

# The Age of AI Transformation in Automotive Software Development

## Bending The Curve On Innovation

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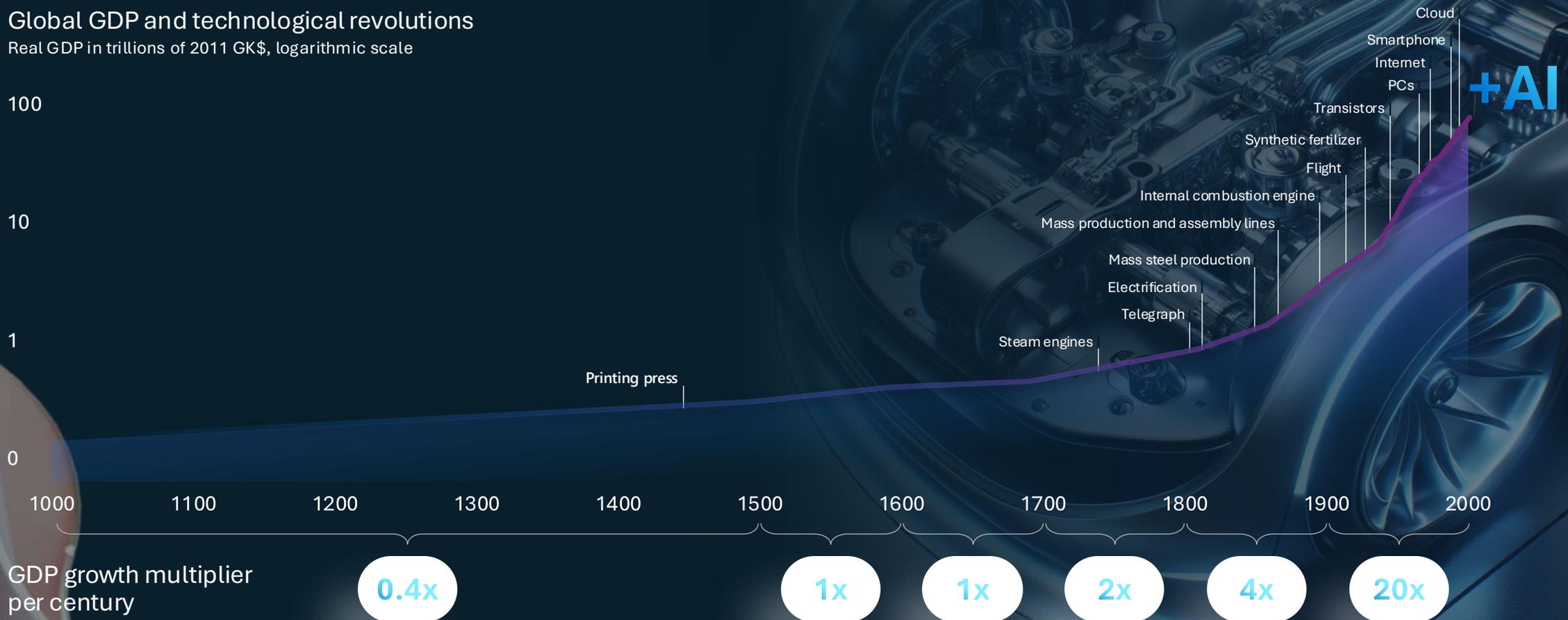




# Technology drives GDP growth, and the pace of change is accelerating

## Global GDP and technological revolutions

Real GDP in trillions of 2011 GK\$, logarithmic scale



# AI is the fastest adopted business technology in history

87%

of organizations believe **AI** will give them a **competitive edge**<sup>1</sup>

71%

of all companies are **using AI** to **generate new value**<sup>2</sup>

43%

will **relocate IT spend** towards **AI** within the next 24 months<sup>2</sup>

# Automotive companies adopt GenAI to generate value in every aspect of their business



Engineering &  
Design



Supply Chain  
Management &  
Production



Sales, Service &  
Marketing



Indirect  
Functions  
(Planning, Finance,  
Controlling, HR,  
Investor Relations, ...)

# Let's have a look at how GenAI can generate impact in three concrete areas!



1

Innovate



GenAI supported Requirements Management

2

Productize



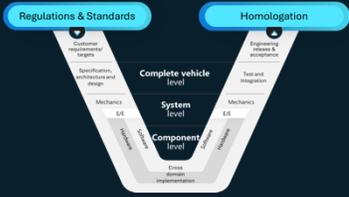
GenAI and Augmented Reality for Product Development

3

Operate



GenAI empowered Customer Agents



# Requirements Management – the challenge!

1



50k mechanical  
and regulatory  
requirements



~500,000 software and  
electronics  
requirements



~200-300 Mio. lines of  
code in a modern  
vehicle in 2025

## ~8h per requirement

From initial draft to review and release, including  
continuous refinement and quality checks

Sources: <sup>1</sup> <https://resources.sw.siemens.com/en-US/white-paper-automotive-requirements-management>

<sup>2</sup> <https://www.statista.com/statistics/1370978/automotive-software-average-lines-of-codes-per-vehicle-globally/>



# GenAI Impact in Requirements Mgmt. 1

Effort per Requirement from....

~ 8h

....to....

< 6h

>30% time saving in Requirements Definition and Quality Assurance

>25% time saving in Quality Assurance, Data & Error Analysis



>30% time saving in software development, testing & documentation

# Product Design & Development - the challenge!

2



59% of engineers' time spent on non-value adding tasks



35% of engineers struggle with meeting due dates in design process



94% of engineering executives recognize need for improved productivity

## 145 bn € global R&D spend

51% of automotive development projects are over time and 44% over budget!<sup>3</sup>

Sources: <sup>1</sup> <https://www.getanneal.com/engineering-productivity>

<sup>2</sup> <https://www.statista.com/statistics/1102932/global-research-and-development-spending-automotive/>

<sup>3</sup> The Lean Advantage in Engineering (bcg.com)



# Customer Service Management - the challenge!

3



60% of agents report stress when dealing with difficult customers<sup>1</sup>



Inconsistent service can lead to a 33% increase in customer churn<sup>2</sup>



67% of customers prefer self-service over speaking to a company representative<sup>3</sup>

Reducing average handling time by just 1 minute can save a call center with 100 agents ~\$1.5m annually

Sources: <sup>1</sup> <https://clickup.com/blog/customer-service-challenges/>

<sup>2</sup> <https://www.matrixflows.com/blog/15-biggest-customer-service-challenges-and-how-to-overcome-them>

<sup>3</sup> <https://www.gorgias.com/blog/customer-service-challenges>

# GenAI impact along the value chain

Vehicle  
Engineering  
R&D

Supply Chain  
Management

Manufacturing  
Execution

Sales and  
Marketing

Product and  
Innovation

Aftersales  
Service and  
Support

Finance and  
Administration



**55%** faster  
software coding

**38%** of  
engineering time will  
be reduced by  
generative design

GenAI-based  
ecommerce, and  
fulfilment optimization  
will improve last-mile  
profitability by

**15%** and  
operating cost by  
**5%**

Shop-floor productivity  
can be enhanced by

**20%** through use  
of GenAI based  
assistance,  
recommendation and  
autonomous systems

**30%**

of outbound marketing  
messages will be  
synthetically generated  
in 2025

GenAI generated,  
personalized content  
(audio, video, text)

**2X**

customer engagement  
by incorporating  
multi-modal  
Chat-Bots to the user  
interface  
("Hey Mercedes" –  
powered by ChatGPT)

Customer service bots  
can answer up to

**60%** of 1<sup>st</sup> level  
customer questions

Extract insights from  
unstructured feedback,  
identifying quality  
issues earlier.

By 2025 **90%** of  
quarterly report  
material will be  
synthetically  
generated.



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# Thank You!