

Introduction to Vayavya Labs



D-Globalist Award
2025



Inspire Award 2025
Delivery Excellence in Tech Services



About Vayavya Labs

Corporate Snapshot

19 Years



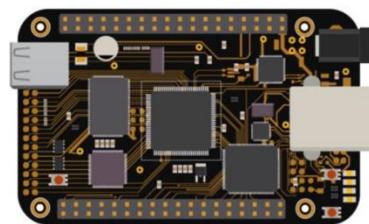
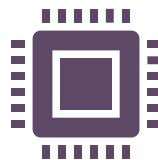
India
US
Japan
Europe



250 plus

Our Offerings

“Silicon to System” Engineering Solutions



Domain Practices at Vayavya Labs

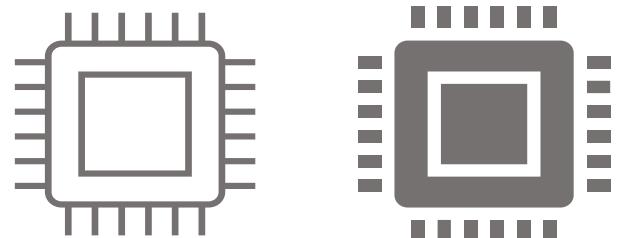
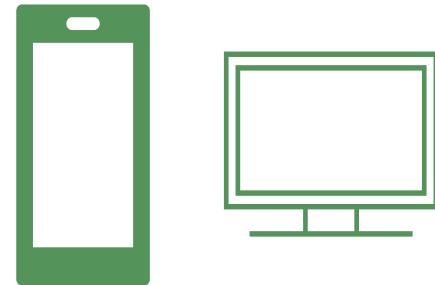
Automotive



Communications



Consumer Electronics



Semiconductor/ESL



Industry Standards Participation

Semiconductors



- Founding & Contributing Member of Portable Stimulus Specification (PSS) Work group
- HSI specification (used by DDGEN) is part of PSS 2.0
- Co-authors of the standard

Automotive



- Contributing Member of Open Scenario 2.x Work group
- Co-Authored the OSC 1.x to 2.x Migration guideline
- OSC 2.x will accelerate ADS Virtual V&V

SW. Defined Vehicle



- Cloud Native Software Development
- Develop on Digital Twin & Deploy on Cloud
- Automotive DevOps & DevSecOps
- Working on demonstrating a “use case” in partnership with ARM



Our Offerings



Solutions and Service Portfolio for Automotive

1

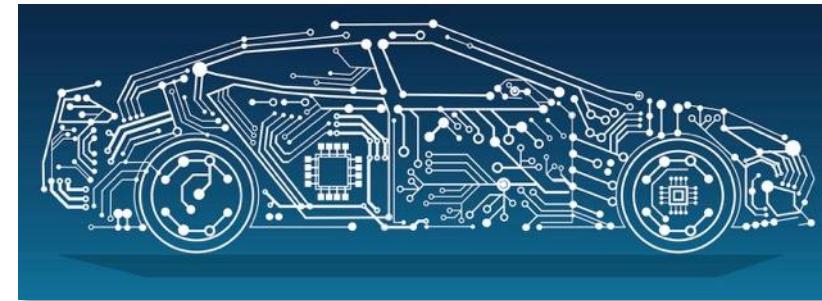
Embedded Systems and Software

- Design
- Development
- Integration
- Validation

2

Digital Twins & Simulation

- Virtual ECUs
- Integration of VECU in SDV flow



5

FuSa & Cybersecurity

- Design & Development
- Validation
- Consultancy

4

Connectivity models and Protocols

- Automotive Ethernet
- PCIe
- USB
- Wireless

3

AD / ADAS

- Scenario and model development
- Validation
- Integration
- Process set-up



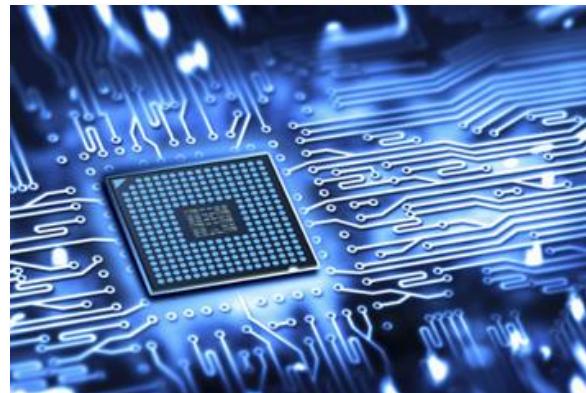
Solutions and Service Portfolio for Semiconductors, EDA, ESL

1

Embedded Systems and Software

- Pre-silicon / Bare metal software
- Platform Software (middleware, protocol stacks, OS porting and integration)

2



4

Connectivity models and Protocols

- PCIe
- USB
- Wireless

3

Digital Twins & Simulation

- Modelling & Virtual platform development
- Software Development and Integration for Virtual Platforms

PSS – Software Driven Verification

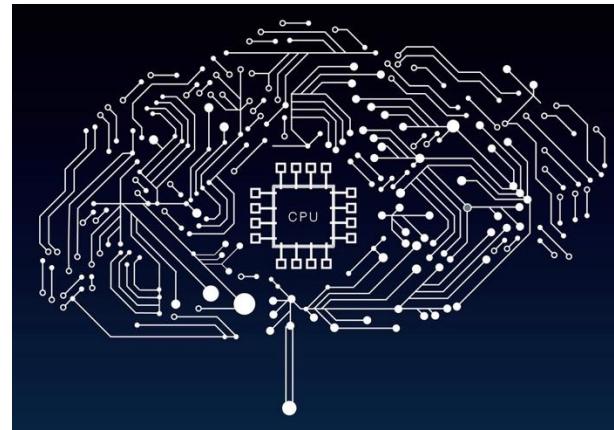
- Validation
- Integration
- Process set-up (emulation, co-simulation)



Solutions Portfolio based on GenAI / LLM

1 | VECU Copilot

- Code Generation
- Domain Specific - For VECU Code Development



4

PRISM (Plausible Reconstruction and Inference of Scenario Mechanics)

- LLM-powered reconstruction of accident scenarios from FARS accident database
- Supports OSC 1.x & OSC DSL

1

2

3

ChatDoc

- AI-Driven Information Extraction from complex structured/unstructured data repositories
- Provide actionable insights

Janus - Code Compliance

- Automatic Code Compliance Check against Industry Standards



Virtual ECU (Digital Twin) Offerings



Virtualizing communication and connectivity devices



End-2-End Virtual ECU Development – for both L3 and L4 levels



Integration of different models to deliver a complete Virtual ECU



Integration of multiple Virtual ECUs to deliver a Virtual Automobile

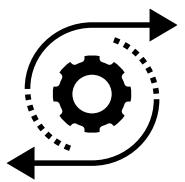


Complete S.W. Development & Integration

Bare metal/MCAL/OS Bringup
BSW
App Development
S.W. integration

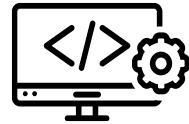


ISO 26262/FuSA Offerings



Process

- Item Definition
- HARA
- Safety Goals
- DIA(Development Interface Agreement)
- ASIL Classifications
- FMEA
- FTA
- ASPICE
- CMMI



Methods

- SW Development
- SW Verification MC/DC
- Range Check
- Control Flow Monitoring
- ASIL Decomposition
- Coding Guidelines Doc



Tools Selection & Qualification

- MISRA
- Compiler
- Auto code
- Testing Tool
- Verification

Expertise in supporting Software activities for the entire Product development Life Cycle



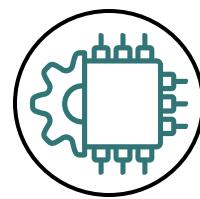
Compliance

- MISRA
- ASIL level
- Requirements
- Tools
- ASPICE/CMMI



Safety Team

- Overview Training
- ISO 26262 Certifications



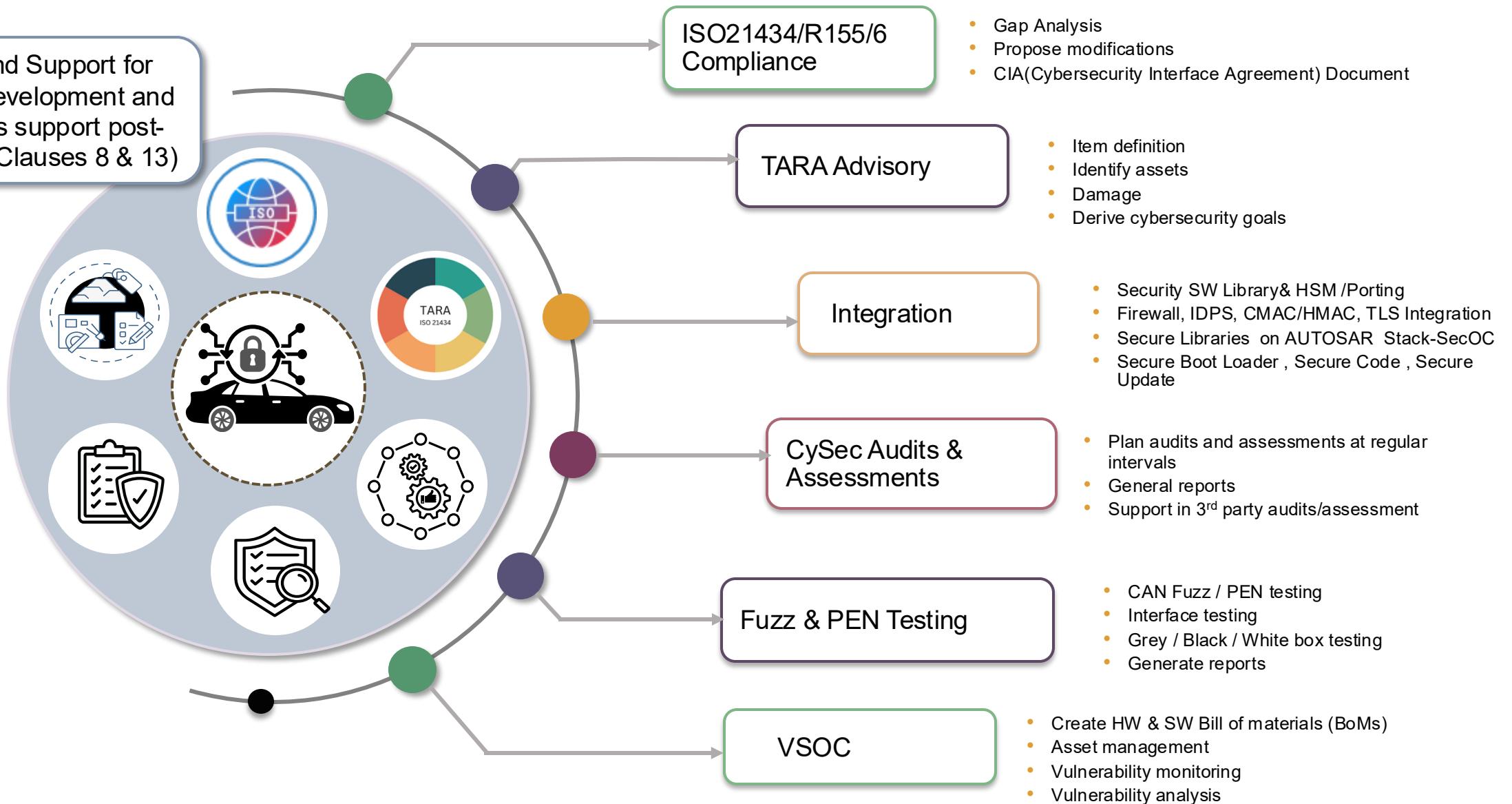
Components selection

- Microcontroller
- AUTOSAR SW
- HW components

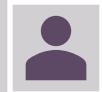


Cybersecurity Offerings

End-to-End Support for
V Model Development and
Continuous support post-
Production(Clauses 8 & 13)



ADAS and Autonomous Vehicle V&V Offerings



Scenario Development for ADAS/AD features (OSC 1.x, OSC 2.0, custom format)



NHTSA/NCAP-compliant Scenario Library Development for ADAS/AD features



Integration of Virtual Test Automation tools with simulators and scenario libraries



KPI generation for ADAS/AD features



End-to-End Coverage-Driven V&V for ADAS/AD functional and performance testing

Scenario creation
Test case development
Test execution (regression)
Metric collection and analysis

Thank You

www.vayavyalabs.com

