SHIELD
Automotive Cybersecurity
Centre Of Excellence

New Cyber Mobility landscape

- Vehicles are becoming increasingly more connected
  - The goal is to move to full connectivity
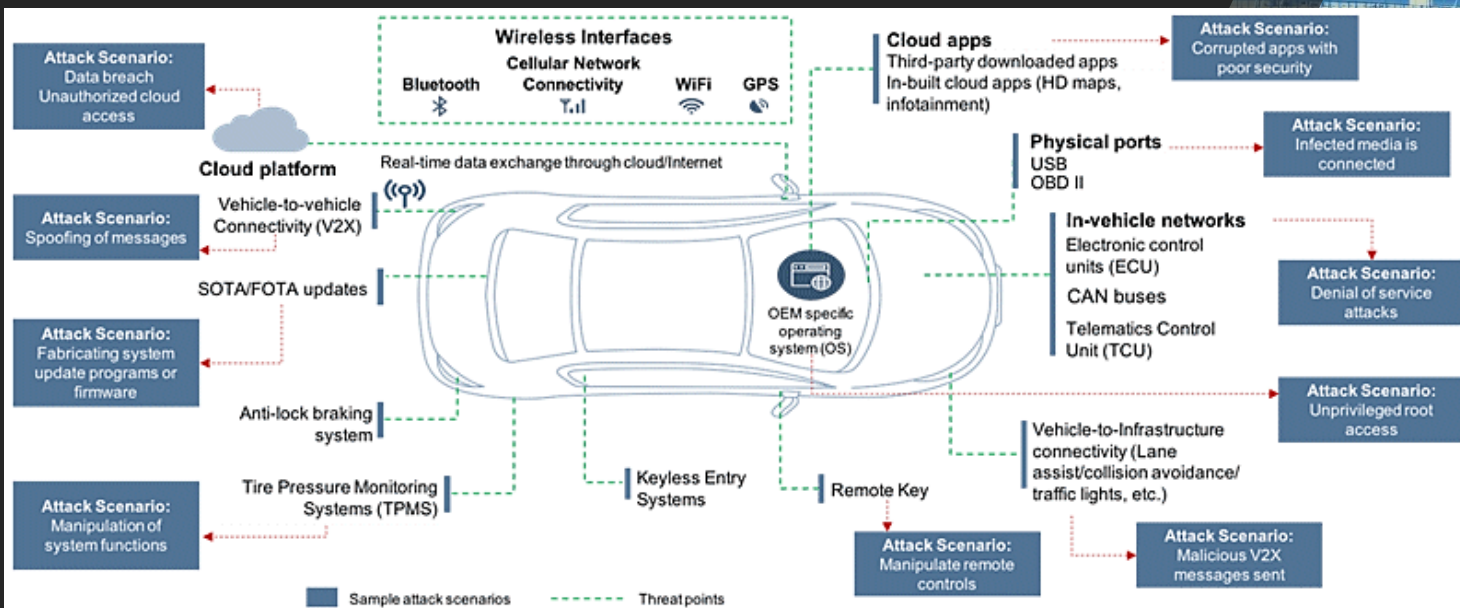 - Creating convenience, accessibility, and safety

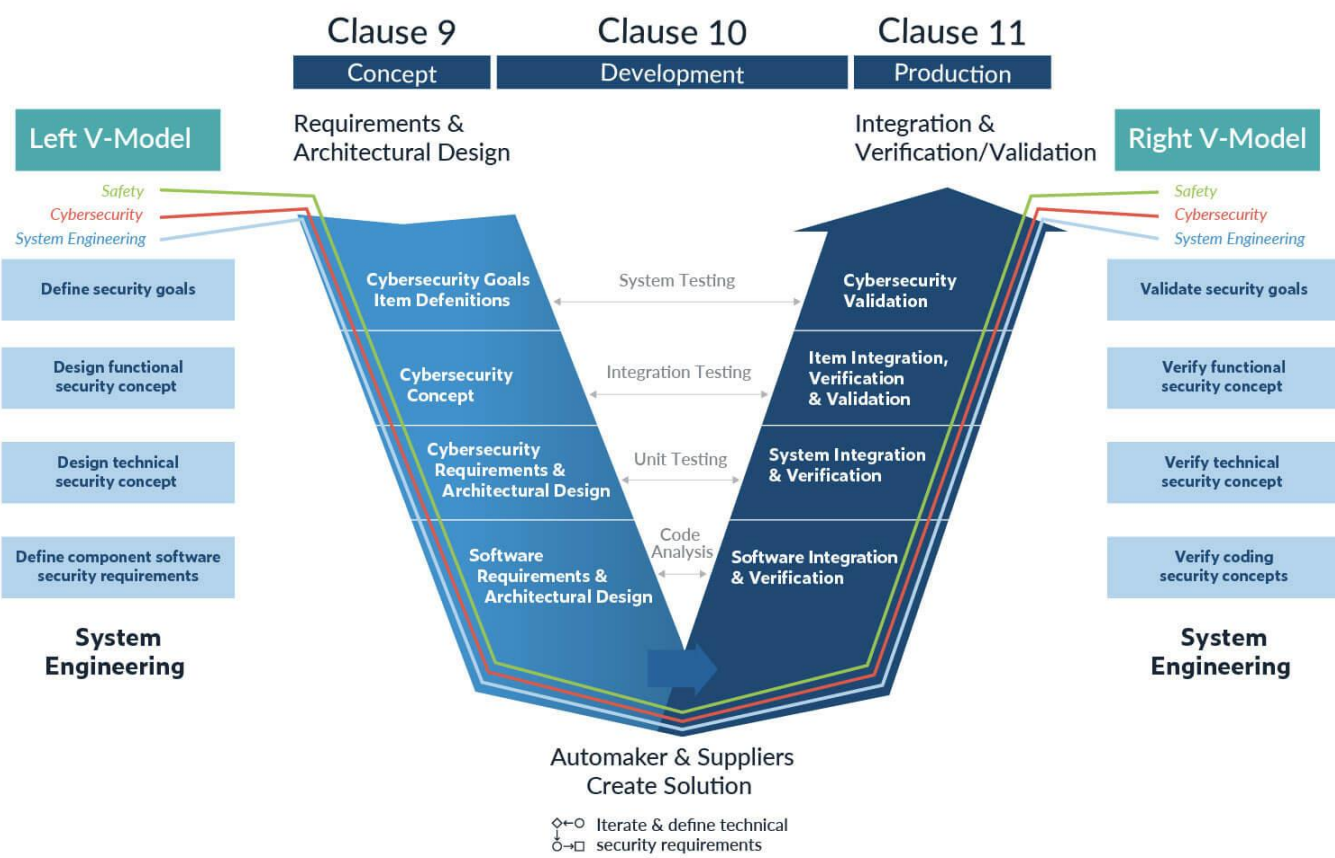Figure 1: Potential Intrusion and Cyberattack Scenarios in Connected Vehicles

Source: Frost & Sullivan

Global Standards

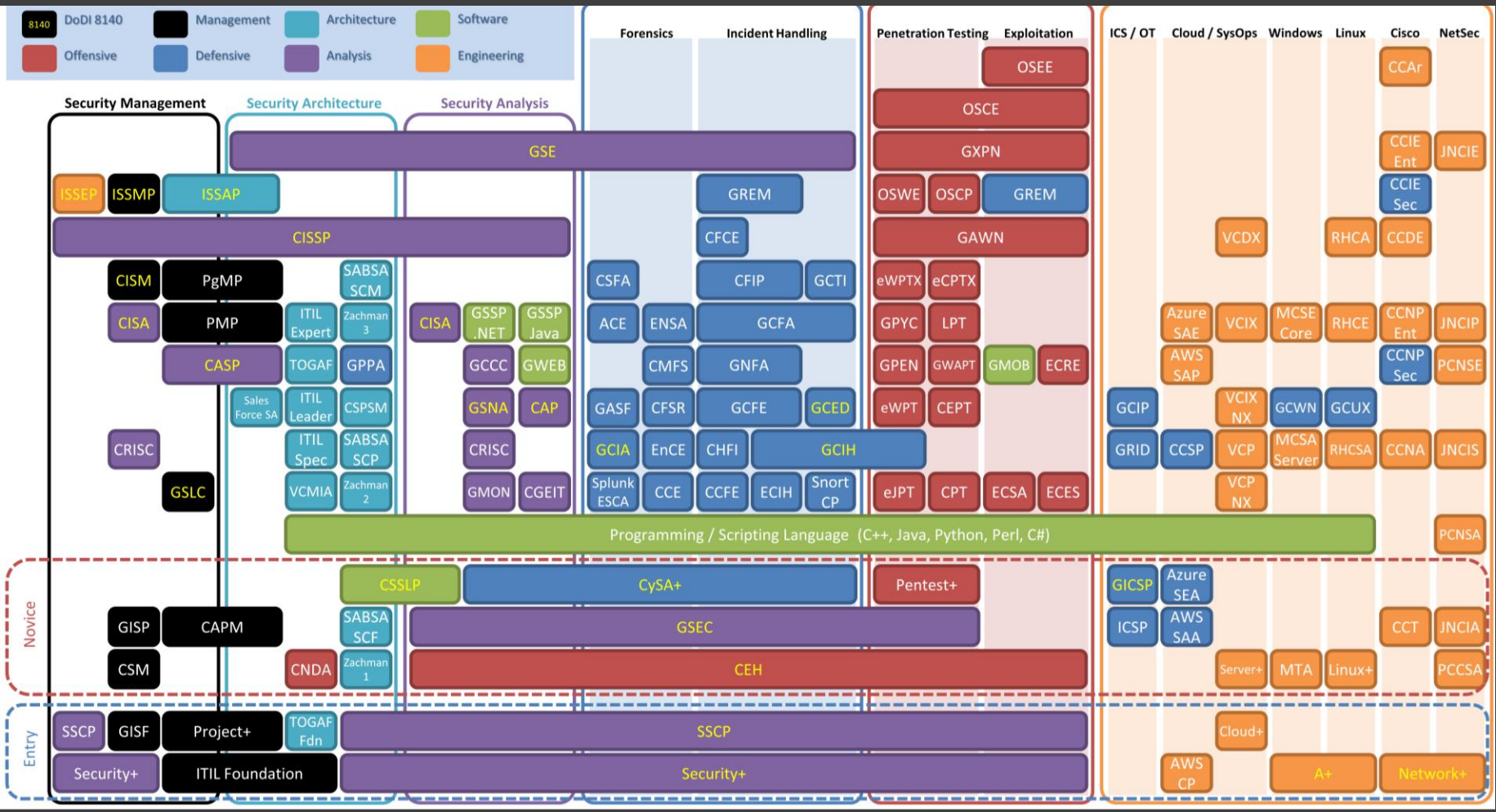The emergence of Automotive Cybersecurity Standards

- ISO 21434, Road Vehicles
- J28049, Software Updates
- SAE J3101, Hardware Protected Security
- SAE J 3061, Guidebook for Cyber-Physical Systems
- AUTOSAR, Secure-on-Board Communication

A study released by the International Information System Security Certification Consortium on Oct. 26, 2021, reported a talent shortfall of about 25,000 cybersecurity professionals in Canada, and a shortage of about 2.72 million workers globally

Cybersecurity Specialist

- Cyber specialists in this space require
  - A keen understanding of how cyber applies to the automotive industry
  - Understand corporate IT security solutions
  - Manufacturing
  - Robotics
  - Shop floor technologies
  - Furthermore, the industry requires talent who can communicate the risks to leaders in a way that will be understood and acted upon.

Pathway to Certificates

Pathway to Certificates

Universities are slow to adopt new curriculum

There is a need for the upskilling of the current workforce

There is a need for industry and academia to work together

Education & Training Programs

- Workforce Development Programs
  - Competency-based programs designed to meet the changing requirements of the automotive industry
  - Up-skill the talents, complement, and supplement the existing skills
  - Address skill gaps

- Micro-Credential Programs
  - Assessment-based programs specially to introduce beginners to automotive security
  - Introduce the vast opportunities and innovations of cybersecurity
  - Career path culture to help them break down the long-term goals and progress ahead

Barriers

KPMG and APMA survey revealed key barriers to cyber within the automotive industry

- <u>Lacking the right talent</u>

- Low visibility into key risks

- Lack of leadership support

Education & Training Programs

- An 'all hands on deck' national initiative is required
- Additional investments in cybersecurity initiatives in recent budgets are announced

- A collaborative and focused task force composed of academia, various sectors of automotive industry, and government is required