

BMW
GROUP



THE INTELLIGENT CAR

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VP NEW TECHNOLOGIES, BMW GROUP



THE INTELLIGENT CAR. AGENDA.

1. What is an Intelligent Car?

2. The Architecture of an Intelligent Car

3. Implementation: KPI's and Test Automation

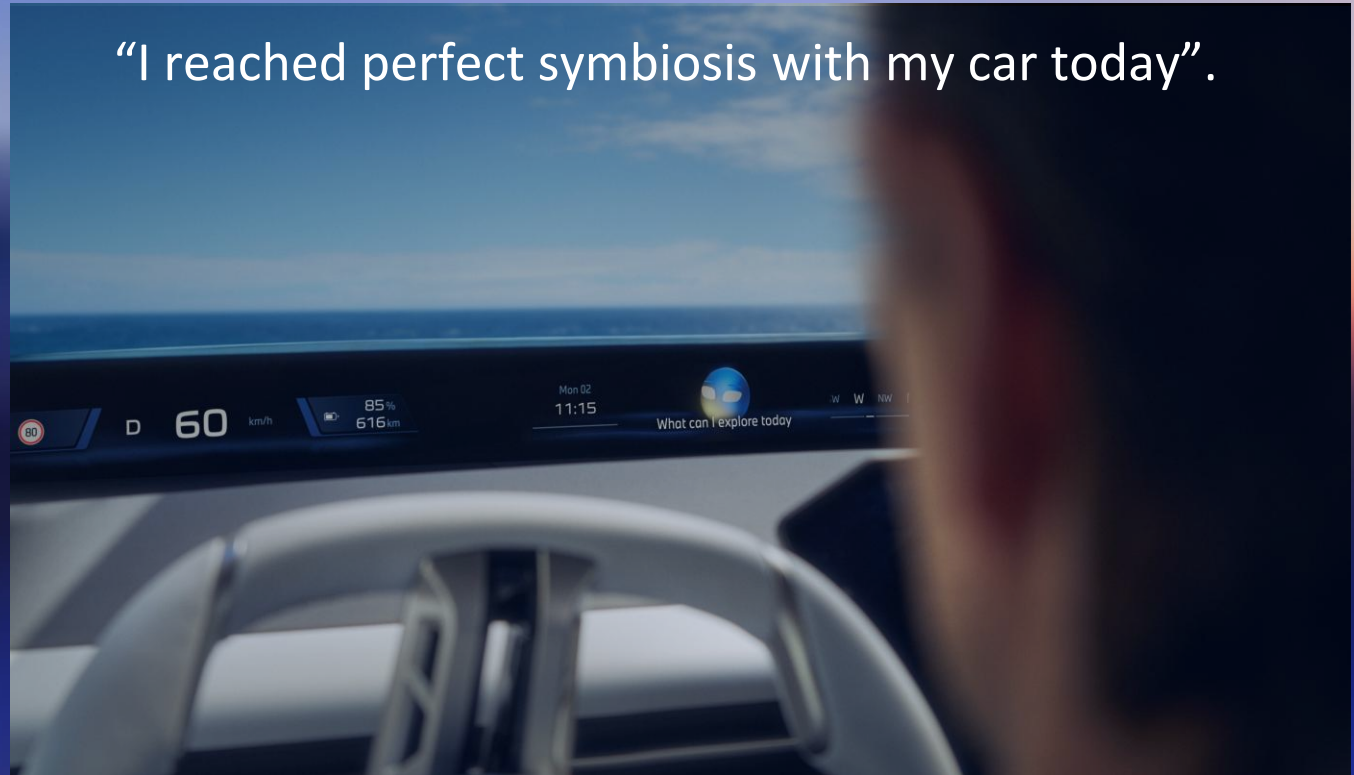
4. Summary

THE INTELLIGENT DRIVING EXPERIENCE.

anticipating &
adaptive

human-centered
technology

fair, compliant,
and responsible



INTELLIGENCE ROADMAP WITH MULTI-MODALITY (ALL SENSES) AND CROSS-DOMAIN FUNCTIONS.



WE MARK A MILESTONE IN REAL DIALOGUE WITH OUR VEHICLES, COMBINED WITH INTELLIGENT CAPABILITIES.

**BMW as first car
manufacturer to integrate
the AI assistant technology
into its vehicles.**



When linked to an Amazon account, the BMW Group Intelligent Personal Assistant provides personalized music, sports, and news content. Additional features, such as messaging and food ordering, are planned.



Free and natural dialogue on vehicle and general knowledge topics.

Rollout started with the new BMW iX3 in Germany and the U.S., followed by other models and markets.

- Core European markets.
- China: Banma Intelligence & DeepSeek.
- Korea: Kakao-conglomerate based solution.

DEMONSTRATING OUR AI CAPABILITIES.

VISUAL INTELLIGENCE



Camera-to-VLM
Integration for
Interior and
Exterior Scene
Understanding

ADAS AND SPEECH INTERACTION



ADAS Stack
Integration for
Driving Behavior
Dialogue and
Action Triggering

INTERACTION OF GUI AND SPEECH



On-Demand
Visual and
Graphical
Interface
Generation and
UI-to-LLM
Orchestration
Integration

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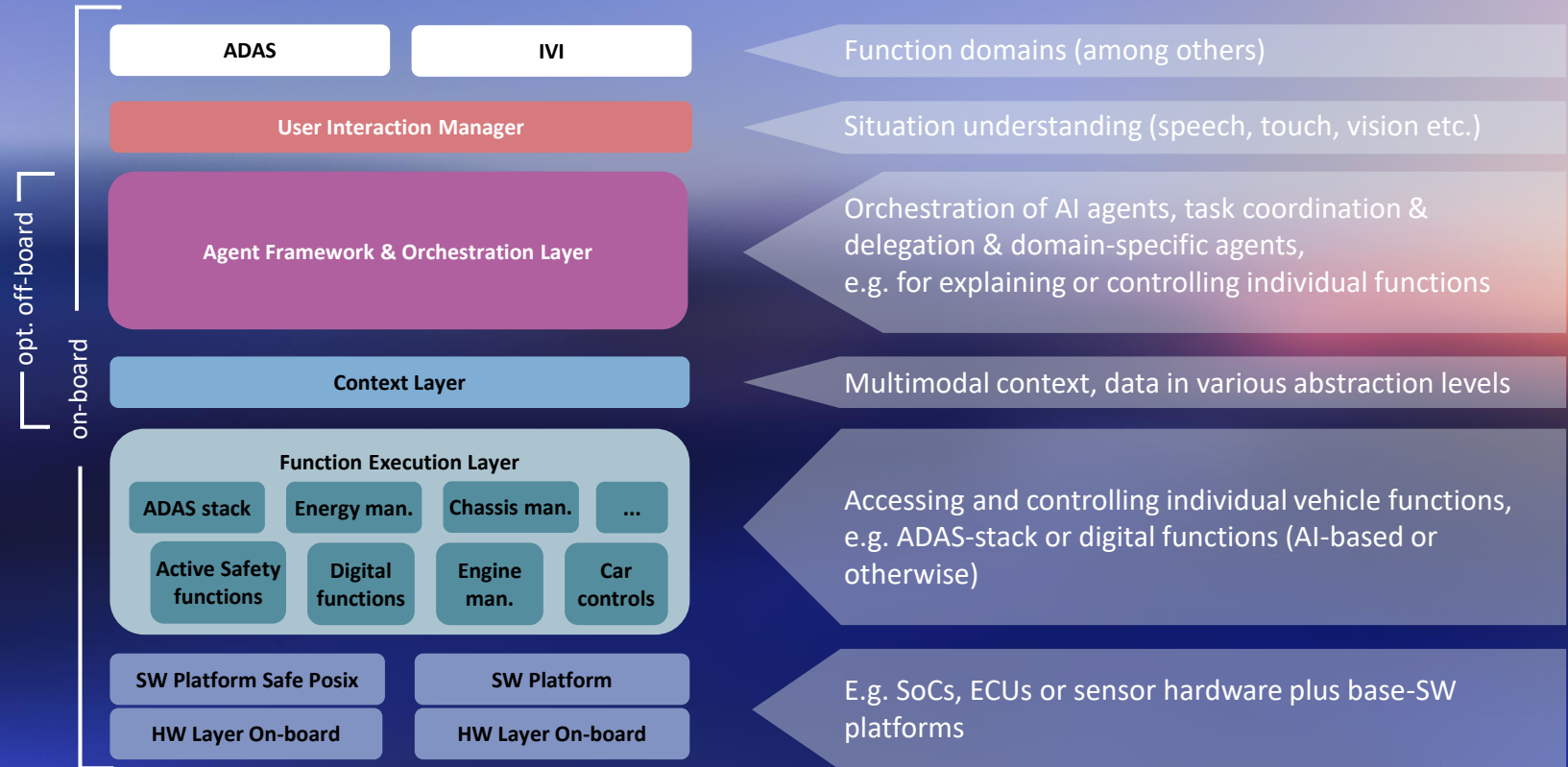
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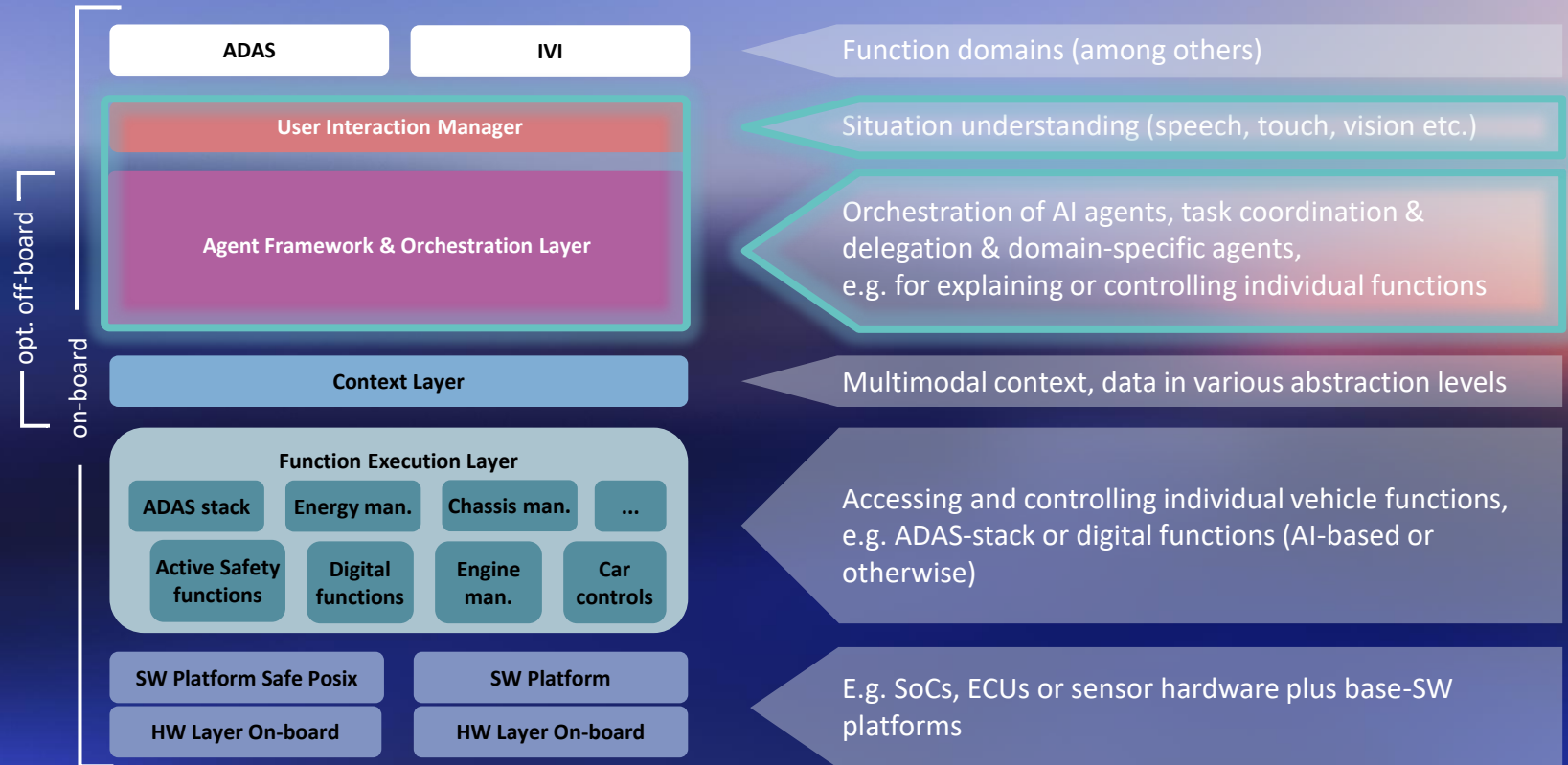
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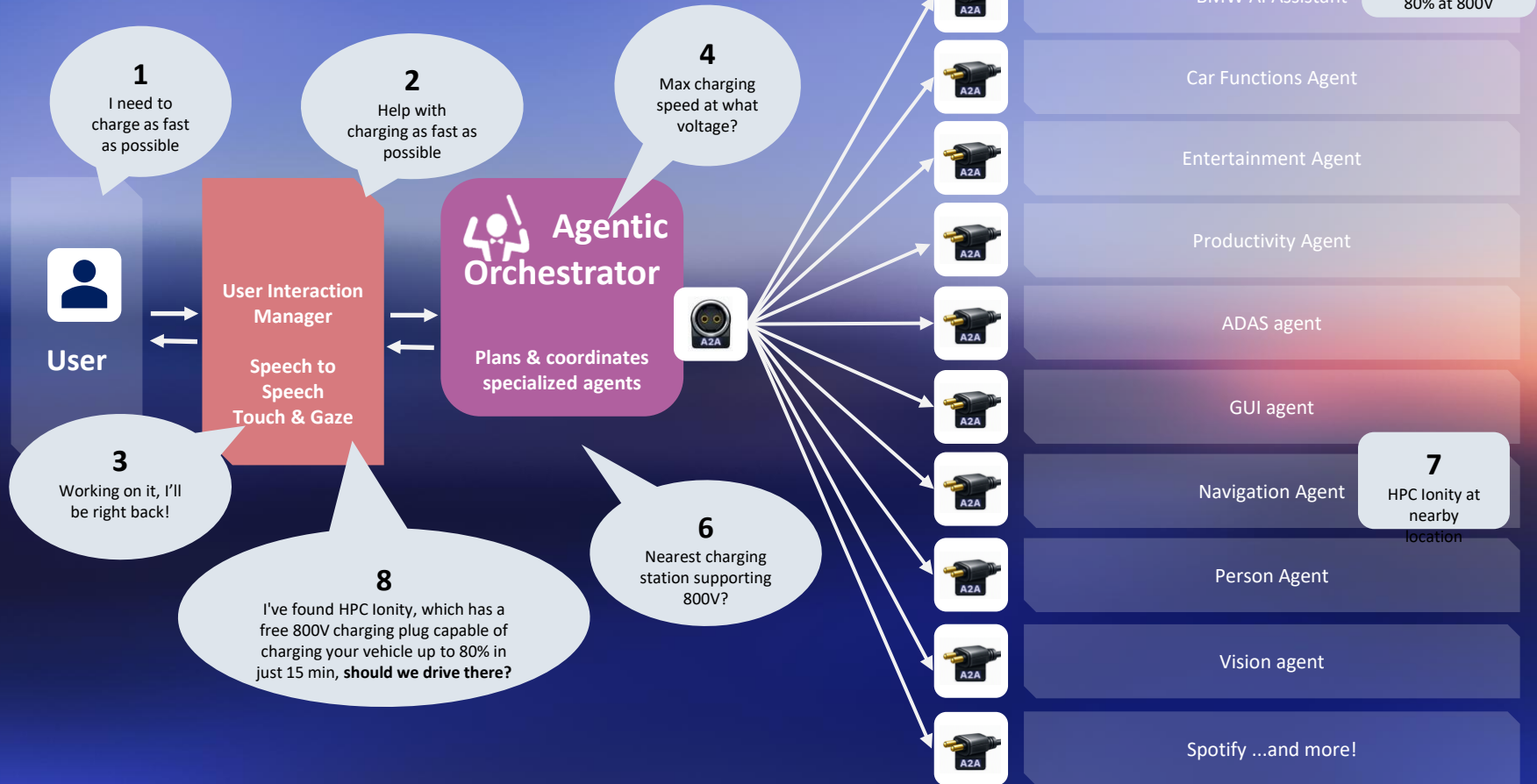
INTELLIGENT CAR – MAIN ARCHITECTURAL BUILDING BLOCKS.



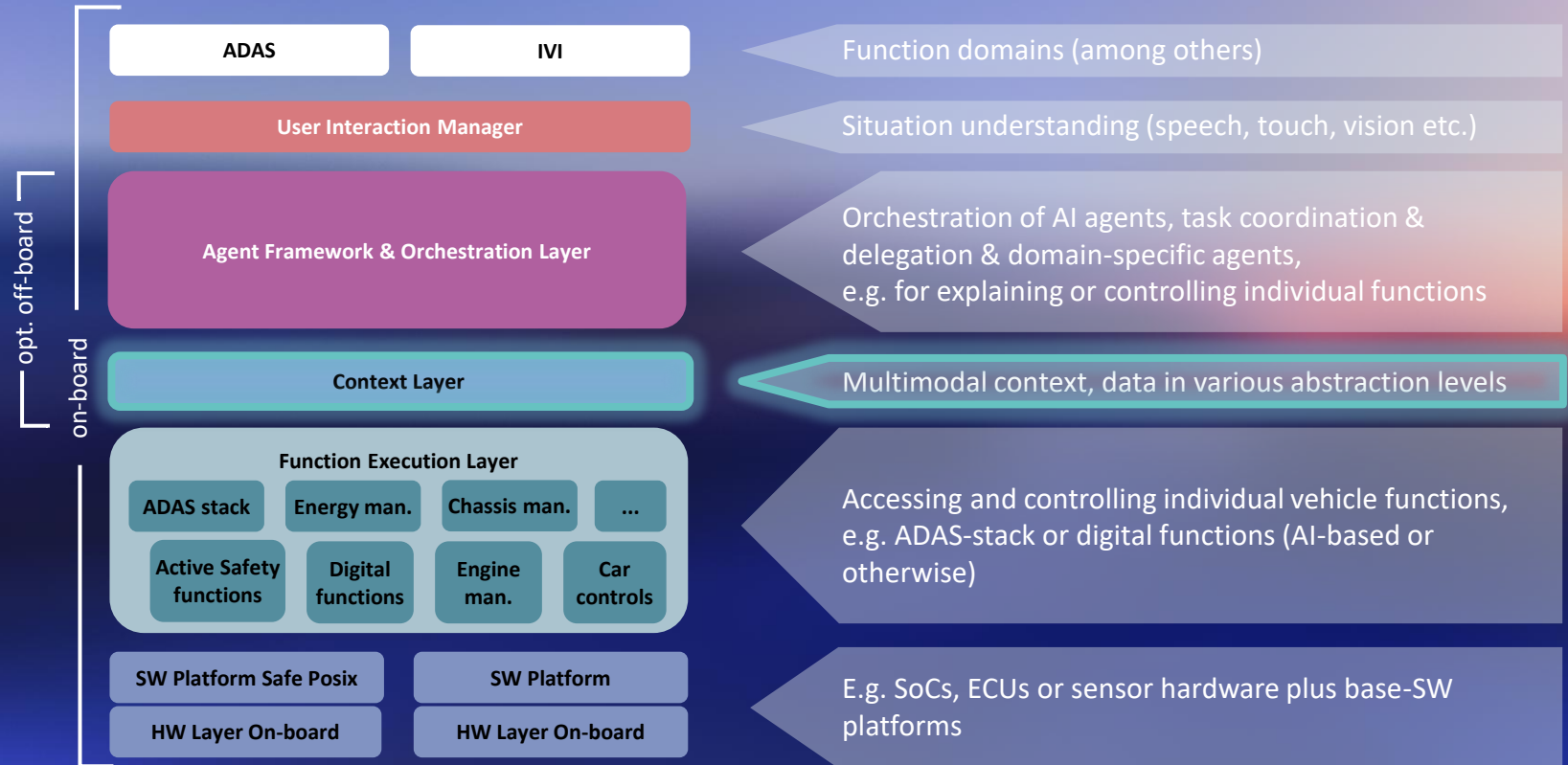
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AGENTIC ORCHESTRATION.



INTELLIGENT CAR – MAIN ARCHITECTURAL BUILDING BLOCKS.



THE MODEL IS THE PROCESSOR. CONTEXT DATA IS KNOWLEDGE AND EXPERIENCE.

What is Context?

Context is everything a GenAI agent knows about the ...

- customer / driver / passengers
- vehicle
- trip
- surroundings
- history of past interactions

... at the moment it makes a decision

Why do we need it?

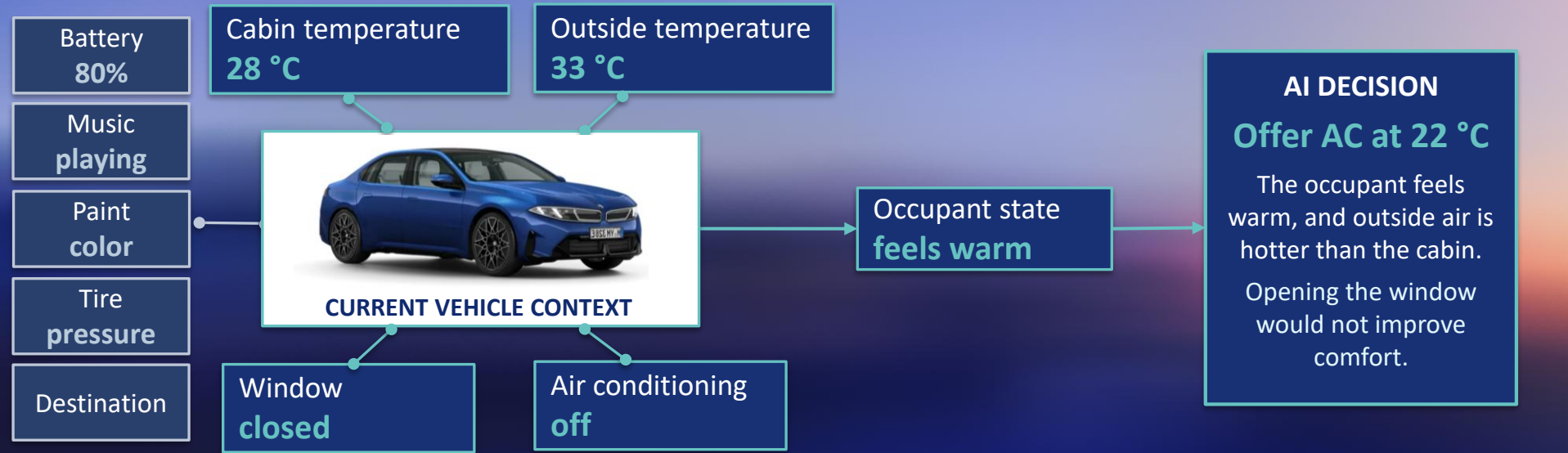
Without context the AI agents do not ...

- understand the current situation, circumstances or surroundings
- understand with whom they are interacting
- remember past discussion, preferences or actions

... and therefore cannot take informed decisions or provide meaningful responses



AI NEEDS CONTEXT, NOT JUST DATA.



A data model turns values into context — and context into knowledge-based action

DATA MODEL



CONTEXT

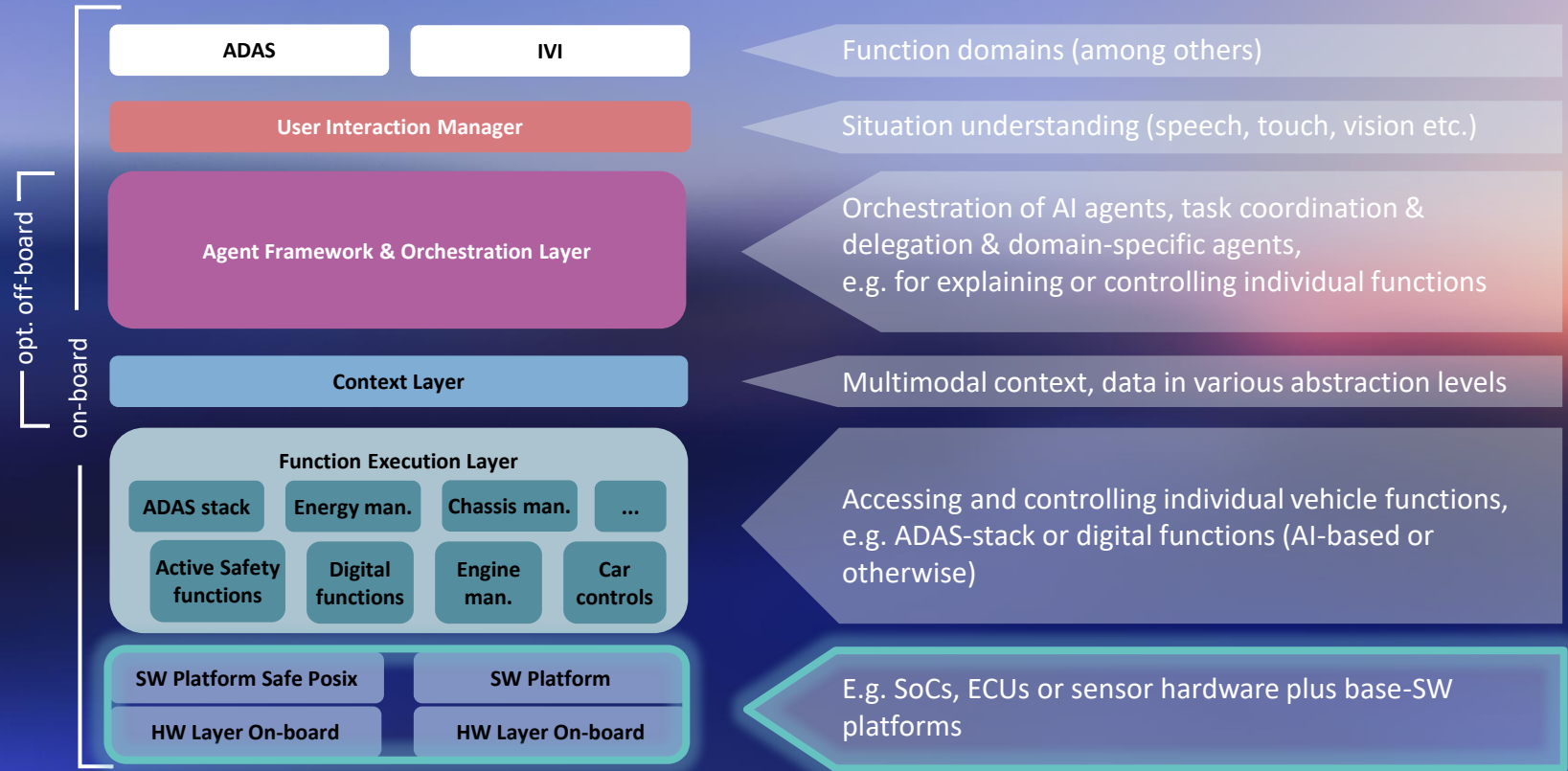


DECISION

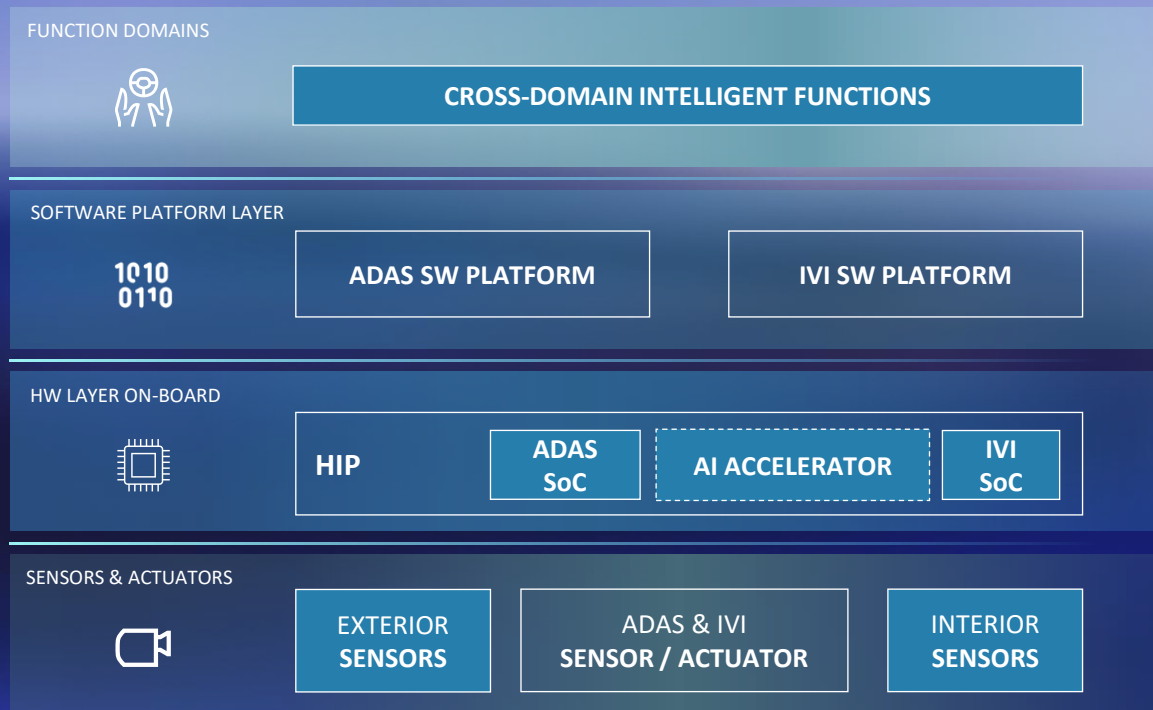
— Relevant now

— Known but not relevant

INTELLIGENT CAR – MAIN ARCHITECTURAL BUILDING BLOCKS.



HIGH INTEGRATION PLATFORM (HIP): COMBINES ADAS AND IVI IN ONE PLATFORM.



AI ORCHESTRATION & EXECUTION



- Scalable AI accelerator with significant performance gains
- Direct access to multimodal sensor data across ADAS and IVI domains



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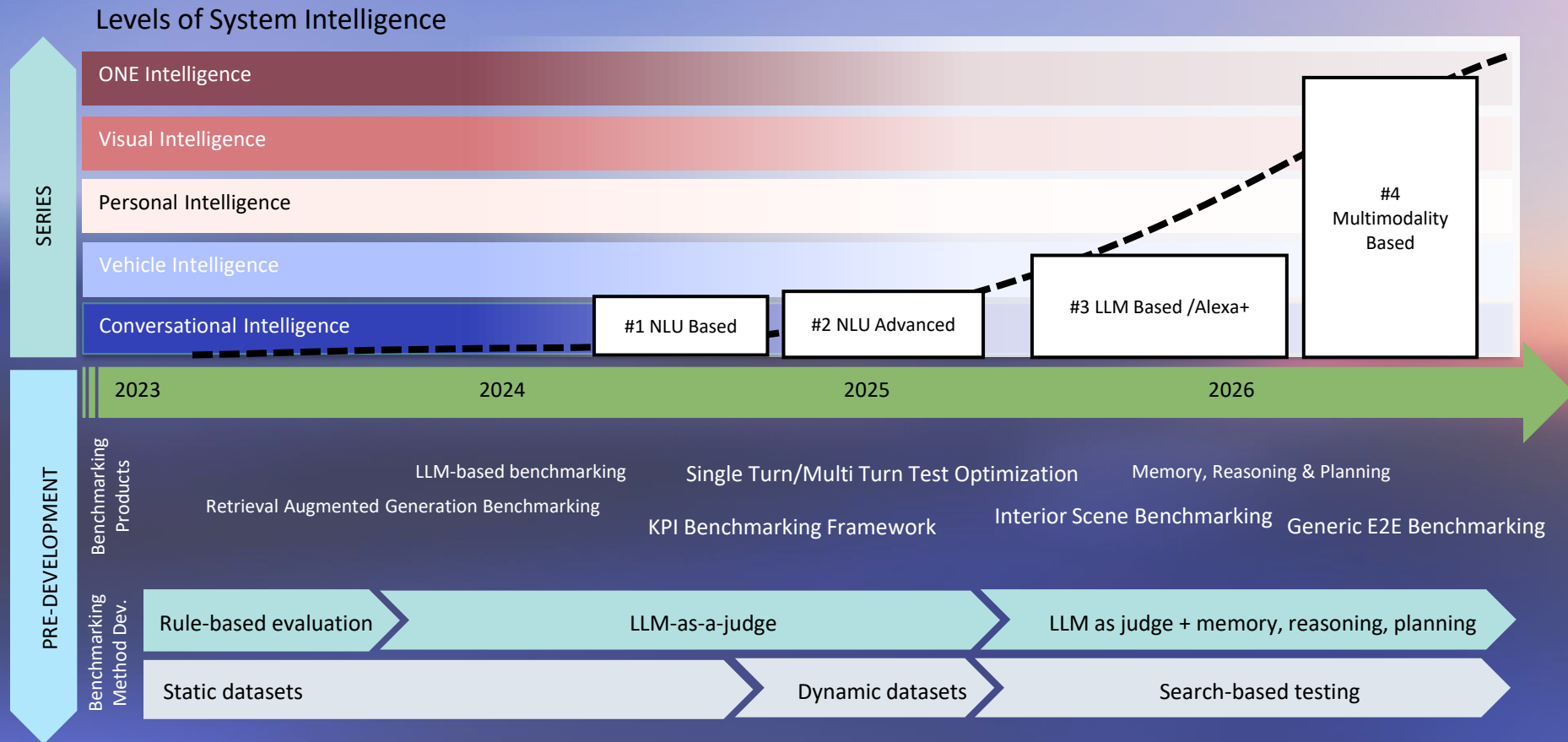
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GENAI KPI TESTING ROADMAP.



TESTING AI VIA VLM / LLM AS A JUDGE.



Physical AI Test Setup
for Automated
Feature Evaluation

Agentic AI Test
framework:
Car Bench—
comparing LLMs in
automotive
scenarios.

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SUMMARY.

- Intelligence is not simply the sum of isolated AI-powered features; it is measured by the natural, intuitive, anticipatory, and personalized customer experience they create.
- One Intelligence orchestrates capabilities across domains into one seamless experience..
- The Software-Defined Vehicle provides the foundation for continuously evolving vehicle capabilities.
- The AI-Defined Vehicle builds on this foundation by combining context, agents, and cross-domain intelligence.
- Intelligent vehicles require equally intelligent evaluation systems.

A lightbulb is shown in the process of shattering. The glass is cracked and fragmented, with numerous small pieces of glass floating in the air around it. The background is dark, and the scene is illuminated with a mix of red and blue light, creating a dramatic and somewhat chaotic atmosphere. The lightbulb's base is visible at the bottom, and the internal filament is partially visible through the broken glass.

Q & A



THANK YOU
FOR YOUR ATTENTION