AVSIMULATION

Innovate Simulate Accelerate

FLEXIBILITY AND OPENNESS AS KEY SUCCESS FACTOR FOR UX ASSESSMENT WITH SIMULATION

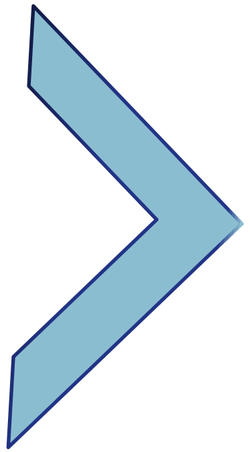
Thomas NGUYEN THAT – Chief Product and Strategy Officer

Agenda

- Challenges in automotive
- Why UX is at the fore front
- Challenges for UX Evaluation
- Simulation benefits for UX Evaluation
- Simulation Challenges
- How to solve them
- Conclusion

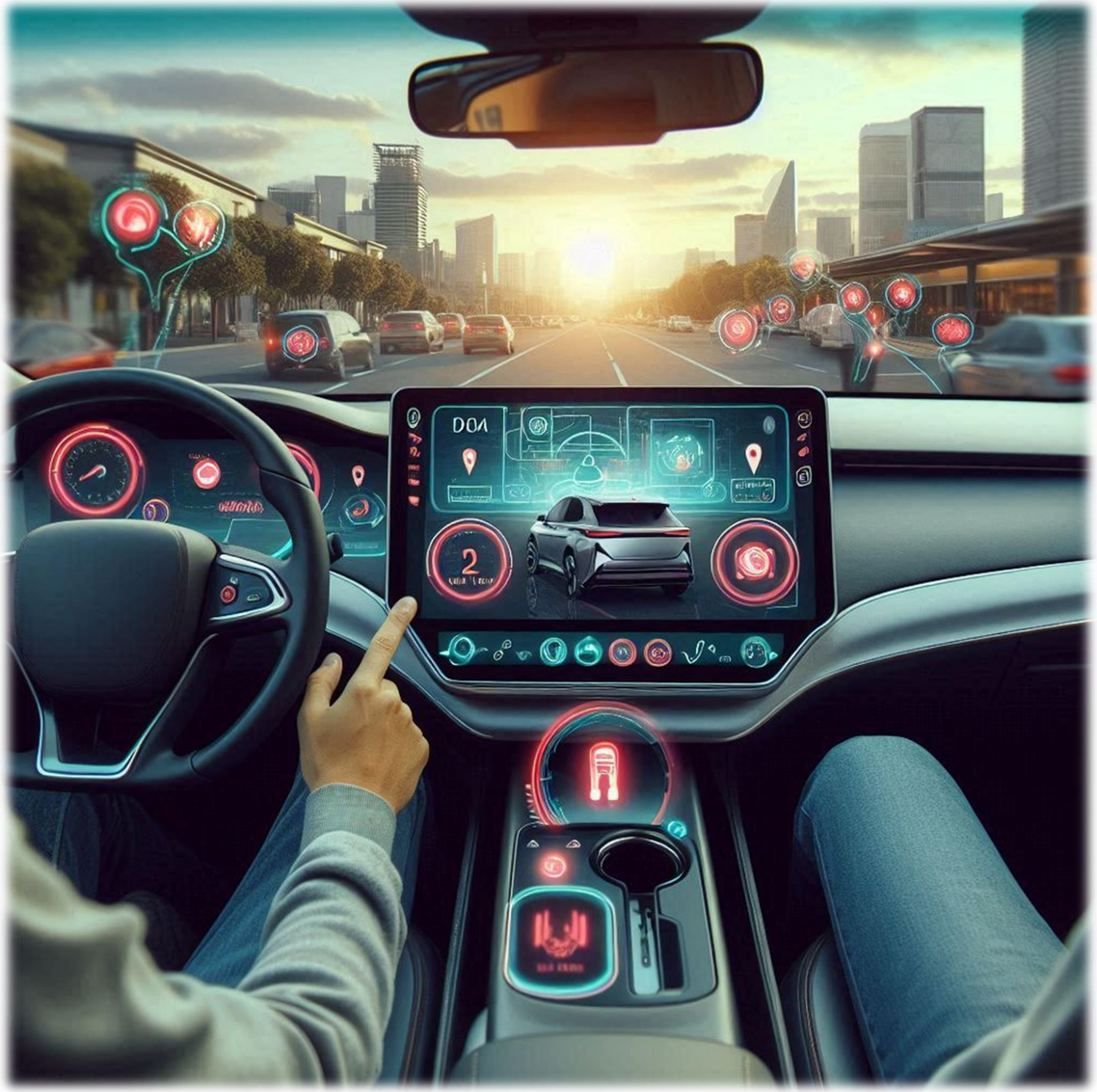
Automotive trends & Challenges

- **The Electric Revolution**
  - Range Anxiety
  - Cost and Affordability
- **The Autonomous Vehicle**
  - Safety Concerns
  - Technological Complexity
- **Connected Cars**
  - New services & Wider ecosystem
- **Ownership**
  - Changing Consumer Preferences:
  - Digital Disruption



Customer Experience

UX at the forefront



The Customer Experience

- Enjoyable and enriching experiences
- AD/ADAS monitoring and Safety concerns
- Personalized User profiles & Interactions
- Collaborative Navigation and Traffic Insights
- Seamless Digital Integration across devices
- AI based assistants

Challenges for UX evaluations

Complexity of systems

Safety & Compliance

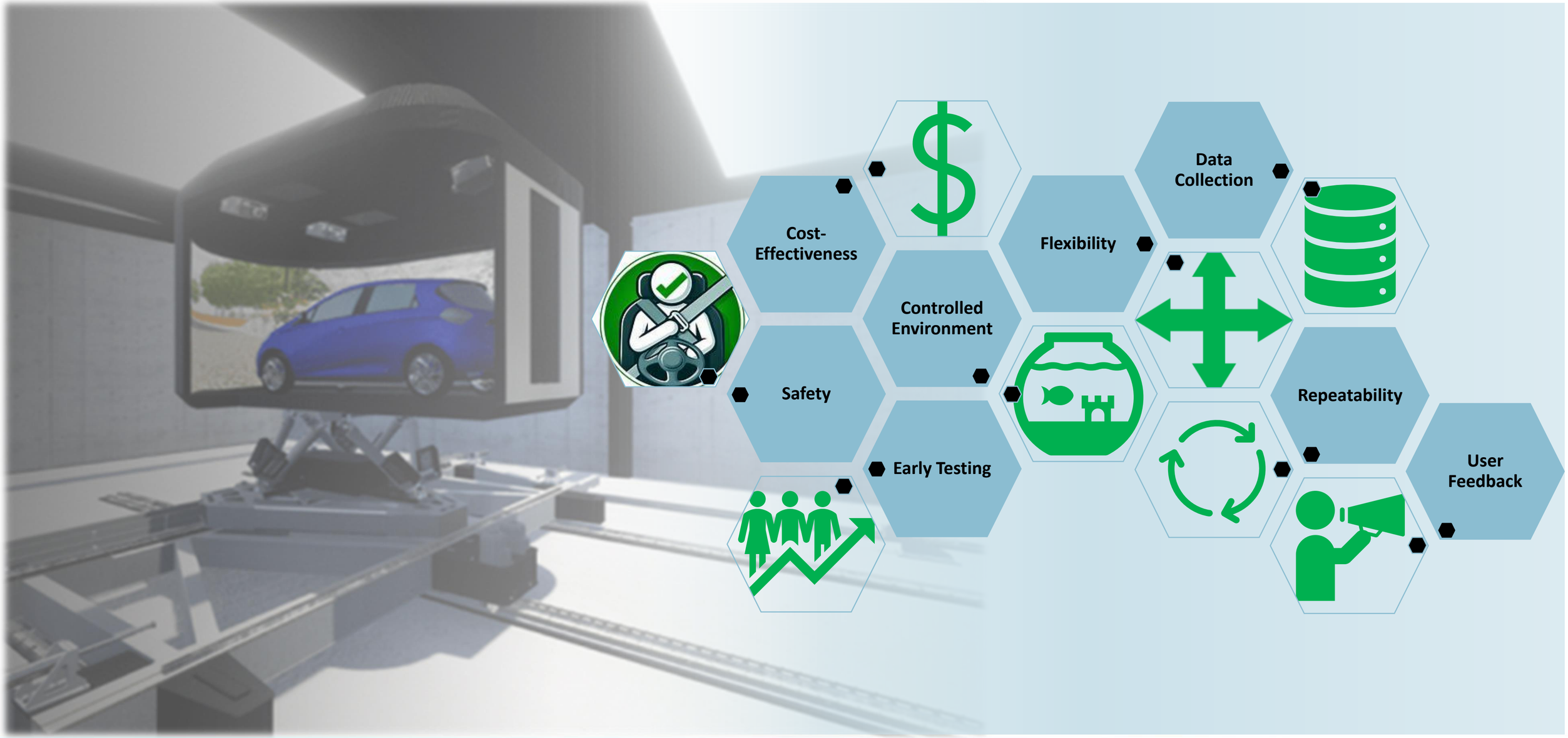
User Diversity

Testing & Validation complexity

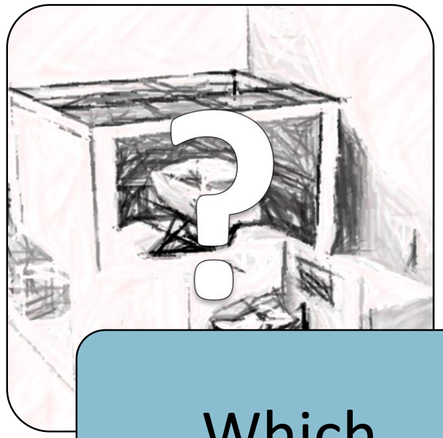
Multimodal Interaction

Rapid Technological Advancements

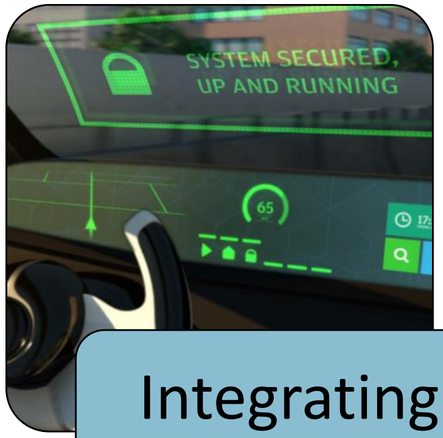
How Driving Simulation can help?



Driving Simulation challenges for UX

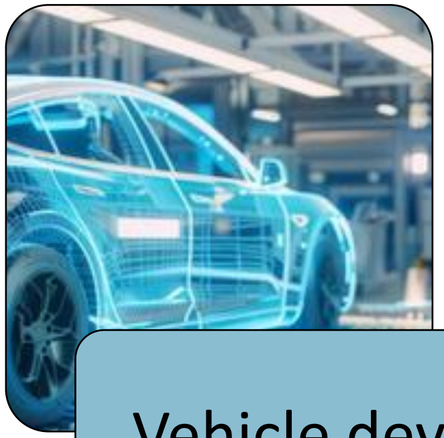


Which simulator?



Integrating or prototyping

Realistic scenes & Scenario

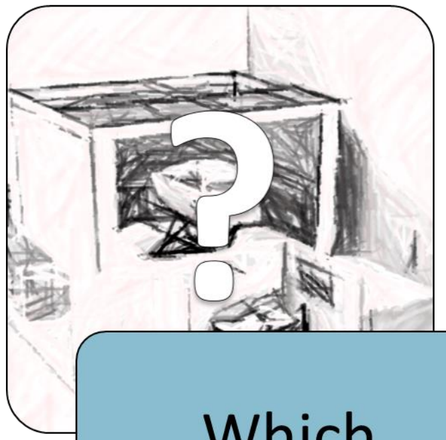


Vehicle dev Cycle

AVS Simulators

SCANeR
Powered by next

Driving Simulation challenges for UX



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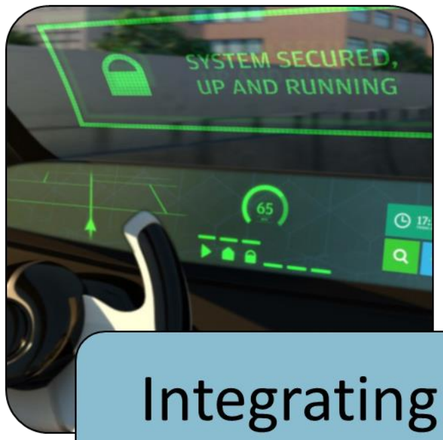

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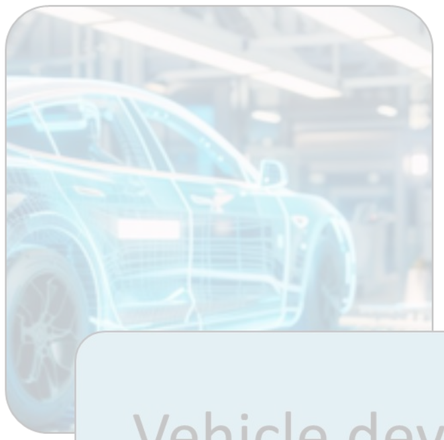


Vehicle dev Cycle

AVS Simulators

SCANeR
Powered by next

Product range

Investment

Performances

SimEASY

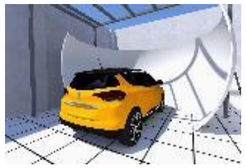
SimFLEX

SimFLEX 3DoF

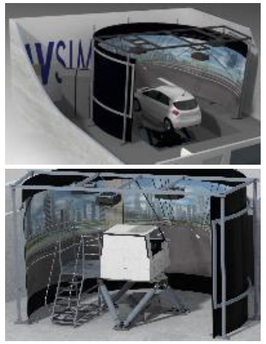
SimFLEX 6DoF

SimREAL

SimREAL for Headlights



SimDYN



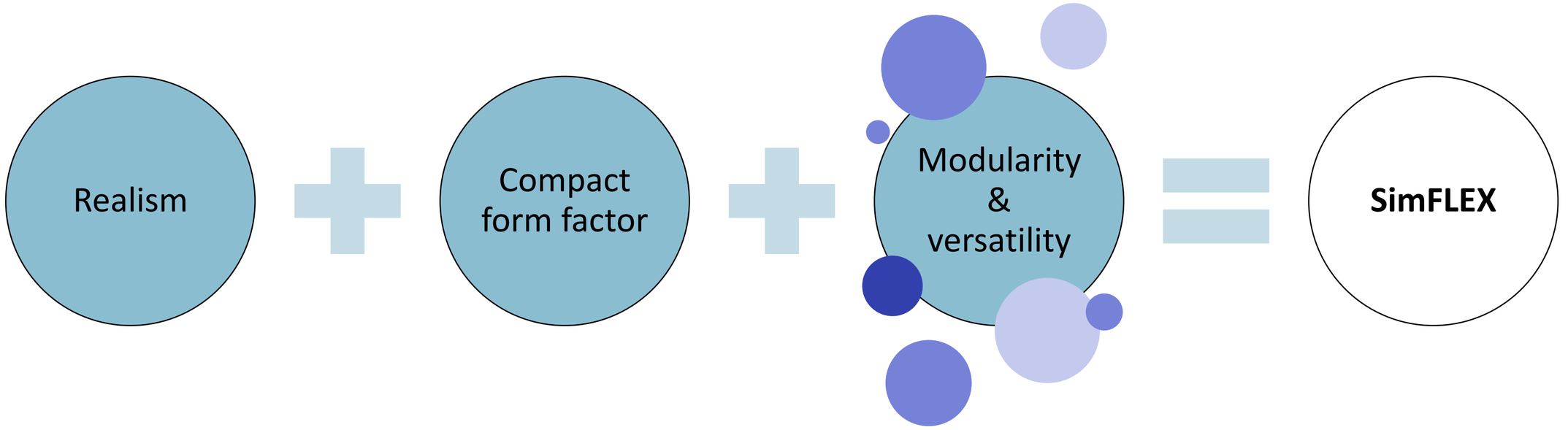
SimPULSE

SimCAVE

SimELITE

Empowering R&D

- **Key requirements for UX simulation**
  - Good immersion but no sickness
  - Realistic driving
  - Great flexibility to host prototype HMIs and trackers
  - Close to the engineers and researchers



SimFLEX driving experience

- **Driving experience**
  - Seating position and height
  - Wider and more advanced display
  - 5.1 sound
  - Quality of integration

- **Full steering column**
  - Real OEM parts
  - Steering lever and steering wheel buttons connected to SCANeR
  - Fully adjustable position (angle and depth)
  - Expert Force feedback system (peak torque: 10 N.m) sensodrive

- **New seat and seat belt**
- **AVSimulation pedal set as a standard**

SimFLEX: high flexibility

- Static / 3 DoF motion / 6 DoF motion
- RHD or LHD
- Several anchoring systems for additional equipment
- More customizable on board equipment

2024 model

Static

3 Dof Motion

6 Dof Motion

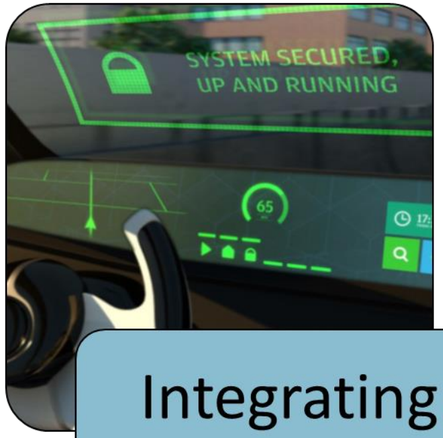
More ?

PC rack and 4 workstations

Supervision console

Driving Simulation challenges for UX

Which simulator?



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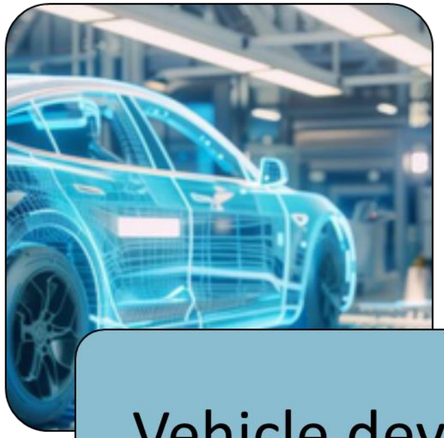
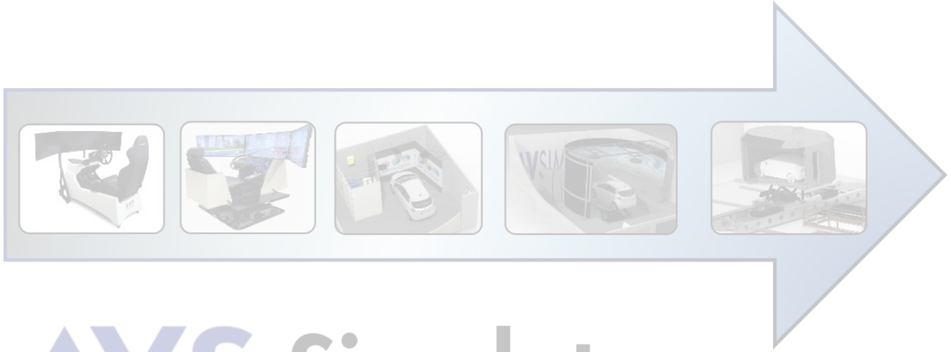


Vehicle dev Cycle



AVS Simulators

SCANeR
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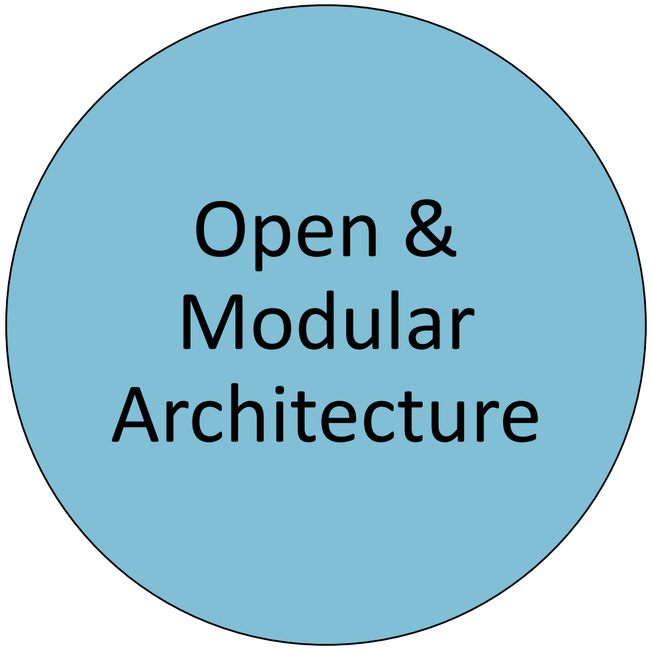
Our solution: SCANeR Powered by next



SCANeR™ ne><t

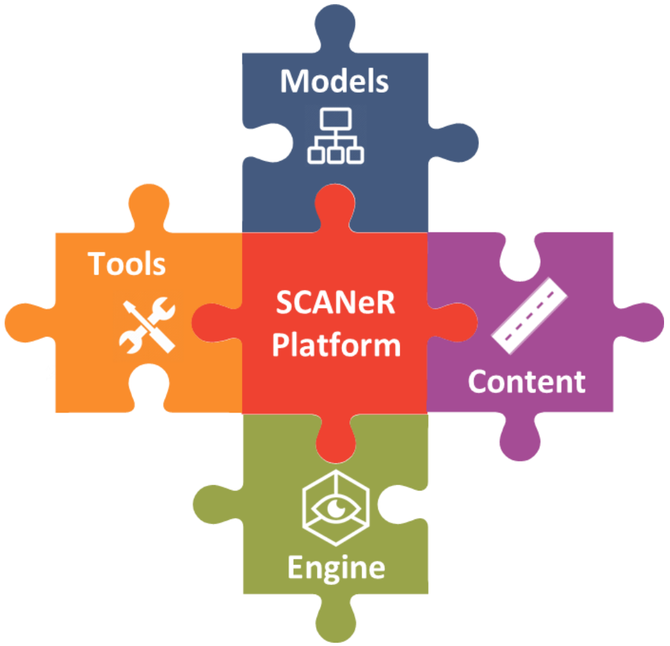
Adress
Simulation challenges

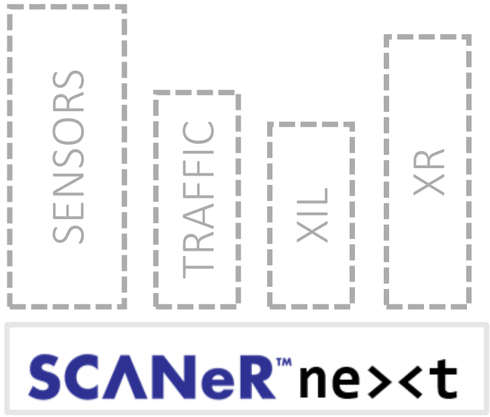
With a modern & modular
architecture

To build
The future

and Tackle
Automotive challenges

- Performances
- Usability
- Sharing
- Flexibility

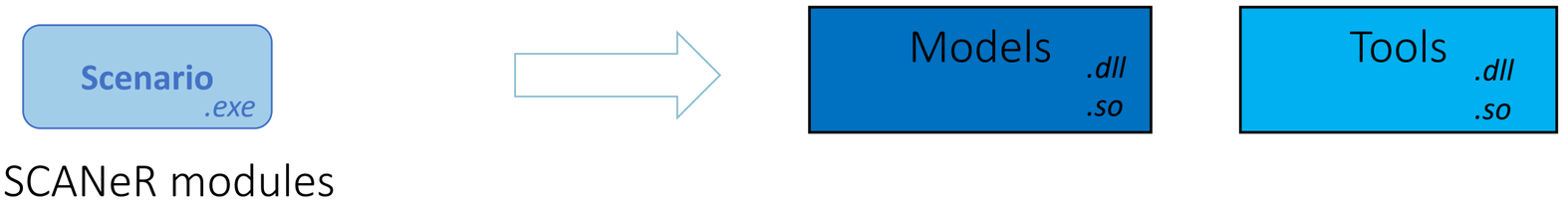




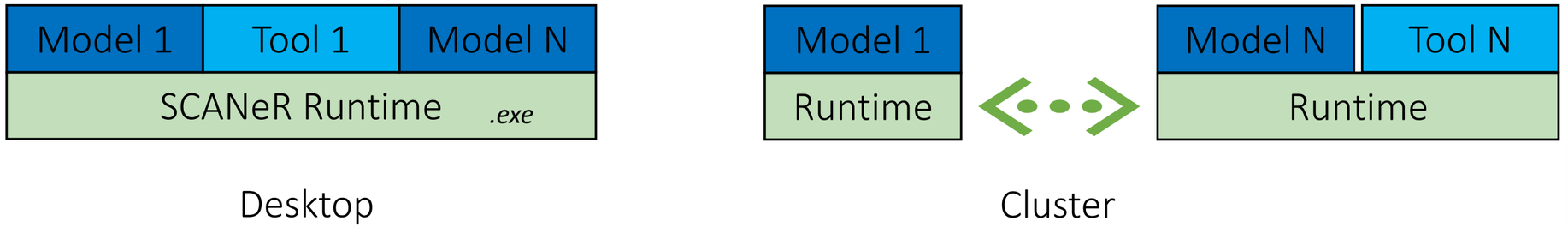
➔ Easy integration of Models

Flexibility: New architecture concepts

Models and Tools:



- SCANeR Runtime:

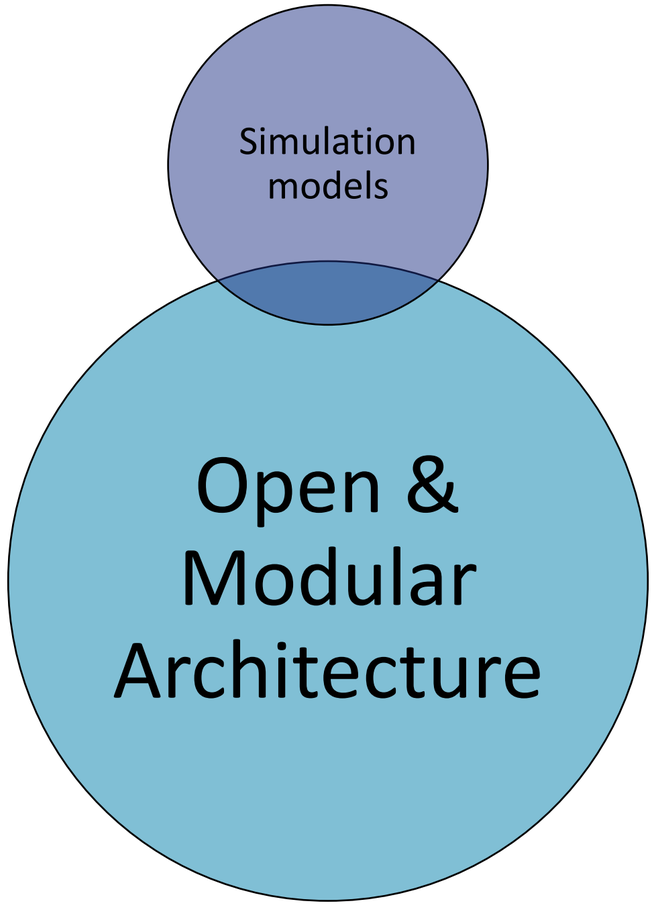


➔Network configuration is used only when needed
➔Limited process synchronization
➔Clear separation between Models and Runtime

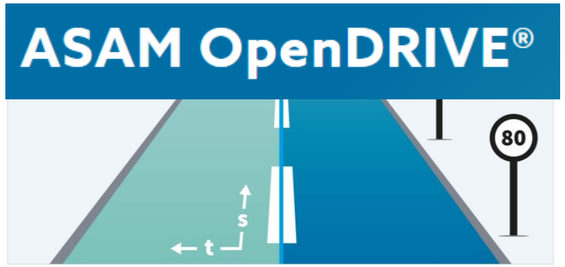
Improved performances

Better flexibility

Our solution: SCANeR Powered by next



Openess: standard support



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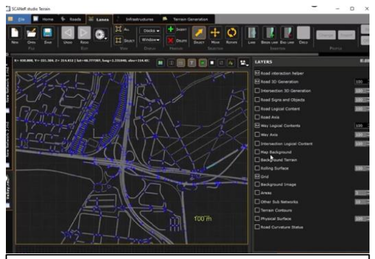
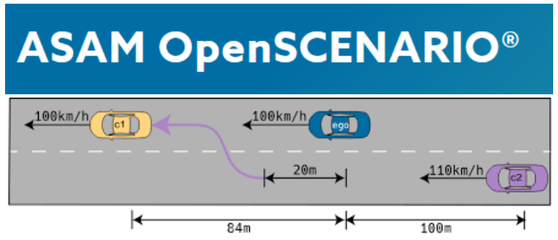


SCANeR Terrain

Export



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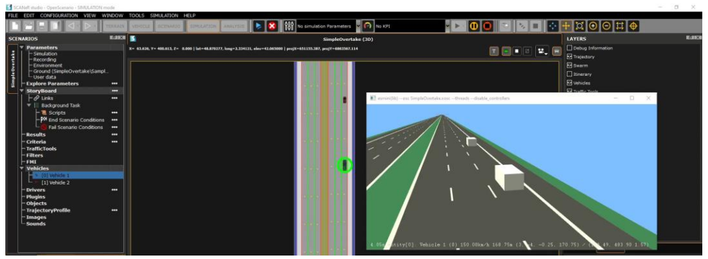


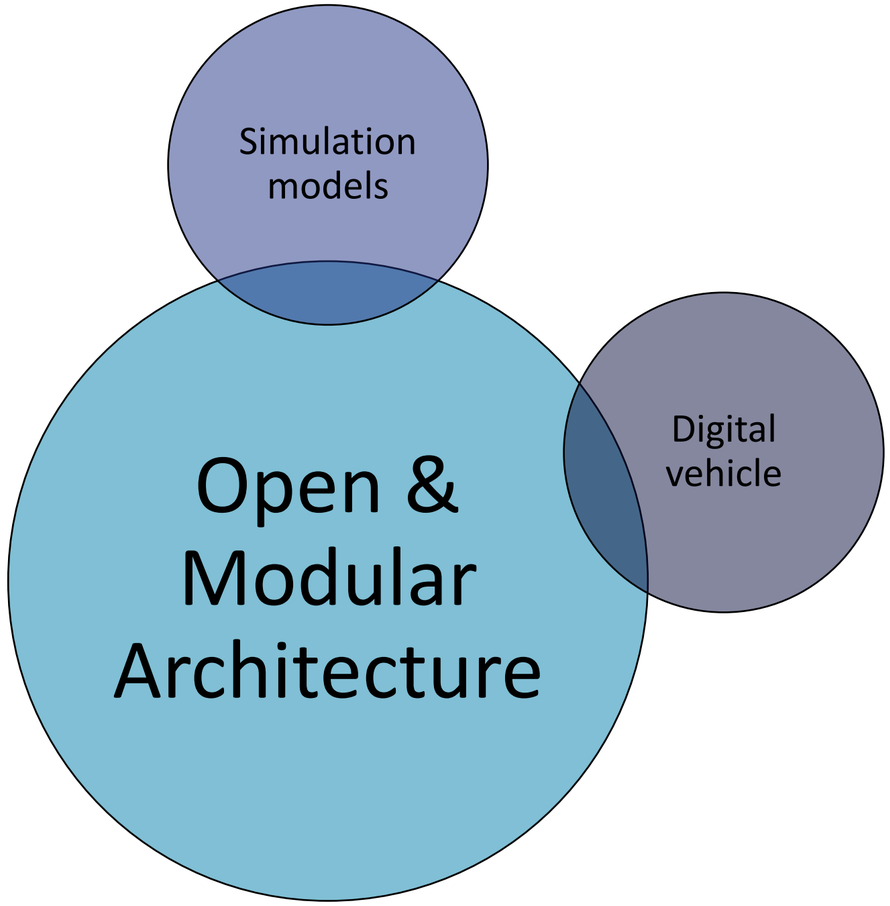
SCANeR Simulation

SCANeR Simulation

Sensor model

Traffic model

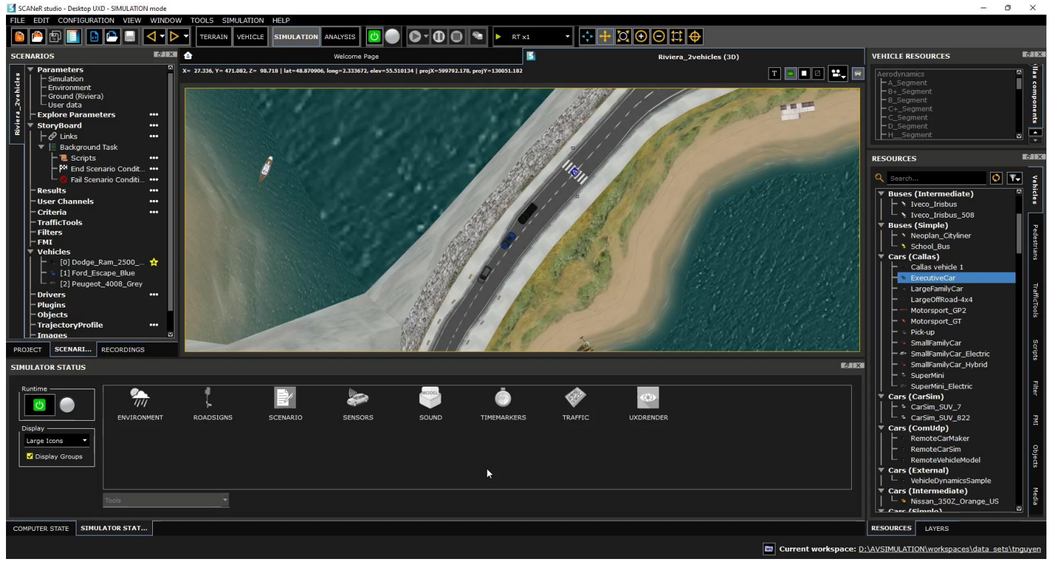
Our solution: SCANeR Powered by next

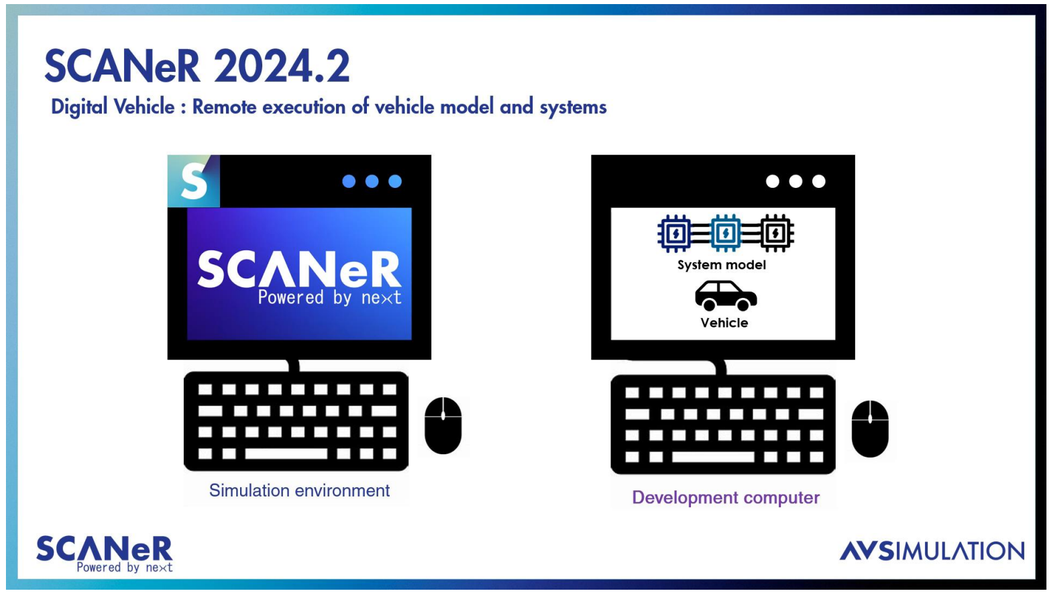


SCANeR Powered by next Digital vehicle Concept

- **All In One Edition**
  - Vehicle Dynamics
  - Sensor models
  - Systems
  - Communication
  - FMU I/O mapping

- **Flexible execution**
  - Incorporated
  - Cosimulation
  - RT Platforms





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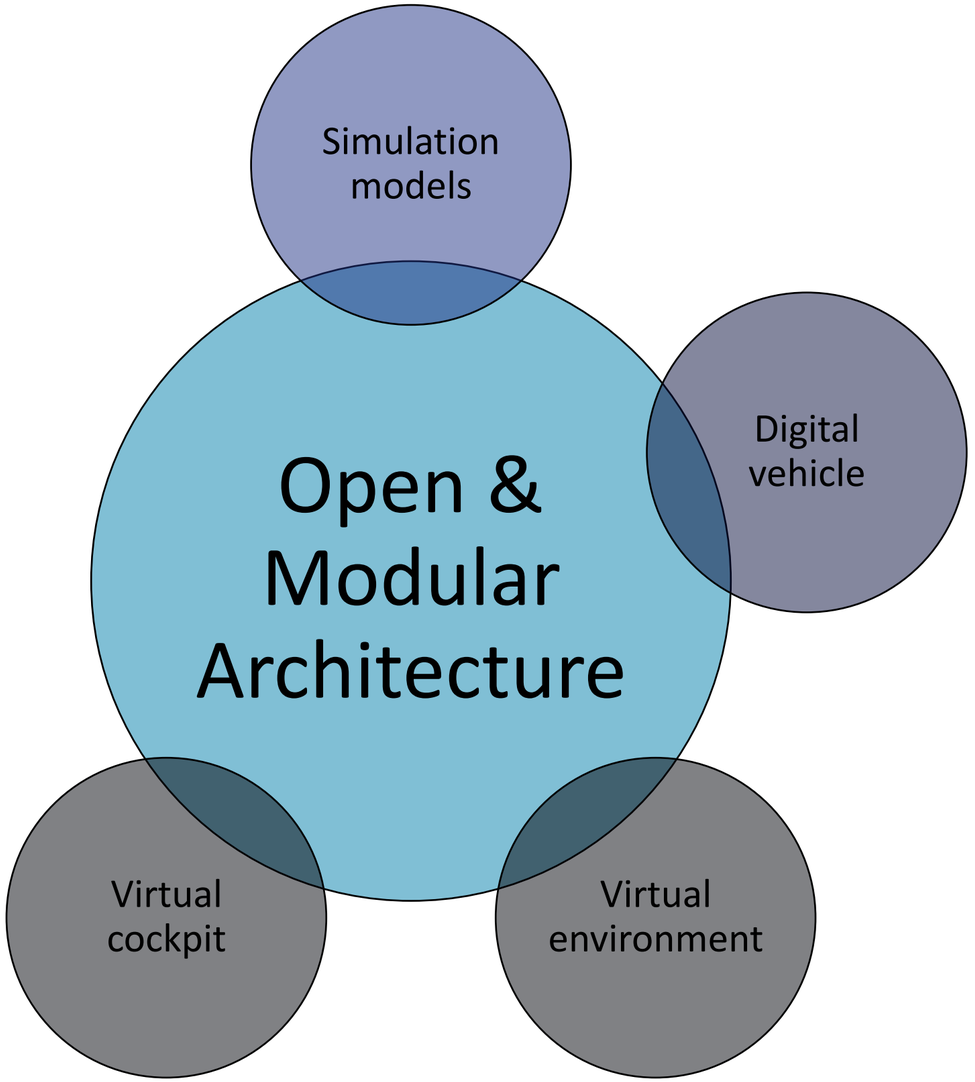


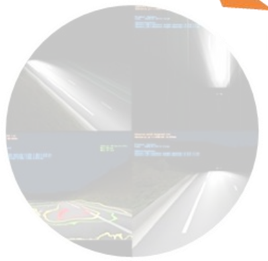
Simulators

Radar

Immersion

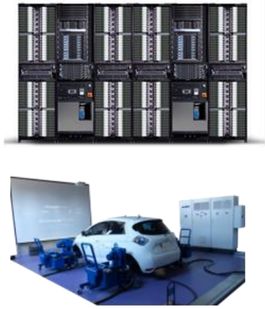
World modeling

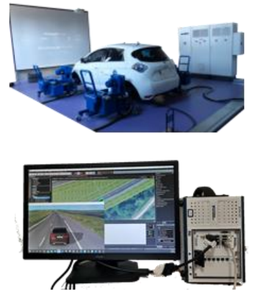
Lidar



Headlights

Camera





Virtual testing

SCANeR™ UXD

powered by UNREAL ENGINE

Virtual interactive experiences

- UXD engine is ready for XR experiences
- Compliant with SteamVR and OpenXR
- High versatility and compliance with headsets

Openess: Unreal & OpenXR

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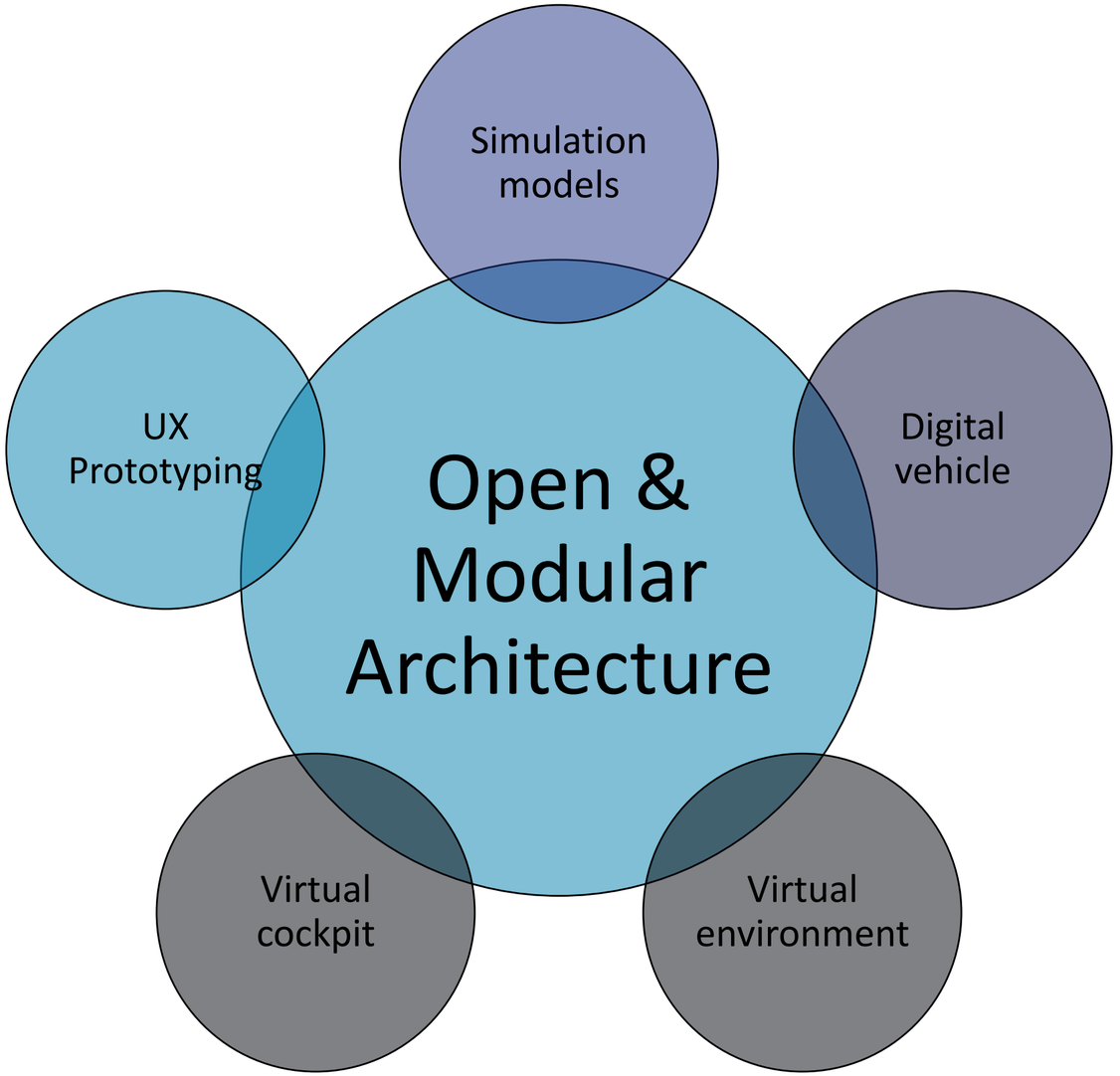
Our solution: SCANeR Powered by next + BOWL®



EPICNPOC Mission

EPICNPOC

supports Human-centered innovation

with **USER EXPERIENCE PROTOTYPING**

EPICPOC Offering

We create your digital prototypes from your intentions

Project services
UX Design
Software engineering

We rely on Our Fast-Prototyping solution

BOWL®

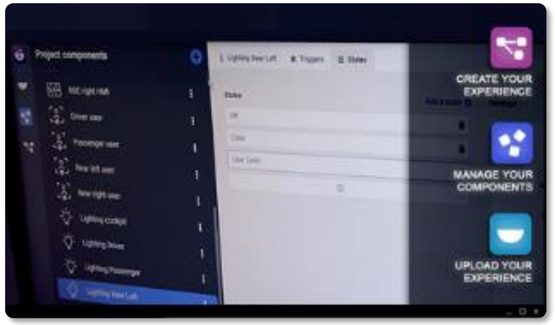
Multi partner/location integration platform:

- Auto-coding of GUI, APIs and connectors to standard tools
- Multimedia streaming framework
- Ready-to-use starter kits

BOWL® Connects your POC to your Virtual Experience

A single software to operate both Physical and Virtual products

BOWL® Software



Your Physical Product

replicate

Operate

Generate

Product embedded Software

Operate

Your Virtual Product

replicate

Faurecia – Dassault Systèmes- Accenture-Epicnpoc project CES 2022

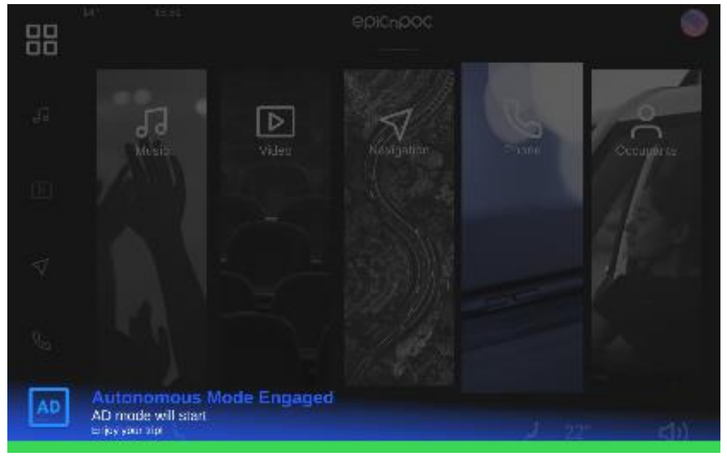
SCANeR & BOWL ®

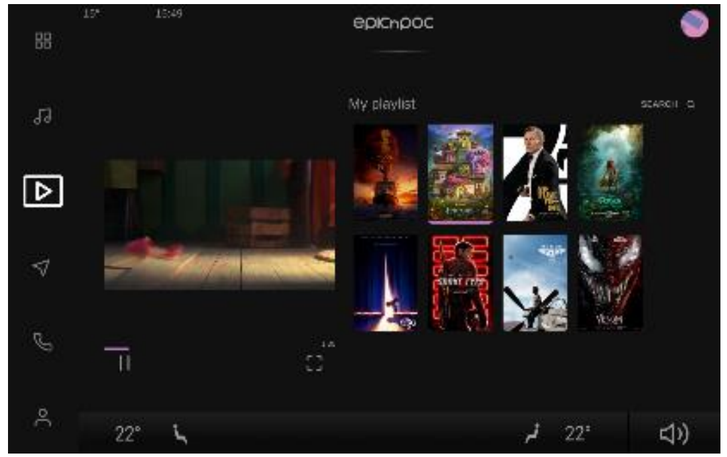
Pushing the boundaries of immersion and creating realistic simulation experiences

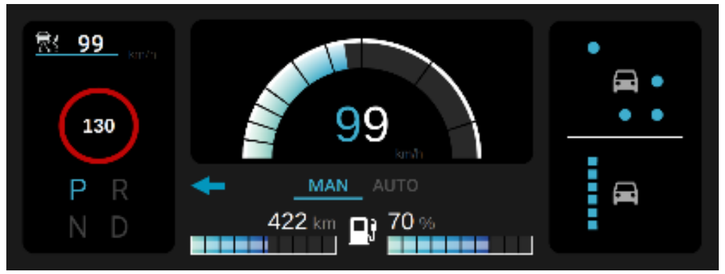
SCANeR – BOWL® Mixed Reality brings:

- Immersive Environments mixing virtual and real elements
- Natural Interaction with real-world objects:
  - Alerts for speeding, obstacles & lane keeping
  - Sound, Lighting, Cluster & Infotainment Visuals
- Functional Infotainment & Cluster systems
- Simulated vehicle functions (Driver Monitoring System, Climate control…)

Allowing to test, proof experience designs and validate user journeys







AVSIMULATION & epicnpoc

Mixed Reality platform for vehicle definition and validation

SCANeR™

Realistic driving simulation

- **Define** your vehicle behavior
- **Create and validate** scenarios
- **Test** your ADAS with virtual km

AVSIMULATION.COM

Develop your vehicle **safety critical functions and** your **cockpit features**

Experience & Validate your **life onboard** in **realistic driving conditions**

BOWL®

Life onboard prototyping

- **React** to the simulated situations
- Stunning **GUIs**
- **Full cockpit** features

EPICNPOC.COM

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