

# ABOUT LG

## Life's Good with LG

We aim to be a company that works together for a better future



### Home Appliance & Air Solution

Refrigerators, Washing machines, Dishwashers, Cooking appliances, Vacuum cleaners, Built-in appliances, Air conditioners, Air purifiers, Dehumidifiers



### Home Entertainment

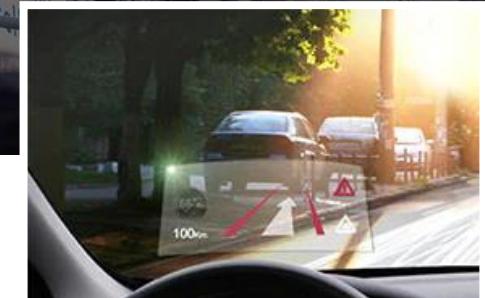
TVs, Audio & Video, Monitors, PCs & Accessories, Commercial Products

Protecting  
yourself and  
others from



### Business Solutions

Commercial display solutions, solar solutions, energy storage systems (ESS) and energy management solutions (EMS)



### Vehicle Component Solutions

In-Vehicle Infotainment, HVAC & Motor, Vehicle Engineering

Creating a **better life**  
with our customers





# Company Introduction VS Company

We're focusing on leading core technologies  
in-vehicle experience for the global car markets.



## Headquarter

LG Science Park, Seoul,  
Republic of Korea



## Employees

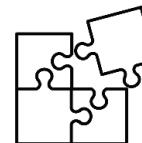
Approximately 7,500  
In 13 Countries



## Revenue

\$5.18 billion (2020)

Exchange Rate: KRW 1,120.66 per USD



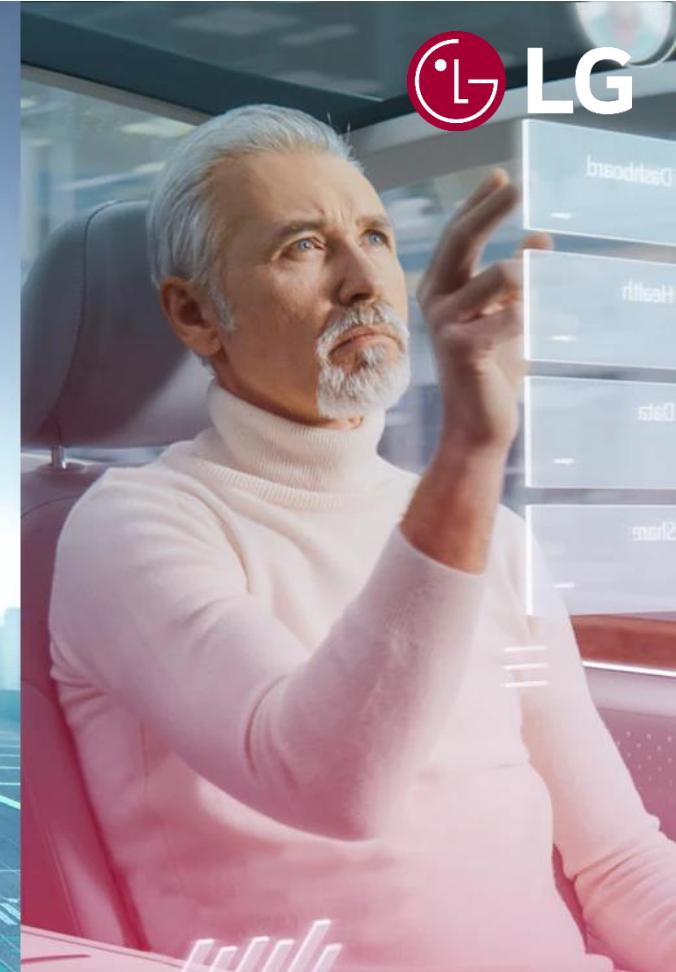
## Solutions

Automotive Display/ Cockpit Domain Controller  
Telematics/ Wireless Charger  
Front Camera/ Cabin Camera  
Digital Cockpit Solutions



# Company Introduction VS Company

We're focusing on leading core technologies  
in-vehicle experience for the global car markets.



# AUTOMOTIVE Product & Domain

Creating a **better life**  
with our customers



# AUTOMOTIVE Product & Domain



## Real Smart

Intuitive HMI, Natural Interaction, Cockpit Controller

HMI trực quan, Trương tác tự nhiên, Bộ điều khiển buồng lái

## Always Connected

5G Telematics, Smart Antenna, High Precision Positioning

Viễn thông 5G, Ảng-ten thông minh, Định vị chính xác cao

## Intelligent Driving

In-house Algorithm, AI & Deep Learning, Integrated with IVI System

Thuật toán, AI & Deep Learning, tích hợp với hệ thống IVI được phát triển bởi nội bộ công ty



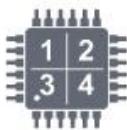
Instrument clusters

Bảng đồng hồ



Head-up displays

Màn hình kết hợp kính lái



Cockpit computer

Hệ thống máy tính trung tâm



Infotainment

Hệ thống thông tin giải trí



Displays

Màn hình giải trí



Connectivity

Tính năng kết nối



Self-driving

Hệ thống tự lái



# AUTOMOTIVE Features

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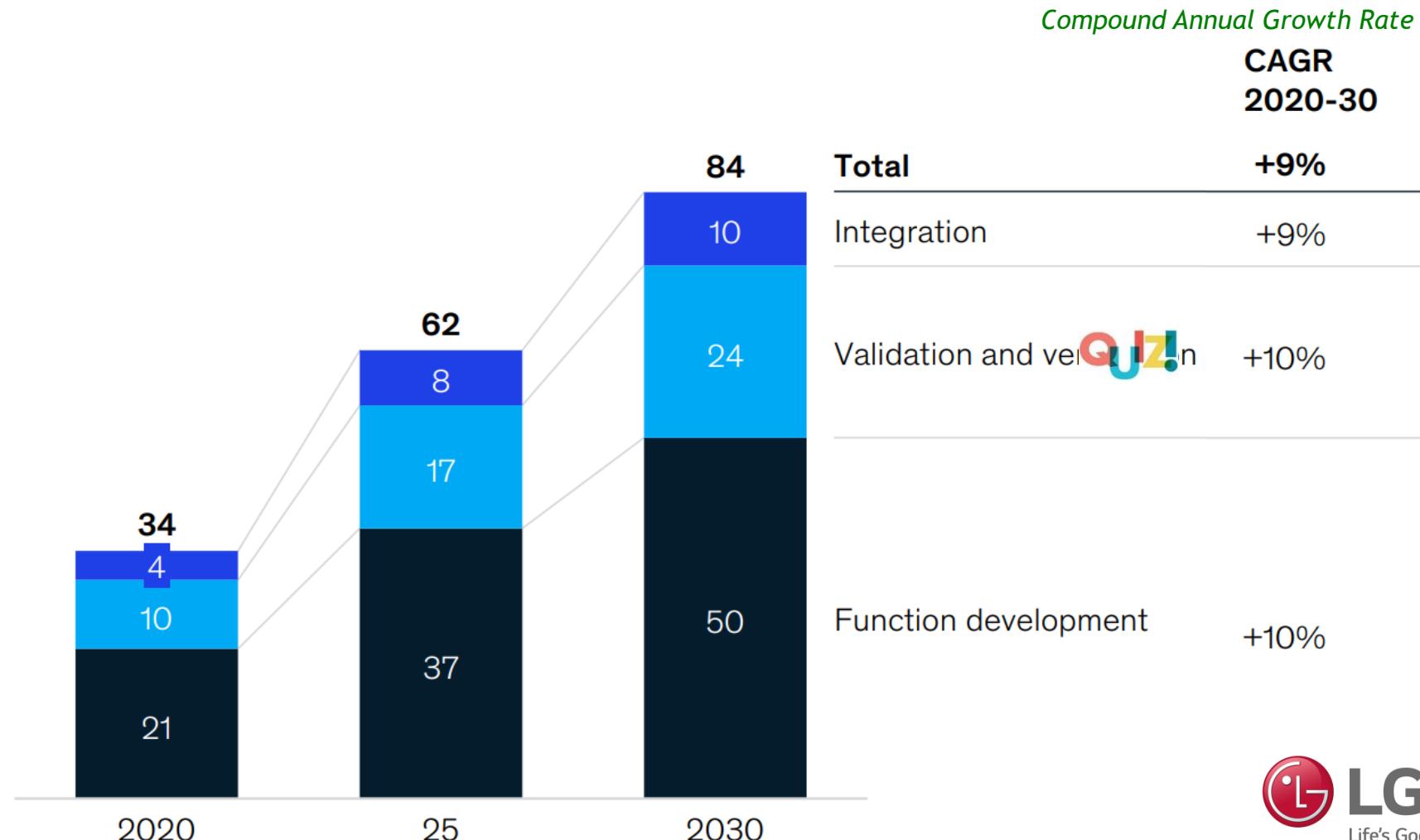
Application  
Core Framework  
Connectivity Service  
Connectivity Middleware  
Vehicle Network  
BT/ Wifi  
Broadcasting  
Media  
Phone Projection  
Security  
Cluster  
OTA & SWUP  
Audio  
Graphics  
BSP  
Performance & Stability  
MCU SW  
NAD & V2X

Voice/Speech  
Broadcasting  
Application  
Vehicle Network  
Project Management  
OTA & Update  
Personal Connectivity  
Middleware  
Security  
OS / Platform  
Multimedia  
Audio Processing  
SW Engineering  
Camera  
Vision System  
System Control  
MCU (MICOM)  
External Network  
BSP

# AUTOMOTIVE Business Volume

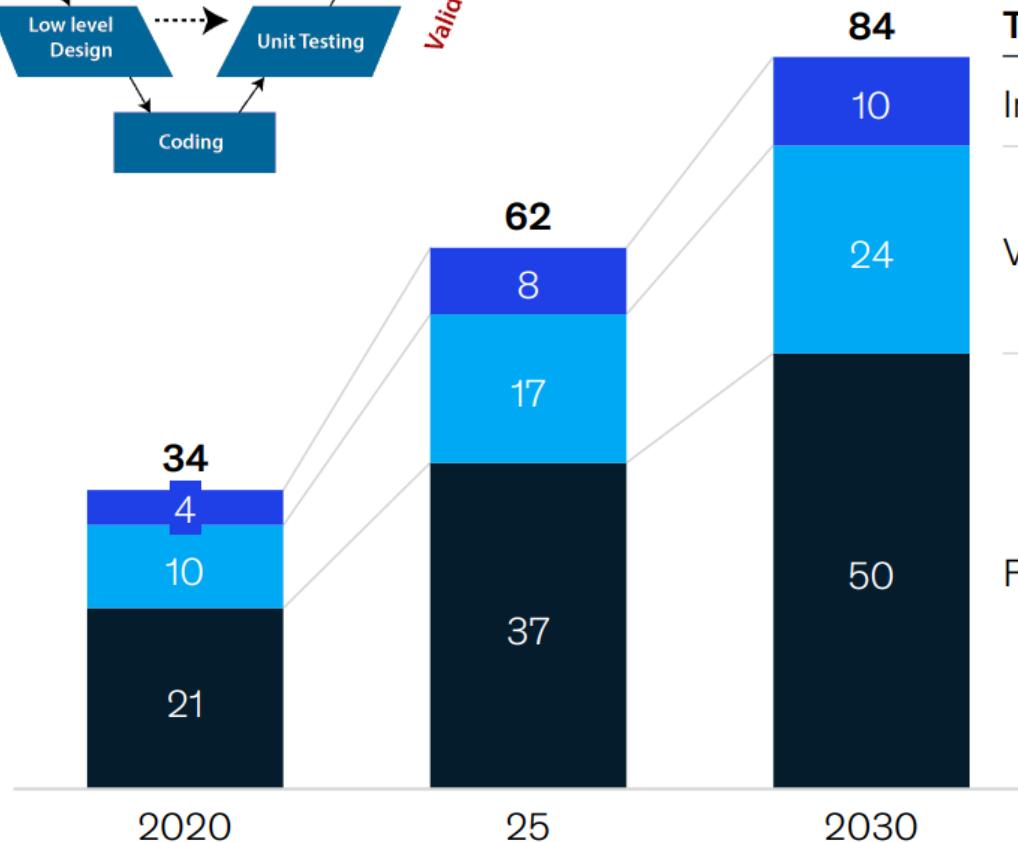
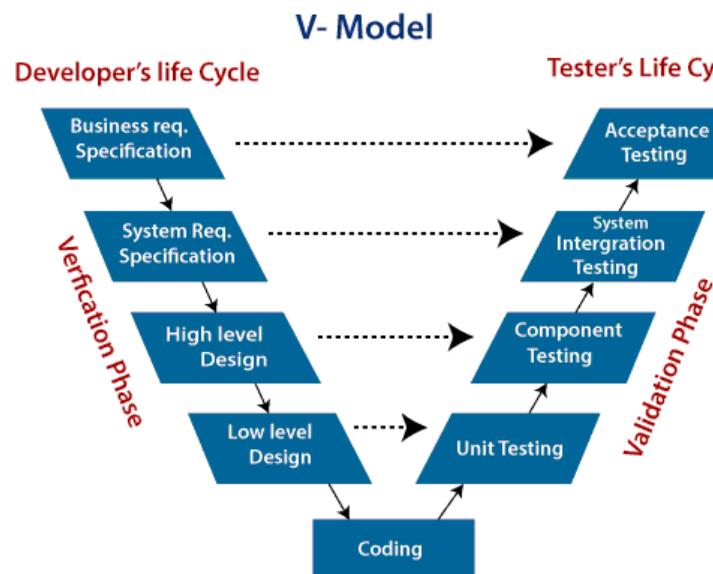
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with our customers

Ngành công nghiệp xe hơi đạt mức tăng trưởng 9% mỗi năm.



# AUTOMOTIVE Business Volume

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**Compound Annual Growth Rate**

**CAGR  
2020-30**

**+9%**

**Total**

**+9%**

**Integration**

**+10%**

**Validation and verification**

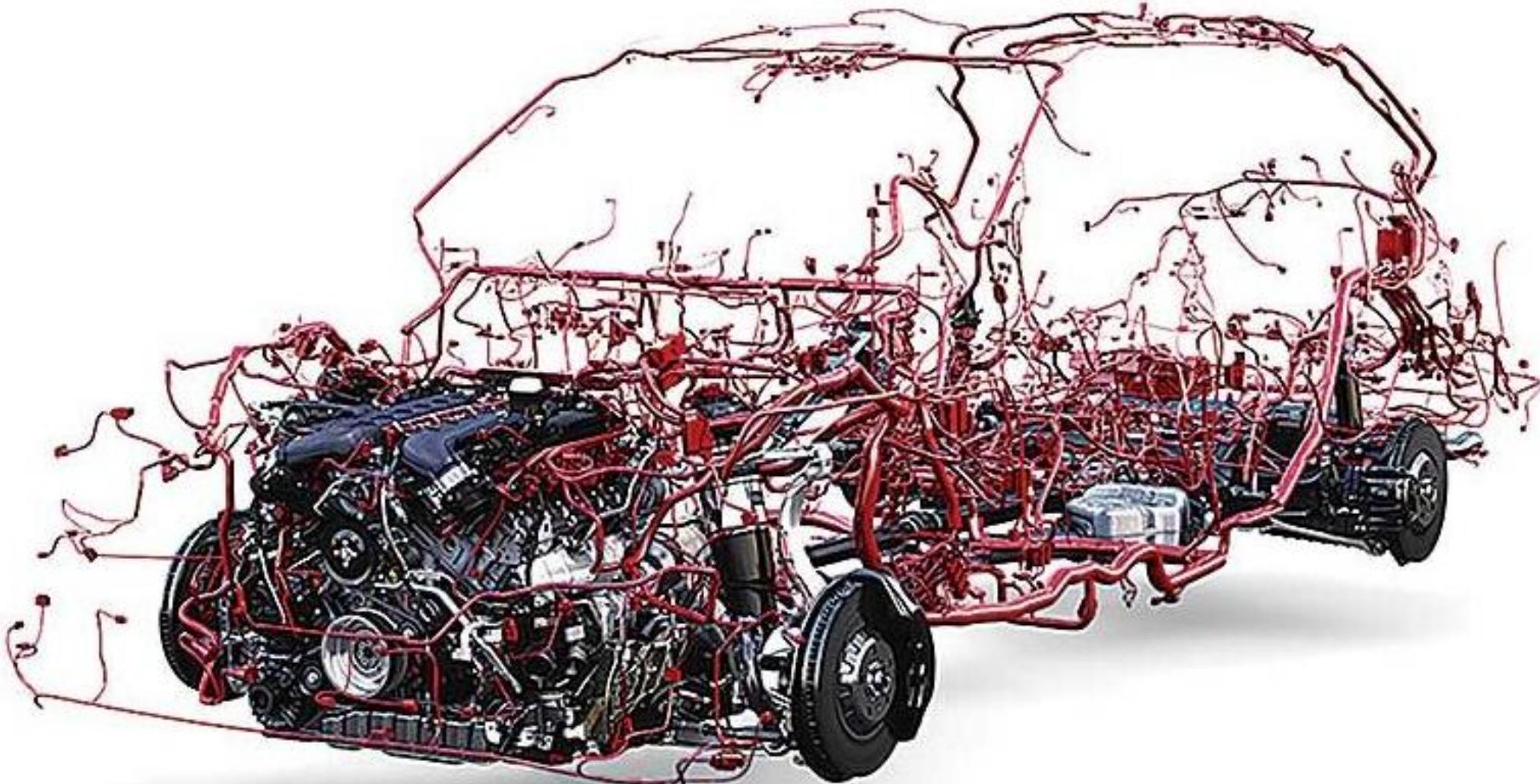
**+10%**

**Function development**

# AUTOMOTIVE CHALLENGES (1)

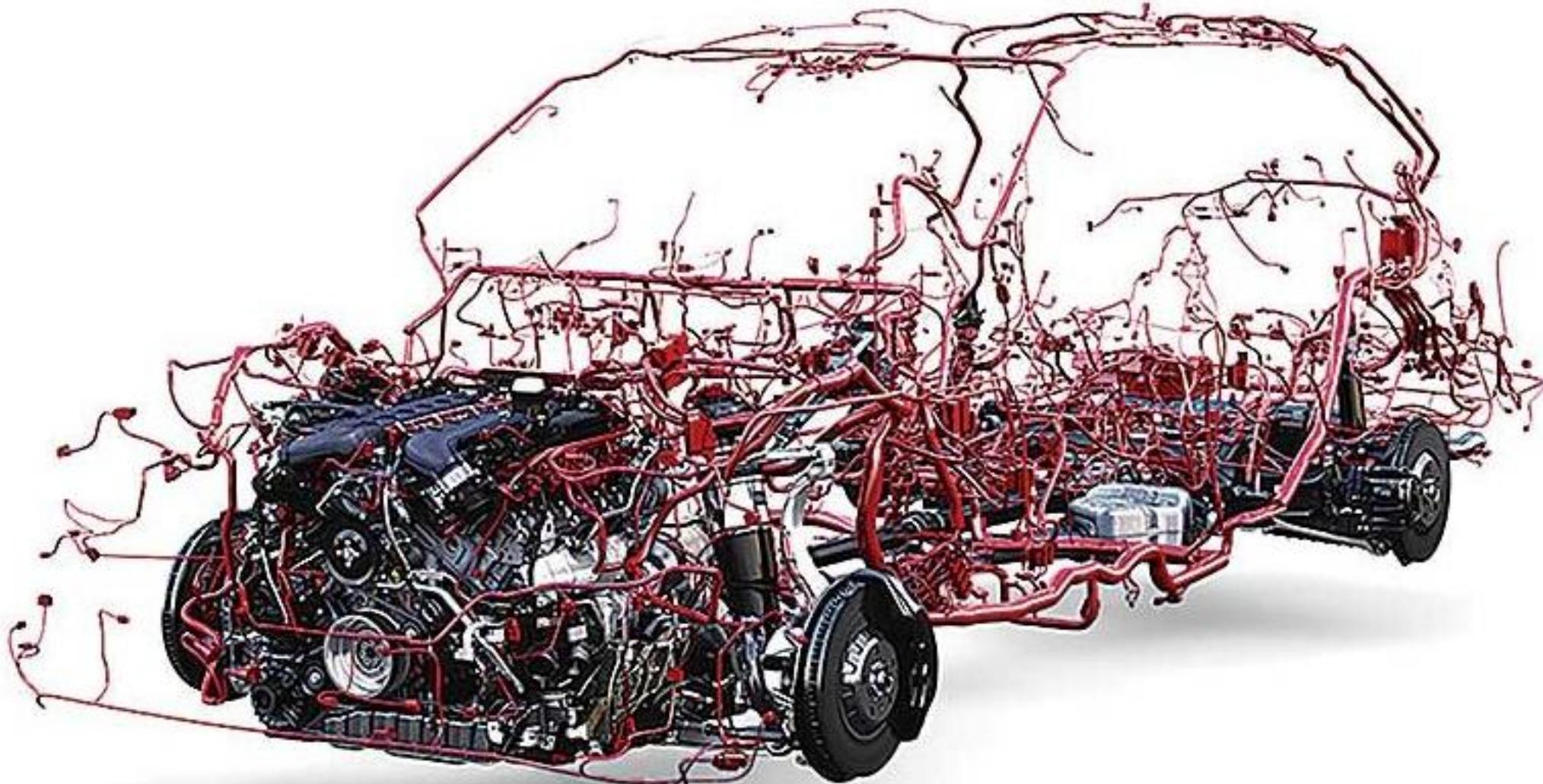


- 3rd highest cost component in a car (behind the engine and chassis).
- 3rd heaviest component directly contributes to fuel economy. (behind the chassis and engine).

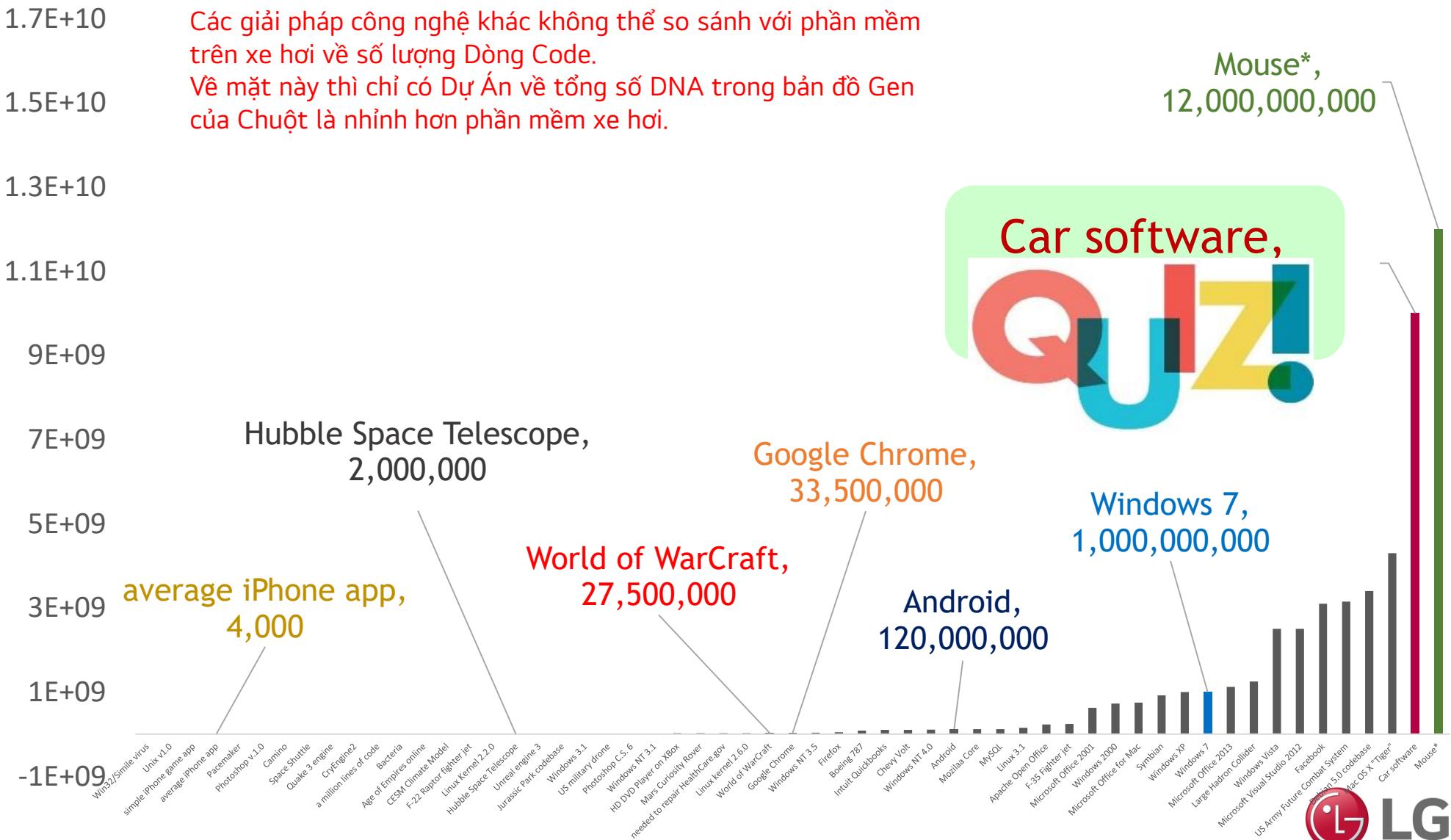


## WIRING

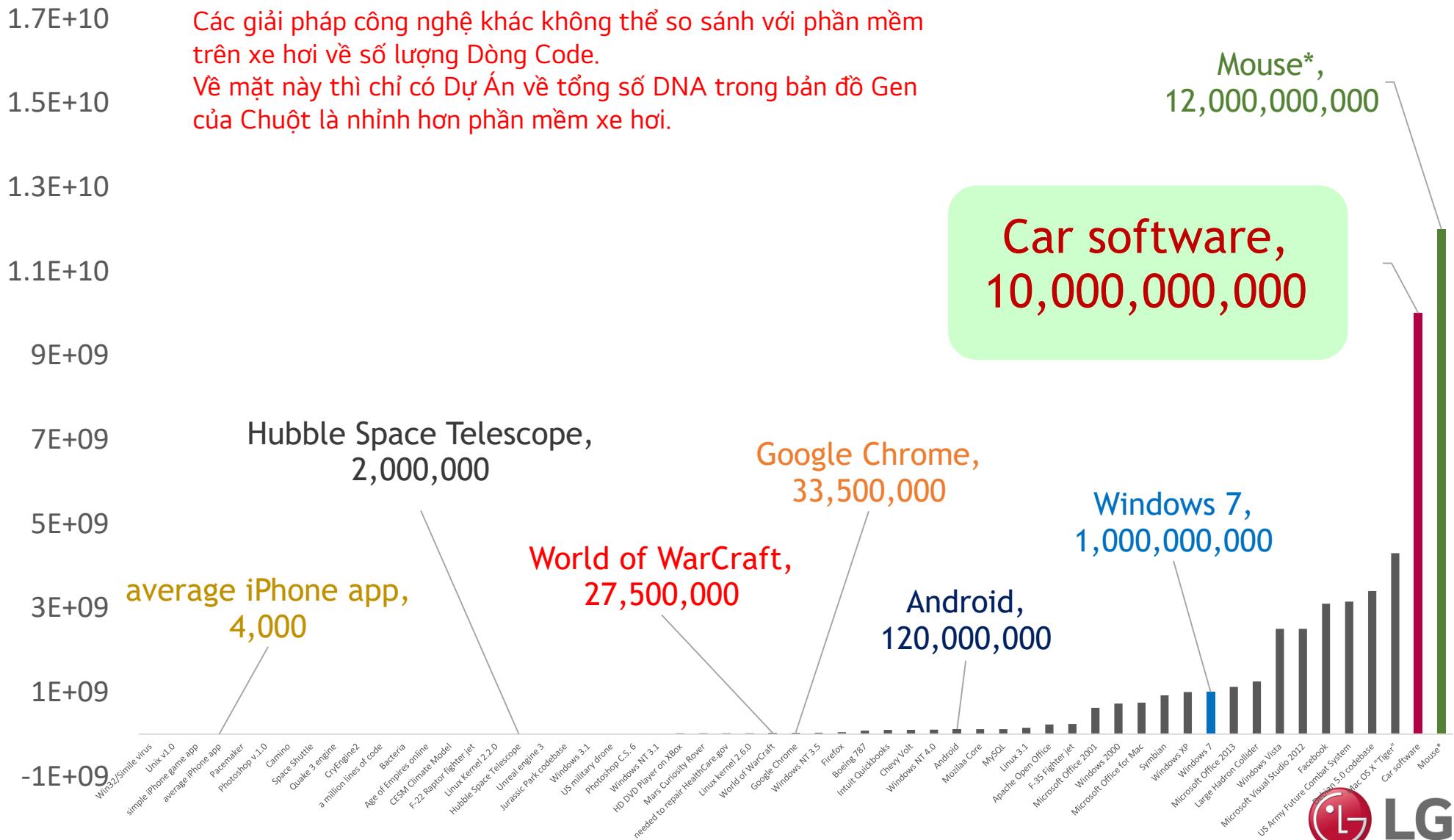
- 3rd highest cost component in a car (behind the engine and chassis).
- 3rd heaviest component directly contributes to fuel economy. (behind the chassis and engine).



# AUTOMOTIVE CHALLENGES (2)



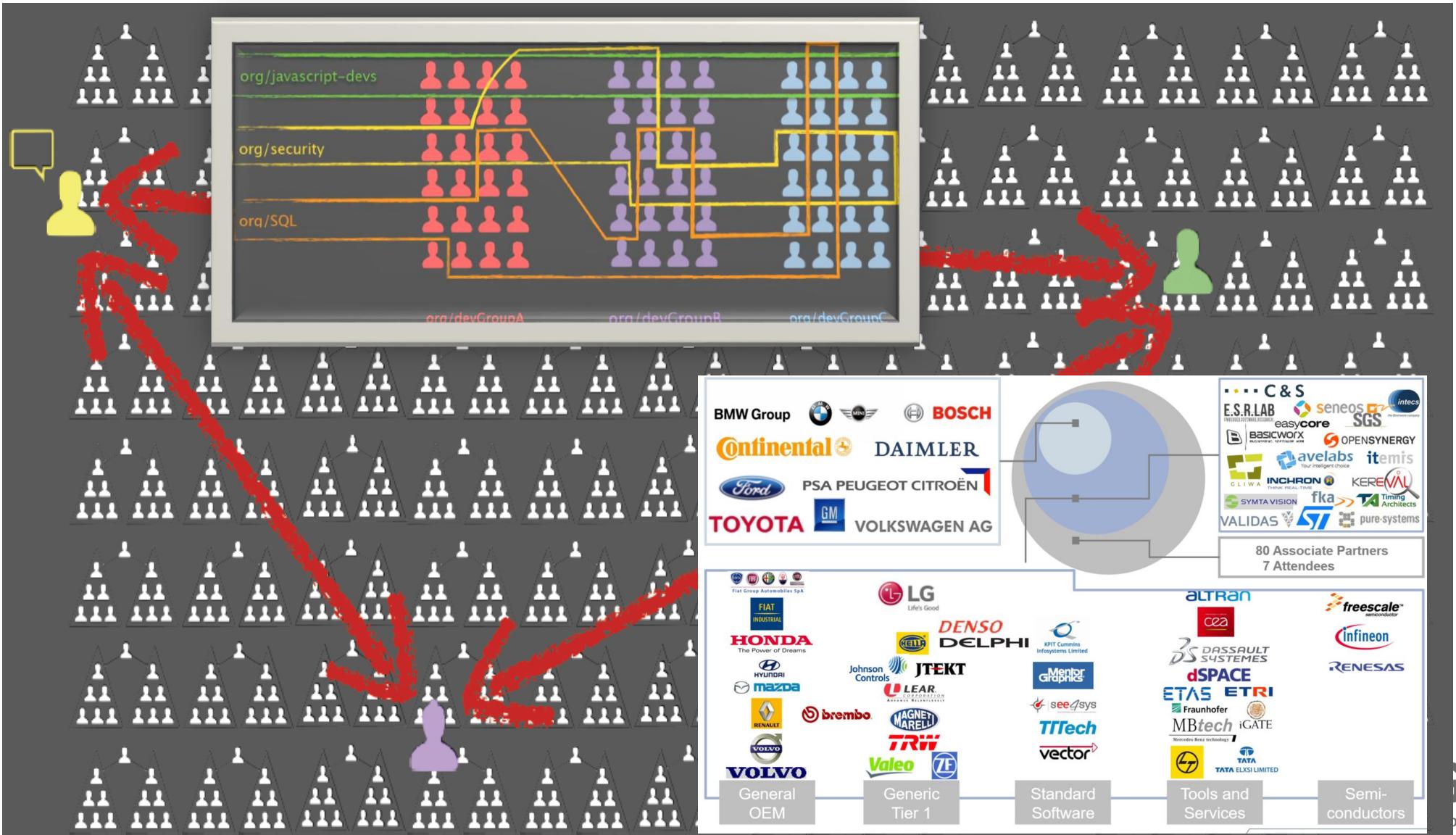
# AUTOMOTIVE CHALLENGES (2)



# AUTOMOTIVE CHALLENGES (3)

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Trong mỗi dự án, chúng tôi phối hợp làm việc với các đồng nghiệp trên toàn thế giới như là một khối.  
Do đó, việc đồng bộ hóa việc phối hợp và quy chuẩn làm việc cũng là một thử thách



Central Computing for Optimized Cost, Weight, Power Distribution, Security, Flexibility

- ENHANCED ARCHITECTURE & TECHNOLOGY
- DECOUPLING, REUSABILITY
- COLLABORATION based on the RULE

# SOLUTION, E/E Architecture Enhancing

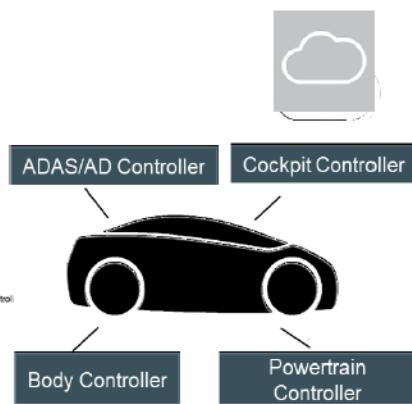
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Trong tương lai, xe hơi không chỉ là một phương tiện thông thường, mà còn là một chiếc máy tính thực sự thông minh để luôn luôn kết nối và vận hành một cách tinh tế

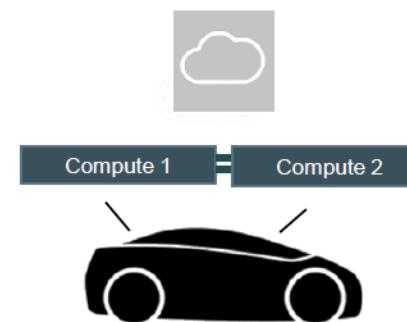
## Yesterday



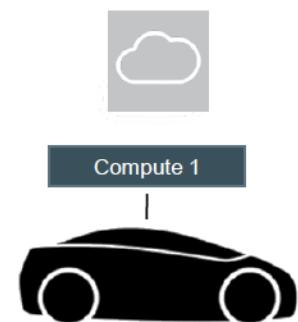
## Today



## Tomorrow



## Future



### Modular

30 - 100+  
ECUs in a car

### Domain ECUs

Consolidation of ECUs into domain controllers

Reduces cost, weight and power consumption

Leverages silicon and software innovations

### Redundant Computing Platform

Service-Oriented Architecture (SOA) direct memory access

Parallel computing carrier offer redundancy and safety

Open scalable platform for OEM system integration

### Central Computing Platform

Service-Oriented Architecture (SOA) network access oriented

Dynamic configuration and seamless redundancy

Blade upgradeable concept

# SOLUTION - Automotive Ethernet

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Để có thể vượt qua những thử thách trong lĩnh vực Automotive, các công ty trên toàn thế giới nên hợp tác nghiên cứu cùng nhau trong các hiệp hội / liên minh thay vì chỉ tập trung vào việc nghiên cứu độc lập và cạnh tranh lẫn nhau



Standardization of PHY and Link Layer for Ethernet



Proof of concept of one pair gigabit Ethernet



Create the reusable baseline software



Integrate into Car Software Framework and Open Architecture



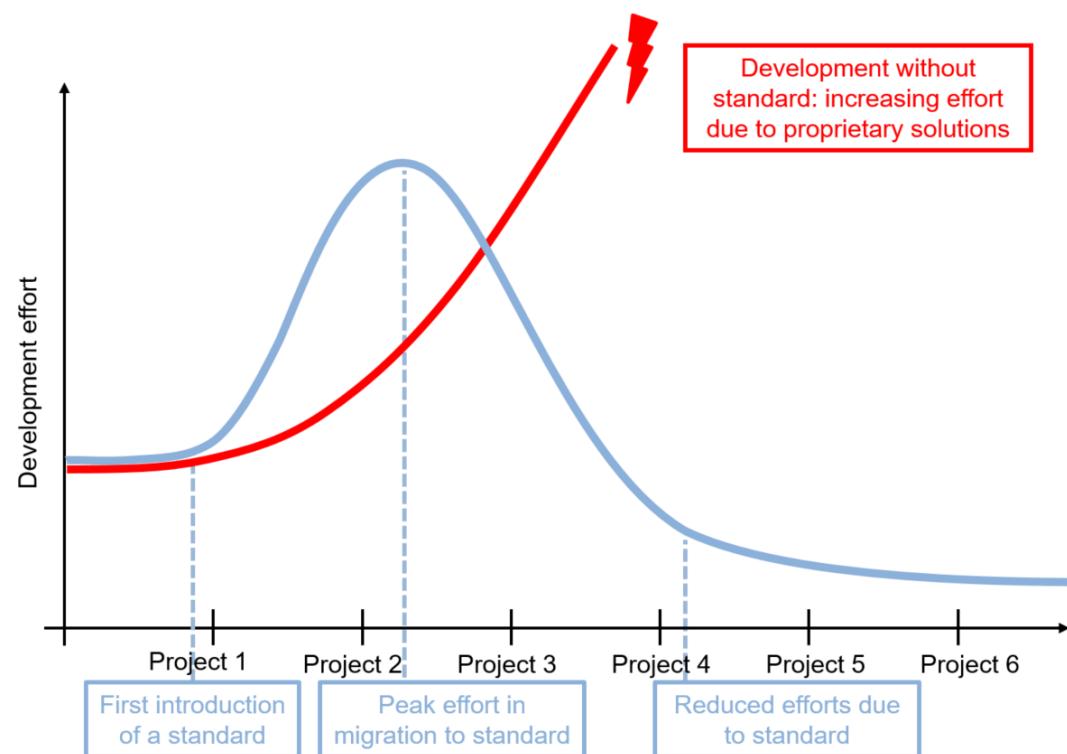
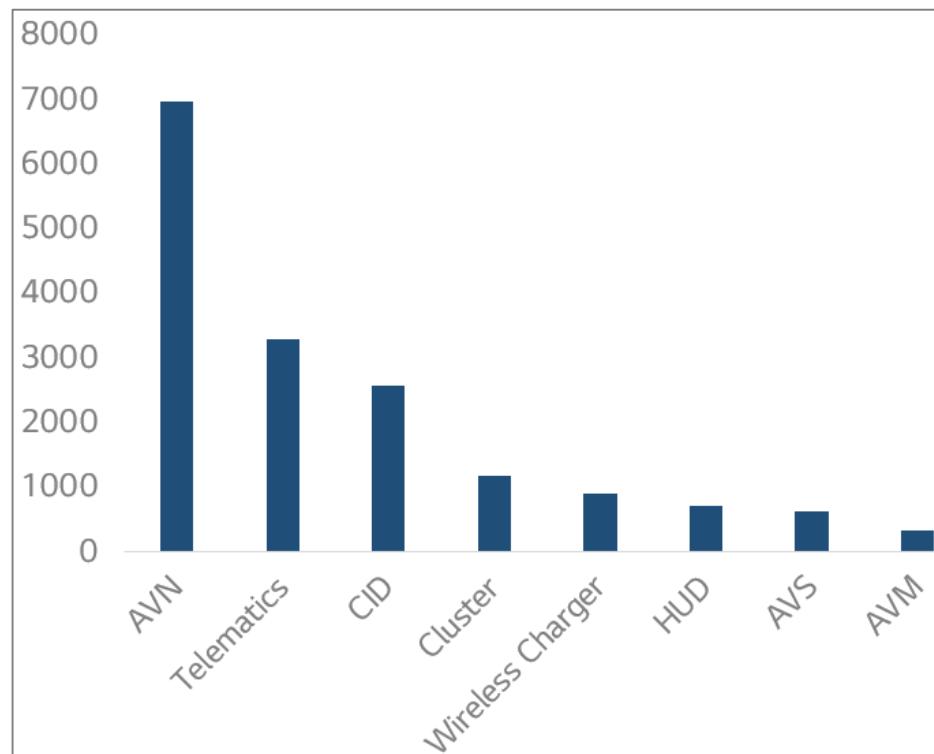
University of New Hampshire  
InterOperability  
Laboratory

Create Process and Profile as Test cases to make sure Interoperability



# SOLUTION, DECOUPLING & REUSE

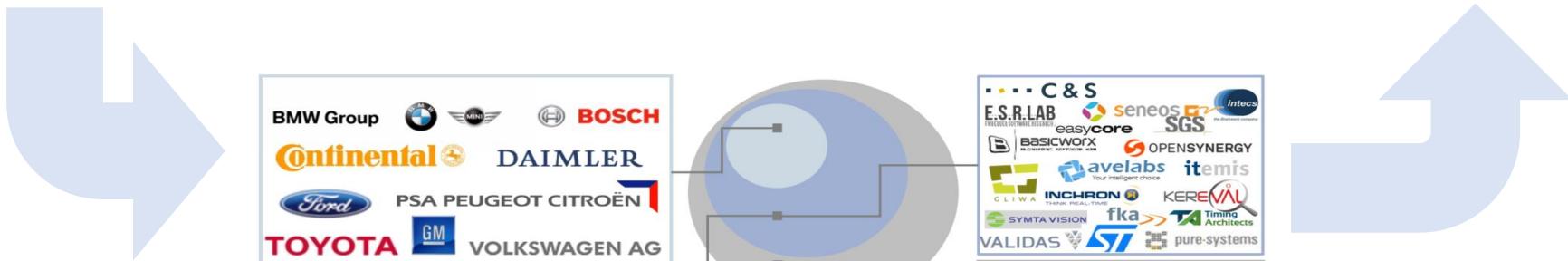
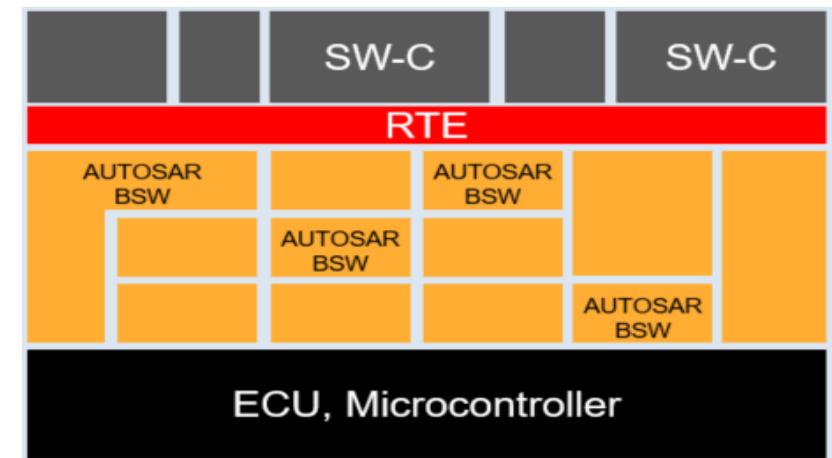
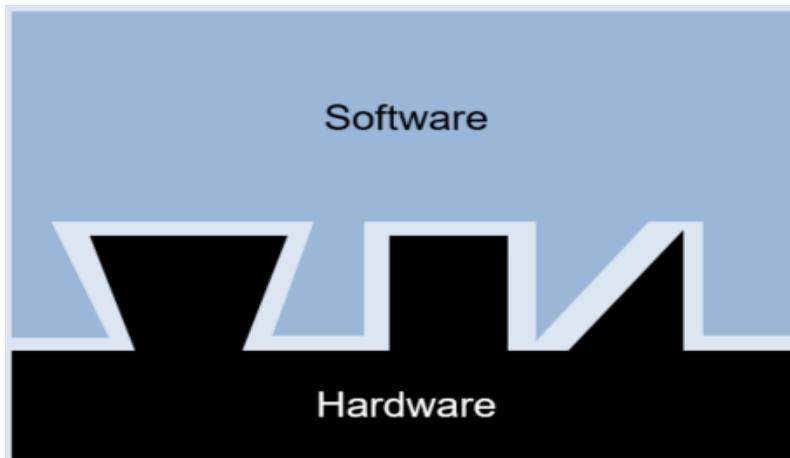
Việc tối đa hóa lượng phần mềm có thể tái sử dụng để giảm cường độ làm việc và chi phí là một điều tất yếu



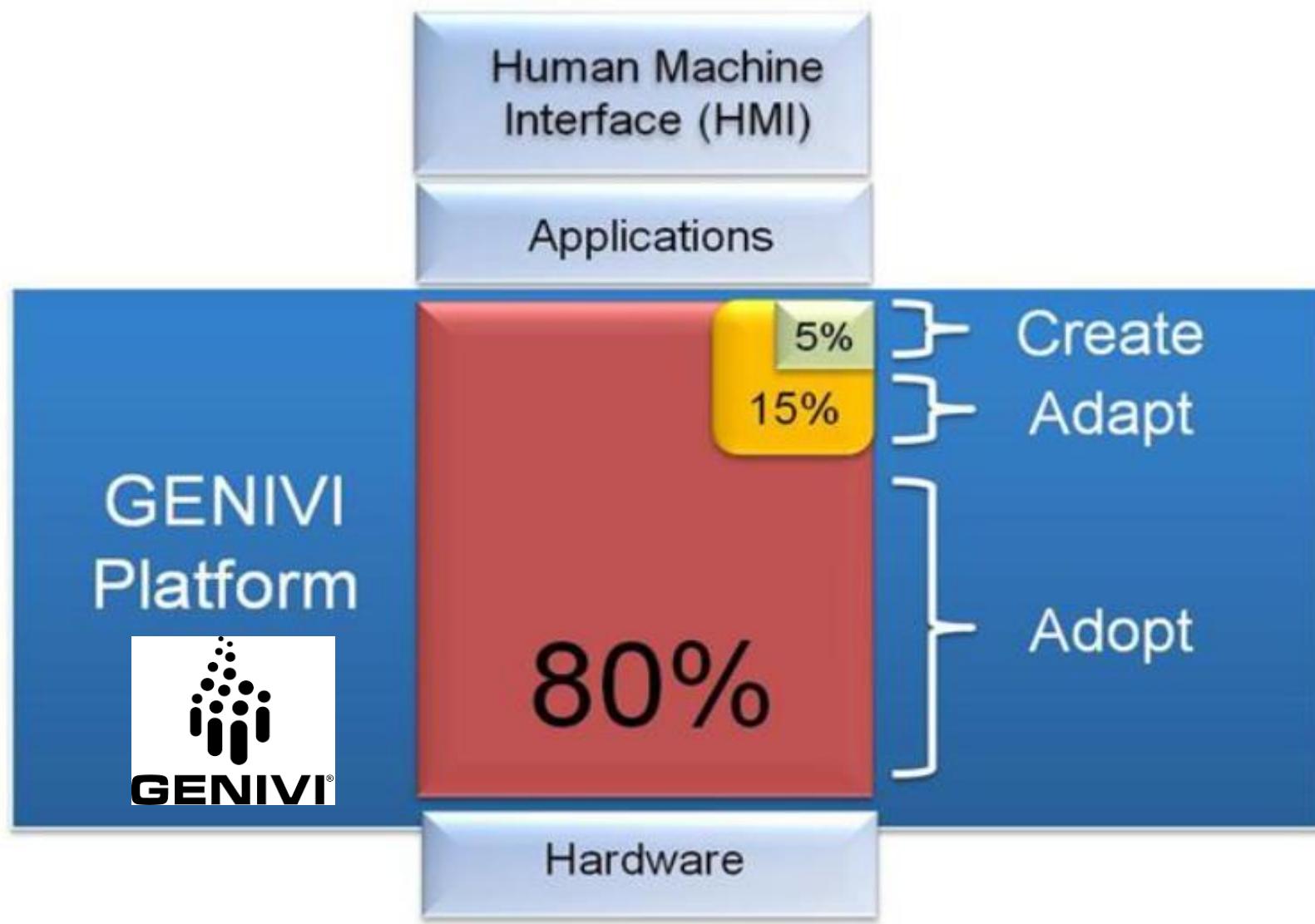
# SOLUTION, DECOUPLING & REUSE

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Chúng ta có thể đạt được mục tiêu trong việc tái sử dụng từ Yêu cầu → Giao diện → Triển khai



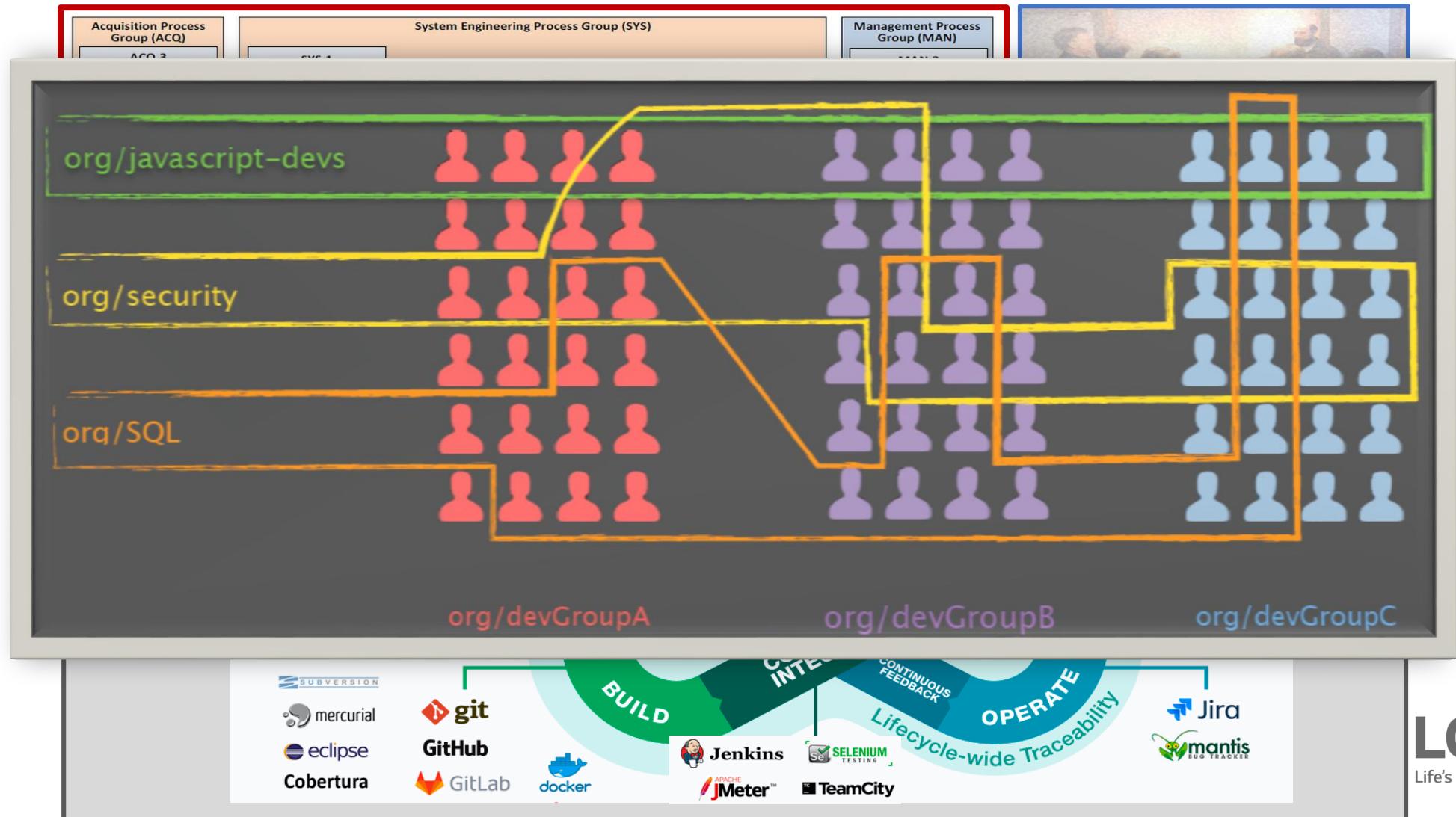
Mục tiêu của chúng tôi là có thể tái sử dụng 80% phần mềm có thể tái dụng



# SOLUTION, COLLABORATION based on RULE

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Để có thể tối ưu hóa việc giao tiếp với các đối tác trên toàn thế giới, chúng ta phải thiết lập một nền tảng chuẩn mực



# SOLUTION, COLLABORATION based on RULE

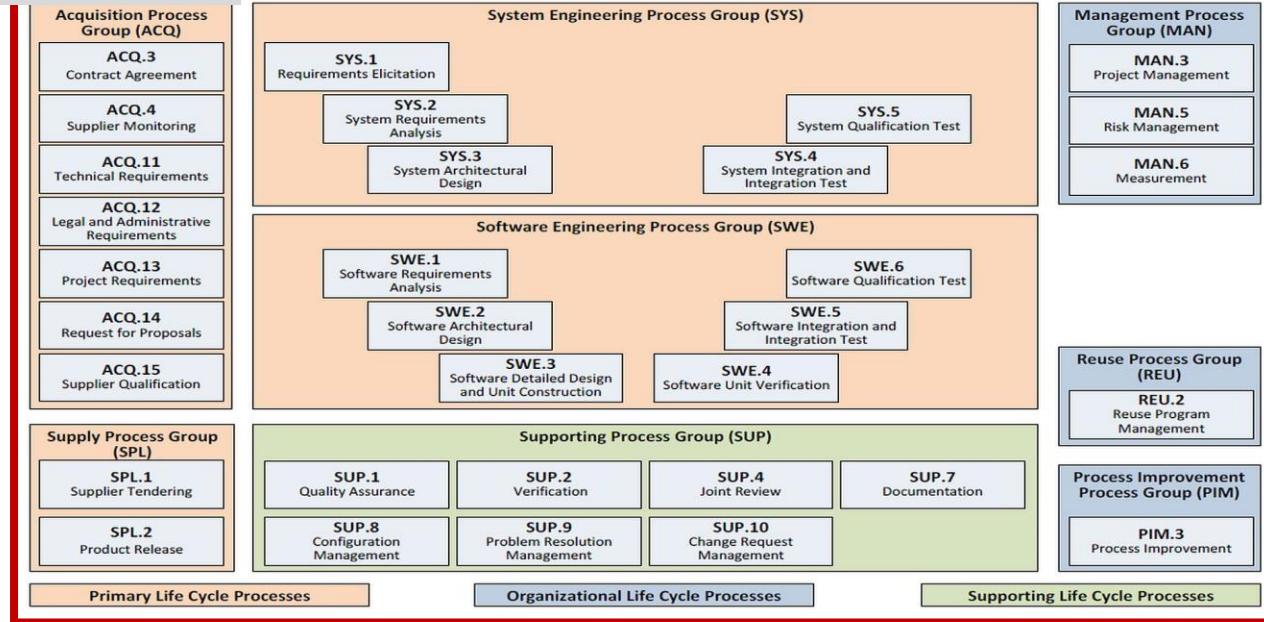
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Process: Xác định những gì chúng ta cần phải làm

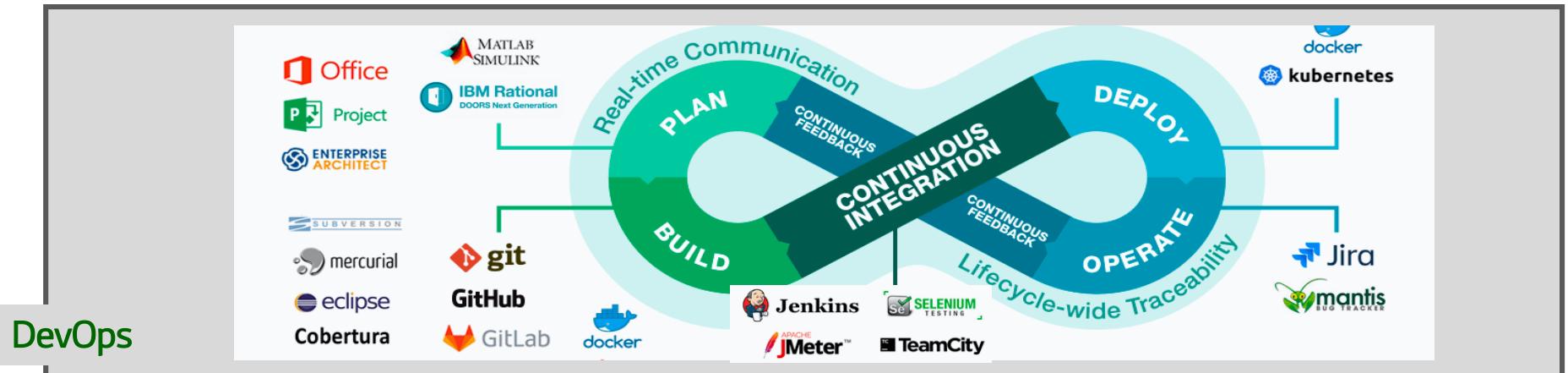
Methodology: Xác định cách thức thực hiện

DevOps : Cho phép giao tiếp dựa trên môi trường hệ thống trong toàn bộ vòng đời của dự án

## PROCESS



## Methodology



# TO BE GLOBAL TALENT

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with our customers

- Code
- Platform
- Engineering
- Tool Chain
- Communication



## ✓ Contribute to Open Source Software



Google most famous open source software

검색결과 약 1,480,000,000개 (0.56초)

List of best open-source software

- Shotcut ...
- LibreOffice ...
- Mozilla Thunderbird ...
- Mozilla Firefox ...
- VLC Media Player ...
- GIMP ...
- Linux ...
- WordPress. WordPress is probably the most popular blogging platform in the world, used by more than 60 million people and organizations.

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Code Pull requests 31 Actions Projects Security

master Go to file Add file < Code

acteone08 Merge tag 'devicetree-fixes-for-6.2' ... 8 hours ago 1,155.2

Documentation Merge tag 'devicetree-fixes-for-6.2-2' ... 8 hours ago

LICENSES LICENSES: Add the copyleft-next-0.3.1... 3 months ago

arch Merge tag 'x86\_urgent\_for\_v6.2\_rc7' ... 2 days ago

block Merge tag 'block-6.2-2023-02-03' ... 4 days ago

certs certs Fix build error when PKCS#11 U... last week

crypto Merge tag 'v6.2-p1' of git://git.kernel... 2 months ago

drivers Merge tag 'devicetree-fixes-for-6.2-2' ... 8 hours ago

fs Merge tag 'for-6.2-rc7' of git://git... yesterday

include Merge tag 'char-misc-6.2-rc7' of git://... 2 days ago

init Merge tag 'kbuild-fixes-v6.2-3' of git://... 2 weeks ago

io\_uring io\_uring: always prep\_async for drain r... 2 weeks ago

ipc Merge tag 'mm-norimm-stable-2022-... 2 months ago

kernel Merge tag 'trace-v6.2-rc6' of git://git... 14 hours ago

lib Merge tag 'perf\_urgent\_for\_v6.2\_rc7' ... 2 days ago

mm Merge tag 'mm-norimm-stable-2023-... 4 days ago

Code Issues 78 Pull requests 31 Discussions 0 Actions 0 Projects 0 Wiki Security Insights

About Reverse engineered ChatGPT API

Releases 107 1.2.1 Overhaul documentation (Latest) 4 hours ago + 106 releases

Packages No packages published

Used by 43k

Contributors 34

Reverse Engineered ChatGPT API by OpenAI. Extensible for chatbots etc. Connect with me on LinkedIn to support this project. (Not open for commercial opportunities yet. Too busy!)





# Q&A

