technology teams to identify a value proposition for the new product, design the interface on a transparent screen, and validate our designs through testing with end users.

— 11

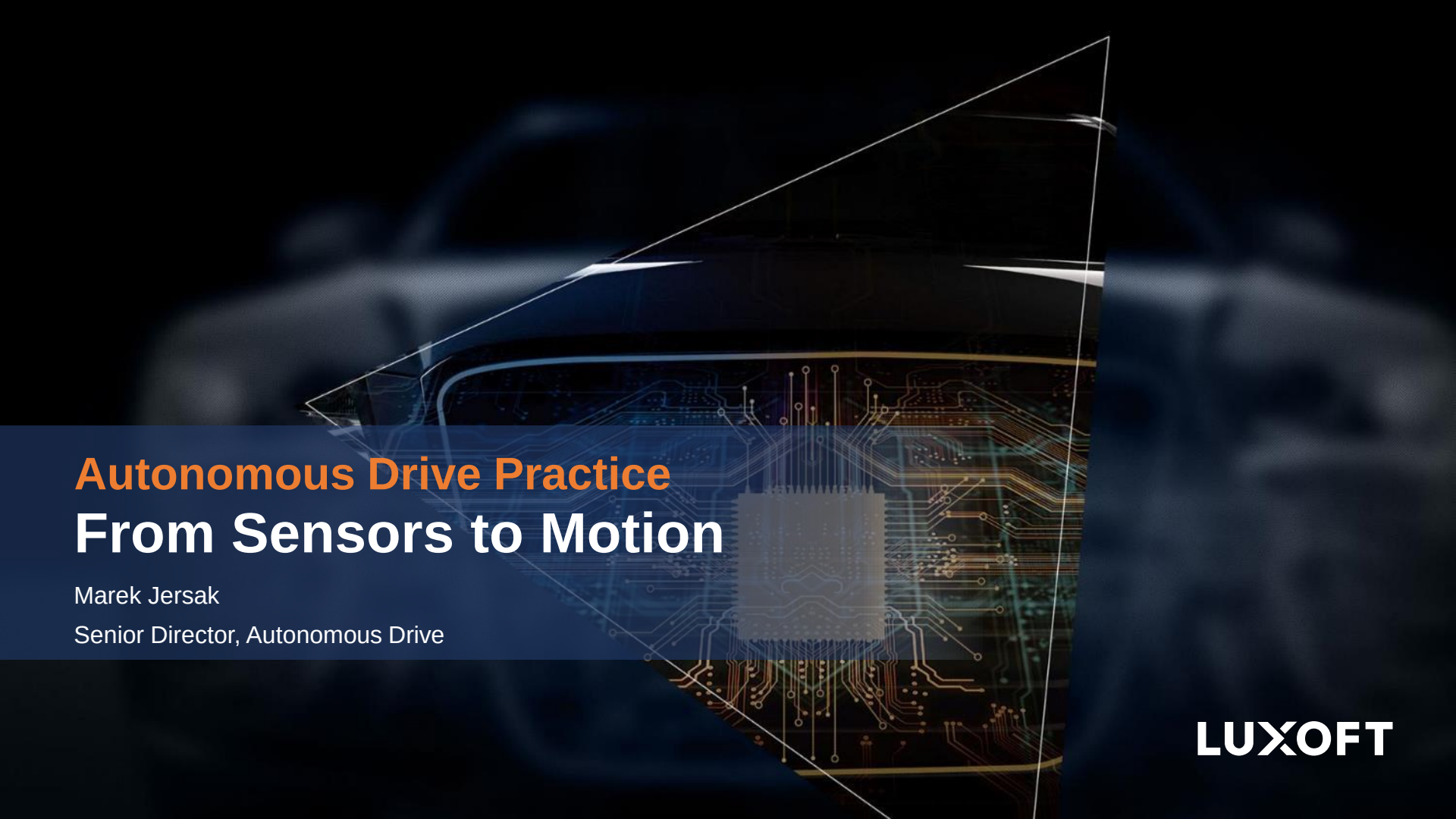



# ReachNow

## Empowering a True Pioneer in Urban Mobility

ReachNow, the mobility services division of the BMW Group, is the first service to combine car sharing, ride hailing, and ride scheduling into a unified customer experience. Smashing was chosen as their partner to help re-design and re-architect this new service on iOS and Android.

The 10+ month engagement resulted in a mobility experience that is approachable intuitive, convenient, and built for scale.



## Autonomous Drive Practice

# From Sensors to Motion

Marek Jersak

Senior Director, Autonomous Drive

LUXOFT

# Marek Jersak

**Senior Director, Autonomous Drive**

*"Autonomous mobility is the killer app for technology convergence including smart sensors, high-performance compute platforms, AI, 5G connectivity, cloud and next-gen UX"*

SYMTA VISION

CONEXANT

# SAE Levels auf Automated Driving

| | | | | | | |
|---|---|---|---|---|---|---|
| L5 | Passenger | | FULL AUTOMATION | Vehicle fully autonomous. Occupants do not need ability to drive | | |
| L4 | Mind Off | | High AUTOMATION | Vehicle fully autonomous under certain conditions. Driver is not required during defined use case | | |
| L3 | Eyes Off | Conditional AUTOMATION | | Vehicle takes control most of the time<br>Driver is required to take over in emergency | | |
| L2 | Hands Off | PARTIAL AUTOMATION | | Vehicle integrates detection.<br>Driver ready to take control | | |
| L1 | | DRIVER ASSISTANCE | | Vehicle provides driver infos/warnings.<br>Driver has informed control | | |
| L0 | NO AUTOMATION | | Driver has full control | | | |
| | | | | | MONITORING | FALLBACK |

Series Cars 2018 2020 2030 … 2050 ?

# Autonomous Drive Positioning

## Pixel to Silicon

### Digital Cockpit

- UX, Design
- HMI Platforms
- Navigation / info ADAS
- IVI/IC Platforms
- Connectivity

## Sensors to Motion

### Autonomous Drive

- ADAS / Autonomous
- Embedded Software Development
- AUTOSAR Classic & Adaptive Platform
- EE & Network Development
- Process & Tools

## Vehicle to Cloud

### Connected Mobility

- Diagnostics, OTA updates
- Telematics, V2X, Infrastructure
- Cloud Services, Big Data, Predictive Mnt / Dia, Auto App Management

## Entire Mobility Ecosystem

### Silicon & Technology Vendors

- Hardware enablement of next generation silicon
- Co-create hardware and software reference platforms
- Joint demonstrators

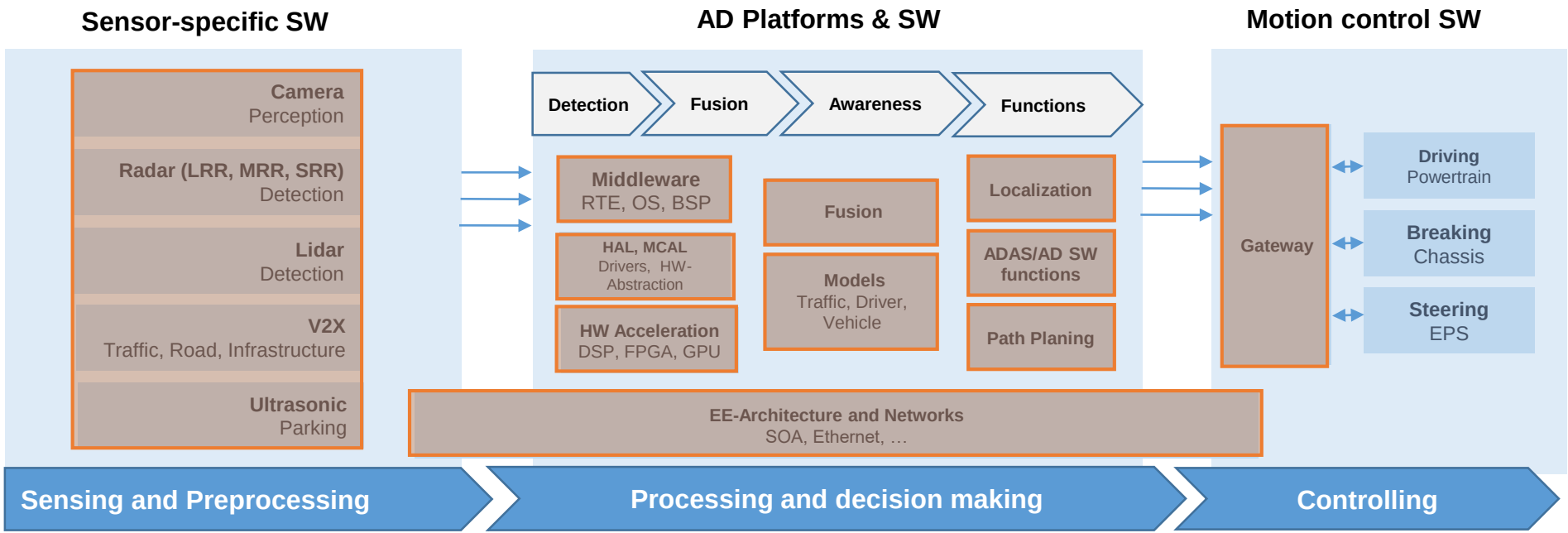
**System Testing**

**Cyber Security**

**Functional Safety**

**DevOps, Process Consulting**

# Autonomous Drive Focus
## Platform & Software Development



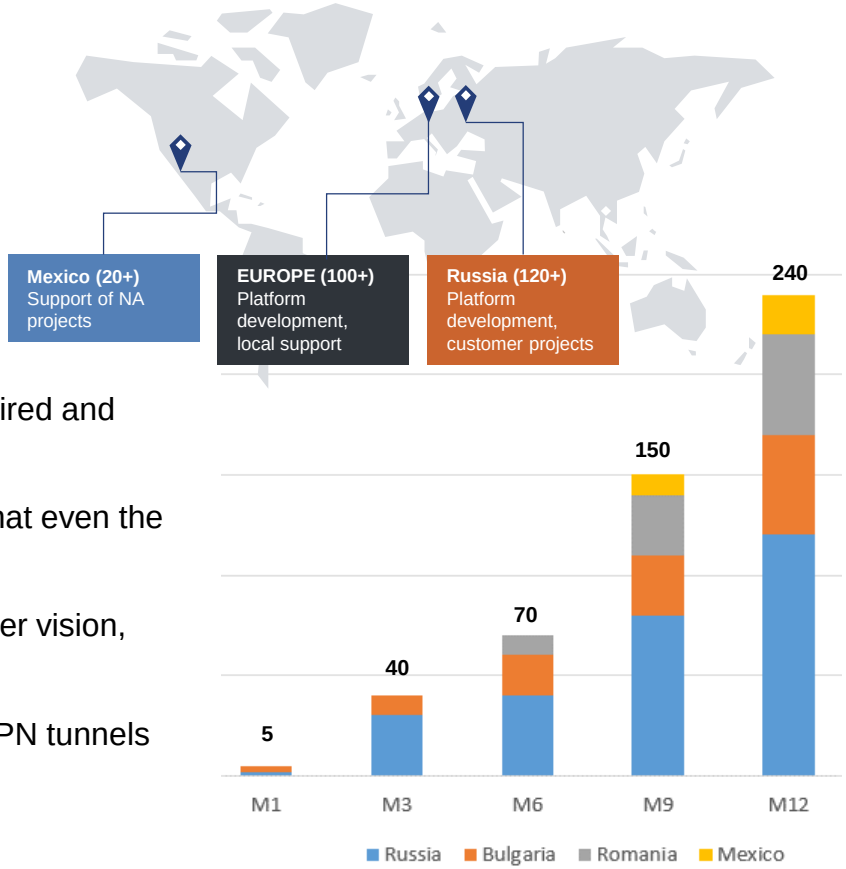

**Enablers:** AGILE, ASPICE, Timing Analysis, Safety, Data Labeling, Vehicle / Environment Simulation.
State of the art processes and tools (own and 3rd party products, customized workflows)

# Combining Global Expertise and Scale for a Tier-1

## CHALLENGES

**Rapid growth** within a limited time in order to support the Tier-1 customer in platform and OEM project development.

**Deliver rare, highly specialized** resources for development activities

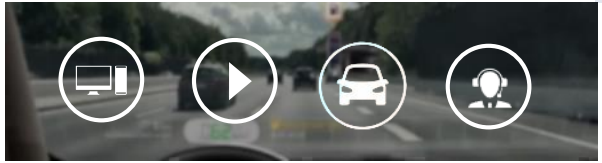



## ACHIEVEMENTS

- **Fully functional team of 240+ engineers** within 12 months. Hired and trained in several Off-Shore delivery locations
- **Established custom training programs** in several domains that even the customer wants to use for own employees
- **Hired rare, specialized resources** with background in computer vision, algorithms, annotation and embedded software development
- **Infrastructure**: smooth integrated IT network, security rules, VPN tunnels from Luxoft sites to customer

# Application Software Pillars

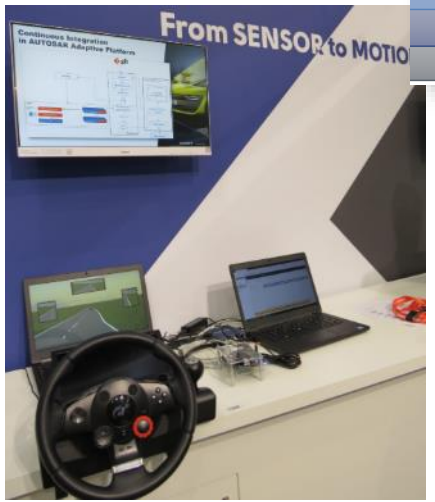
| WORLD-CLASS VIDEO ALGORITHMS | PARALLEL COMPUTE | INTERNET OF THINGS |
|---|---|---|
| • Image and Video processing<br>• Video Quality Tools & Services<br>• Image and Video Codecs<br>• Video Analytics & Computer vision<br>• ADAS for Automotive | • Machine Vision & Neuron Network applications<br>• Expert in parallel programming<br>• GPU Compute on OpenGL/OpenCL/CUDA/Metal<br>• Heterogeneous computing | • Data acquisition<br>• Big Data / Real-time analytics<br>• IoT Connectivity & Home Automation<br>• Cloud APIs<br>• Cross-platform UX/UI |

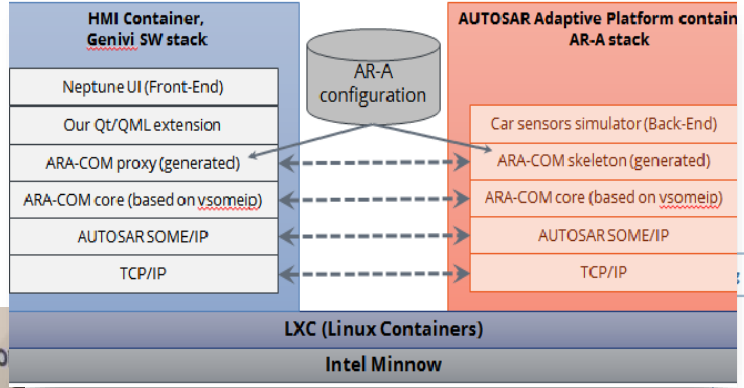


# Computer Vision & Sensor Data Fusion

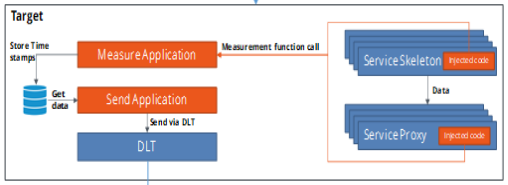
Embedded Video

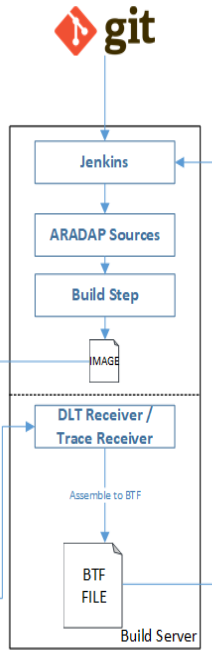
# Luxoft Autostar Adaptive Contributions

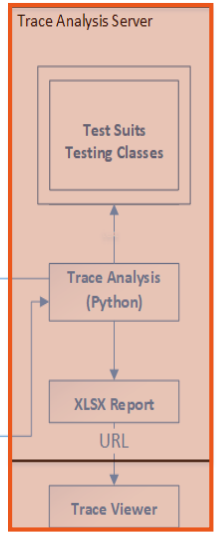



**Multi-domain SW Architecture**




**Continuous integration incl. test and measurements**

**Timing Analysis**

# Addressing Autonomous Drive Challenges
## Complexity of Self-driving Functions: Road Conditions

### Environmental Conditions (Examples)

- Electromagnetic pulse disturbance (lightning)
- Precipitation (rain, snow, mist, sleet, hail, fog,…)
- Other atmospheric obscurants (dust, smoke,…)
- Night conditions without illumination
- Low sun angle glare
- Glare off snowy and icy surfaces
- Reduced road surface friction (rain, snow, ice, oil…)
- High and gusty winds
- Road surface markings and signs obscured by snow/ice
- Road surface markings obscured by reflections off wet surfaces
- Signs obscured by foliage or displaced by vehicle crashes

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Steven E. Shladover, Sc.D. California PATH Program Institute of Transportation Studies University of California, Berkeley

# Addressing Autonomous Drive Challenges
## Complexity of Self-driving Functions: Idiots

### Dynamic External Hazards (Examples)

- **Behaviors of other vehicles:**
  - **Entering from blind driveways**
  - **Violating traffic laws**
  - **Moving erratically following crashes with other vehicles**
  - **Law enforcement (sirens and flashing lights)**
- **Pedestrians (especially small children)**
- **Bicyclists**
- **Officers directing traffic**
- **Animals (domestic pets to large wildlife)**
- **Opening doors of parked cars**
- **Unsecured loads falling off trucks**
- **Debris from previous crashes**
- **Landslide debris (sand, gravel, rocks)**
- **Any object that can disrupt vehicle motion**


CALIFORNIA PATH

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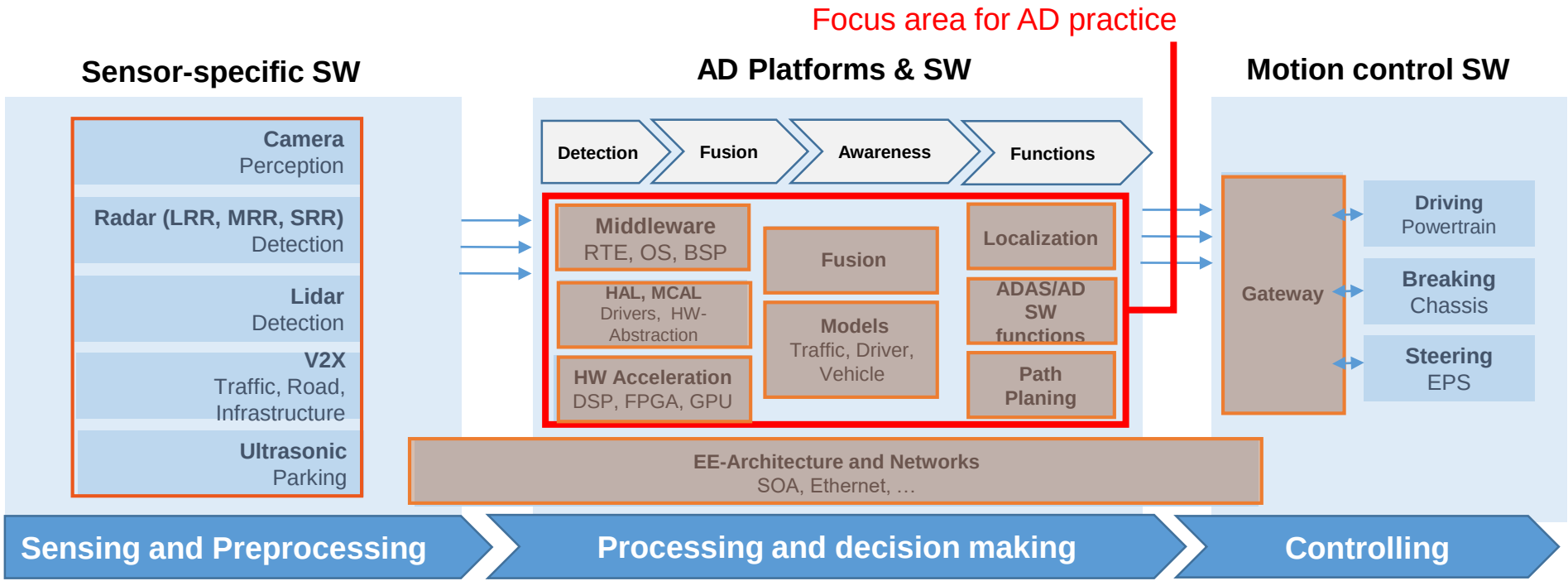
# Autonomous Drive Focus

## Platform & Software Development




**Enablers:** AGILE, ASPICE, Timing Analysis, Safety, Data Labeling, Vehicle / Environment Simulation.
State of the art processes and tools (own and 3rd party products, customized workflows)

# Luxoft Acquired Objective Software GmbH

## Same Journey
## **New Objective**

Luxoft acquires autonomous drive and connected mobility specialist Objective Software GmbH

**August 7, 2018** LUXOFT announced the acquisition of Objective Software GmbH, a provider of software development services and IP based solutions for autonomous vehicles, Advance Driver Assisted Systems (ADAS), high-accuracy positioning, innovative mobility and smart city applications.

Given close synergies with LUXOFT's service-led model, backed by in-house application development, we anticipate opportunities to significantly scale Objective's existing projects in autonomous driving and connected mobility. In particular, the acquisition further strengthens our presence in Munich where we intend to expand software development services for BMW and their Tier1s, thereby delivering software effectively across the full value chain.

.objective

software consulting solutions

**Clemens Dannheim**

Chief Executive Officer


# Clemens Dannheim

CEO at Objective Software GmbH, Munich

softlab

SIEMENS

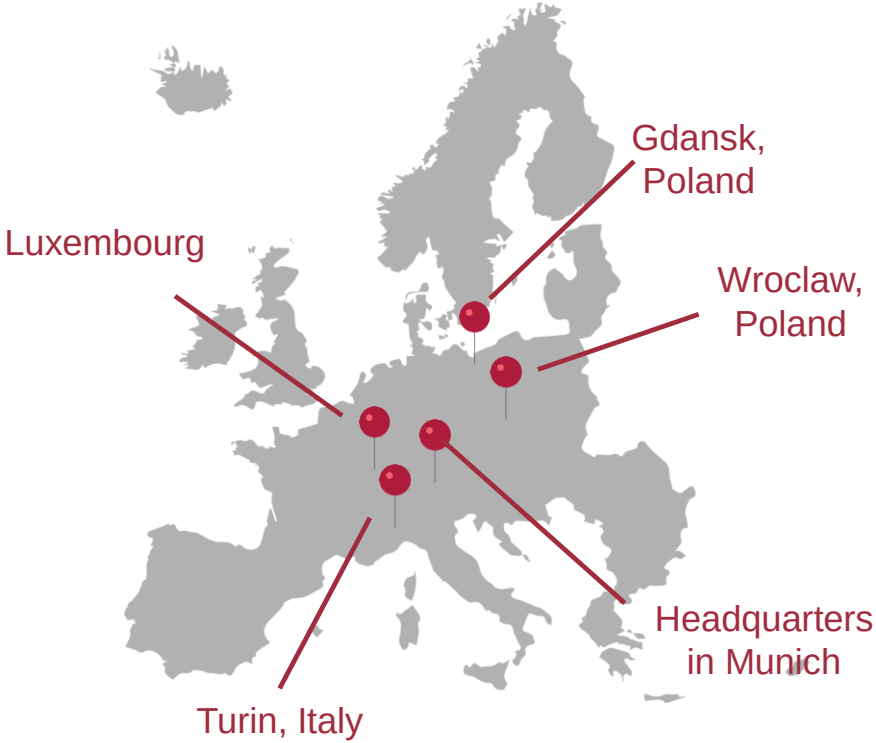
*Experienced Chief Executive Officer with a demonstrated history of working in the automotive, information technology and services industry. Skilled in Business Planning, E-commerce, Software as a Service (SaaS), Start-ups, and Software Development. Strong business development professional with a Dr. rer. nat. focused in Collaborative Automotive Systems from Fernuniversität Hagen.*

# Who Are We?

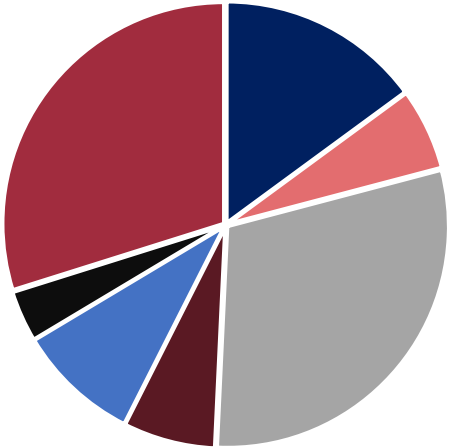
Founded in 1998

100% subsidiary of Luxoft, Holding, Inc. since August 2018

~100 employees in 5 locations



# Top Talent



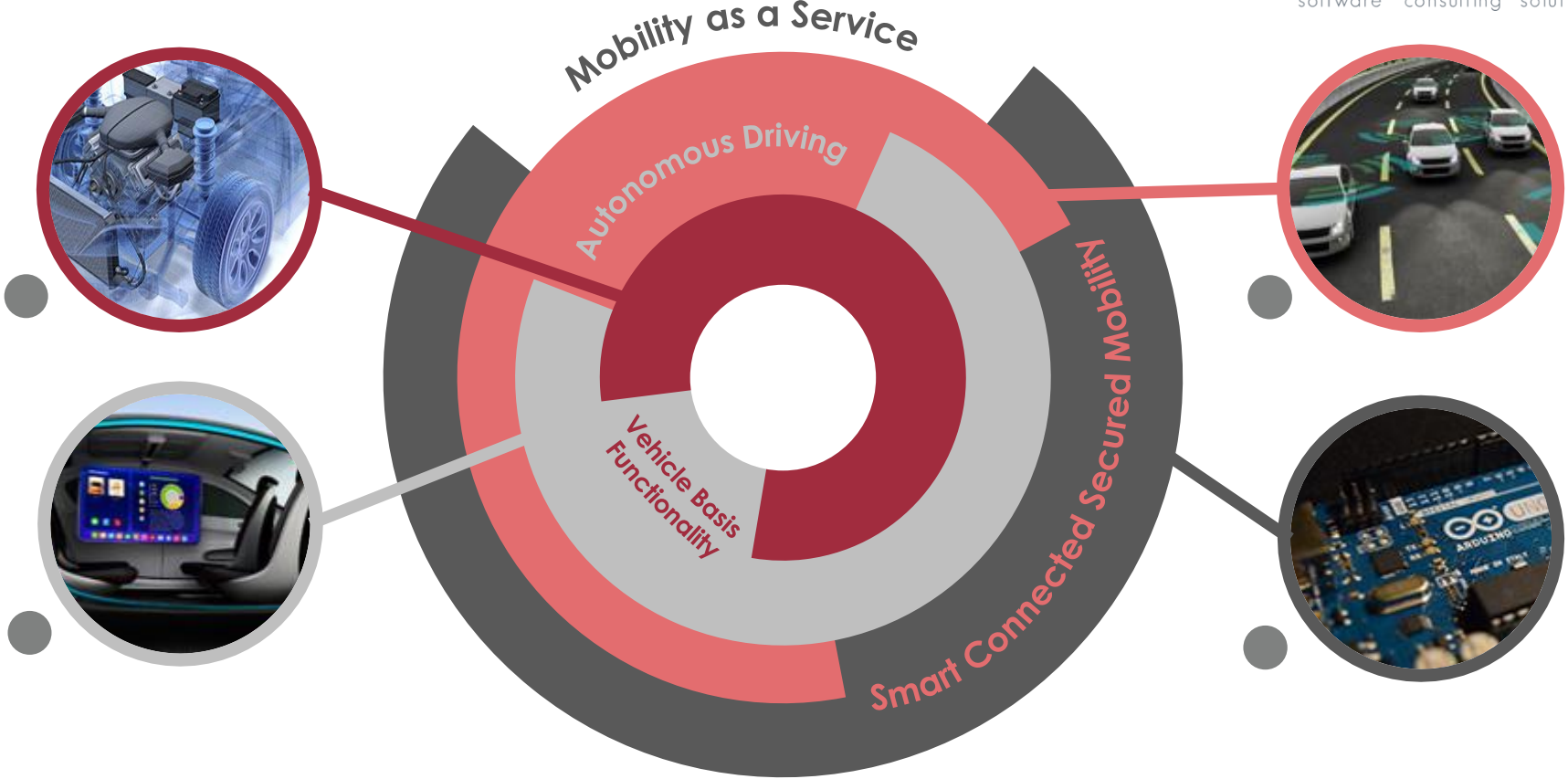

**12%** PhD holders

**86%** Master degree holders

**<5%** yearly turnover

**33 yrs** average age

# What Does Objective Do?



# Central Platforms & Functions

air conditioning control

embedded cyber-security

basic functionalities

dashboard electronics

Middleware & gateways

infotainment bluetooth

access management

assisted parking

# Production Programs:
# On the Road to L4 Autonomy

Embedded Video

# Environment Model (What Does the Car See)

Embedded Video

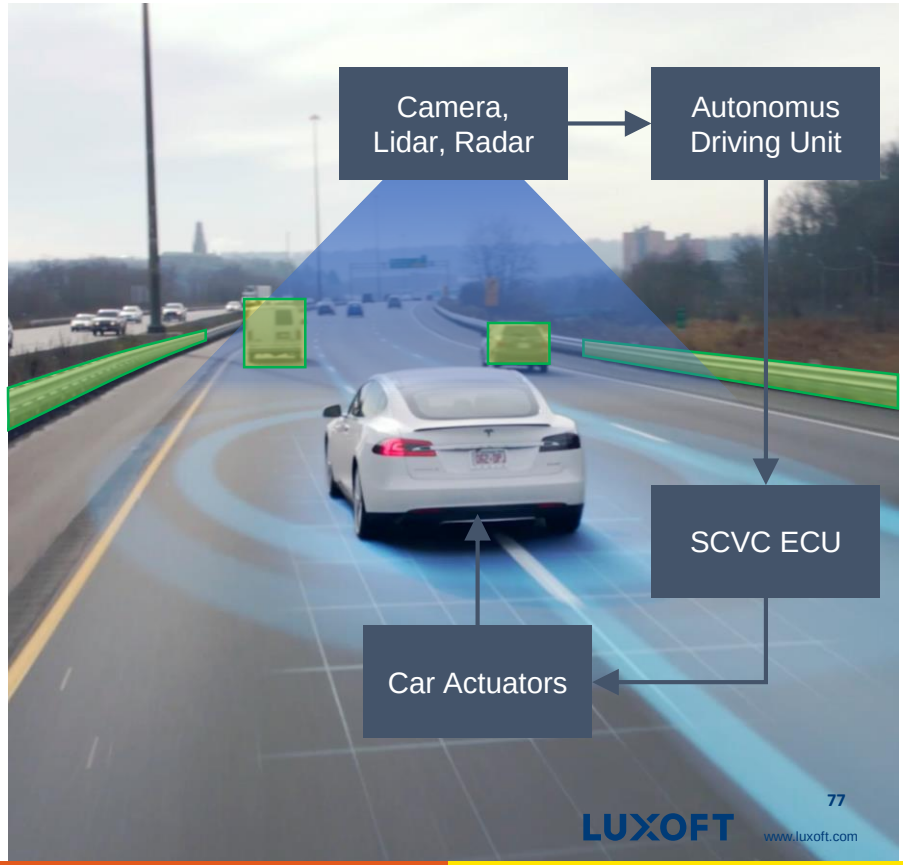
# Safety-critical Vehicle Control (How Does the Car React)

**Features:**

- Vehicle control, accurate position estimation

**Technologies:**

- Vehicle Dynamic Modeling
- Performance Evaluation and Optimization
- Ground Truth by D-GPS and RTK
- Time Synchronization and Machine Learning
- Kalman Filter and Data Fusion (IMU, DGPS)



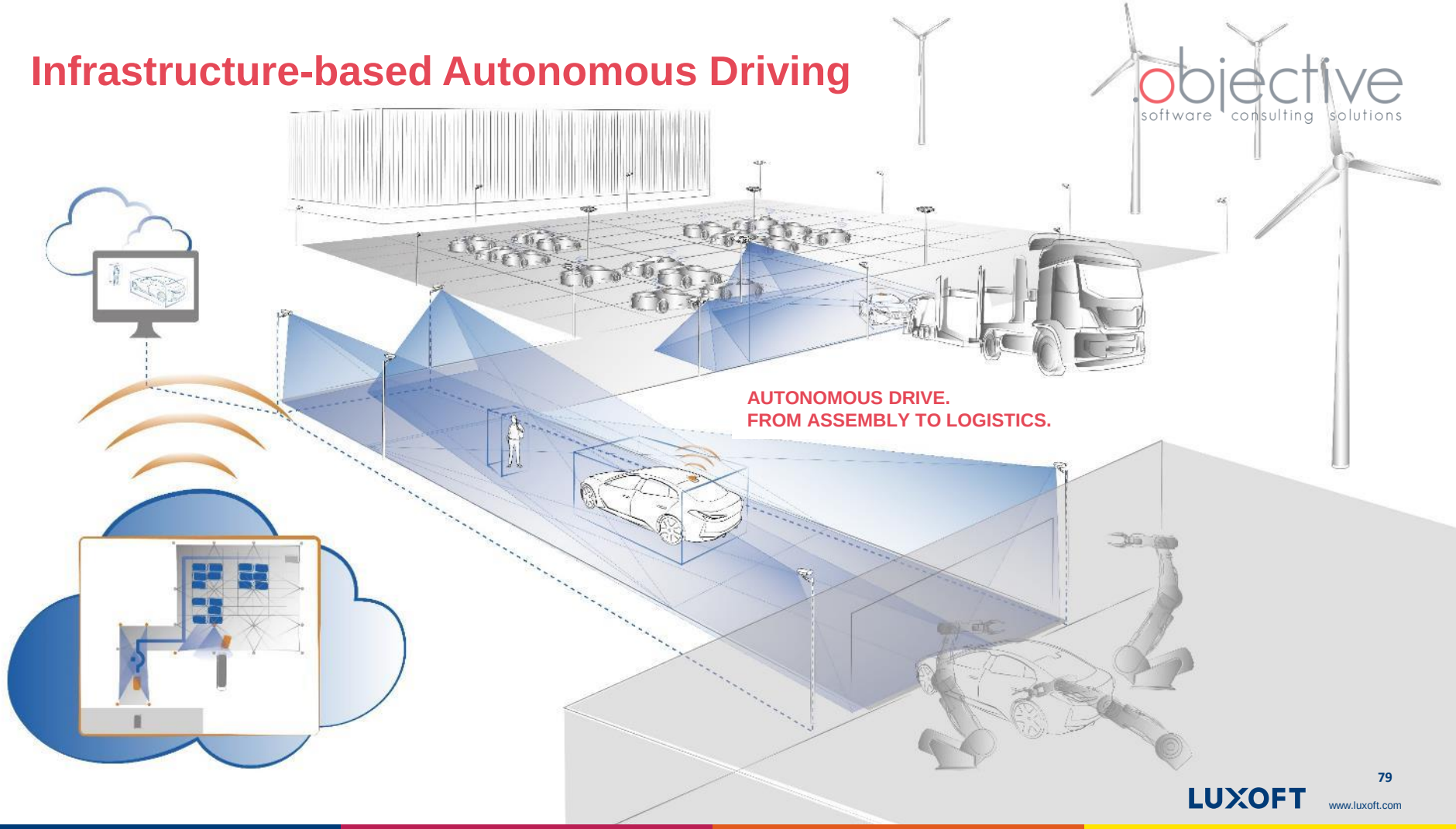
# Innovations:
# Stepstones on the Road to L5 Autonomy

Infrastructure-based autonomous driving

Teleoperated Driving

Vehicle Security Module

# Infrastructure-based Autonomous Driving



# Tele-operated Driving

**control center**

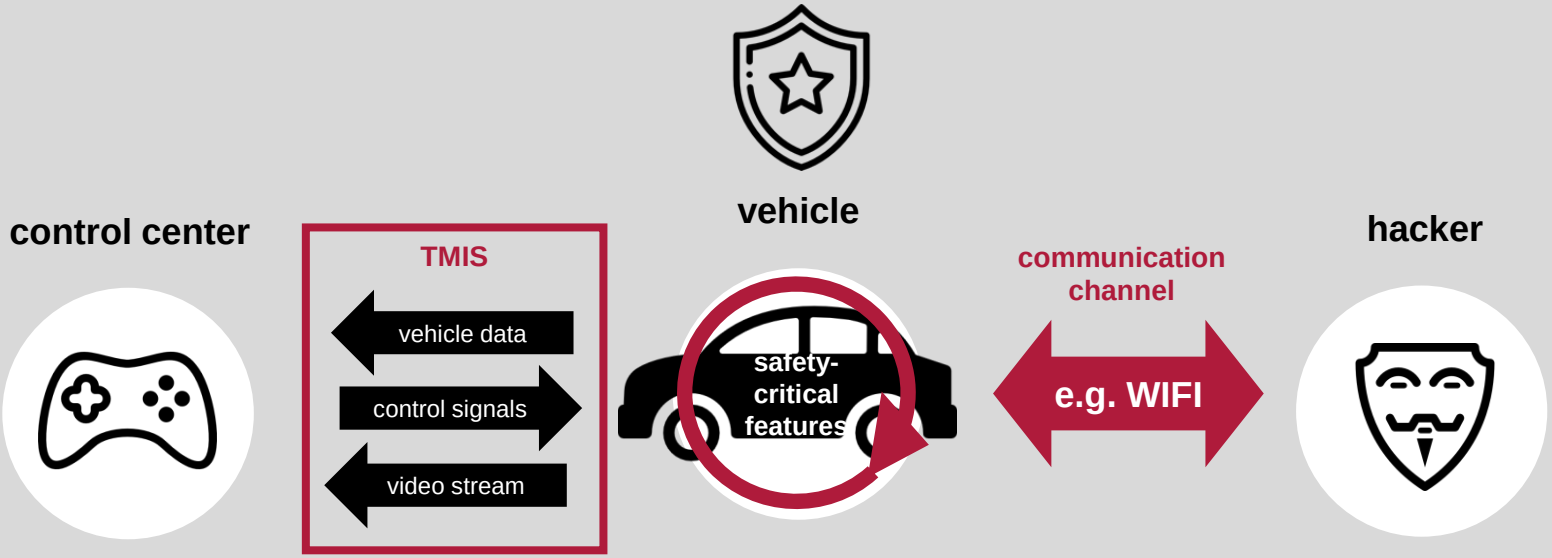
Remote access
to vehicle control

**vehicle**


# Tele-operated Driving

Embedded Video

# Vehicle Security Module



# Teleoperated Driving + Security

Embedded Video

# Closing Remarks

Alwin Bakkenes
Managing Director, Automotive

LUXOFT
AUTOMOTIVE

# Executing On Our Strategic Goals

## Growth Strategy

- Growing the newly opened accounts
- Geographical expansion in Americas and JAPAC
- Grow our share of the OEM business with our unique offering
- New client acquisition through technology partners
- Expand offering for Mobility Services for future growth
- Selective M&A focusing unique skills & services

## Objective

Establish ourselves as the leading software development company **empowering the mobility revolution**

Continued **35%+** organic growth with sustained margins

# Thank You!

Q&A

LUXOFT