

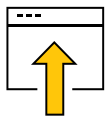
# HiveMQ Supports the **USCAR** **Roadmap**

The United States Council for Automotive Research LLC (USCAR) is an automotive technology consortium made up of major US automotive companies Ford, General Motors, and Stellantis. Established to advance automotive technologies, USCAR is developing a Roadmap for Automotive Manufacturing to standardize processes, enhance interoperability, and improve the efficiency of automotive manufacturing.

## Industrial Data Communication Standard: SAE/USCAR-53

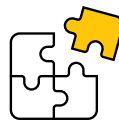
USCAR has developed an Industrial Data Communication Standard to address significant challenges in automotive manufacturing by promoting open protocols and reducing costs, thus facilitating seamless integration, enhancing system security, traceability, and operational efficiency.

### The challenges automotive manufacturers face include:



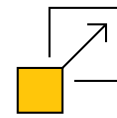
#### **Stovepipe Architectures**

Highly proprietary and closed systems developed over decades have led to a fragmented technology landscape.



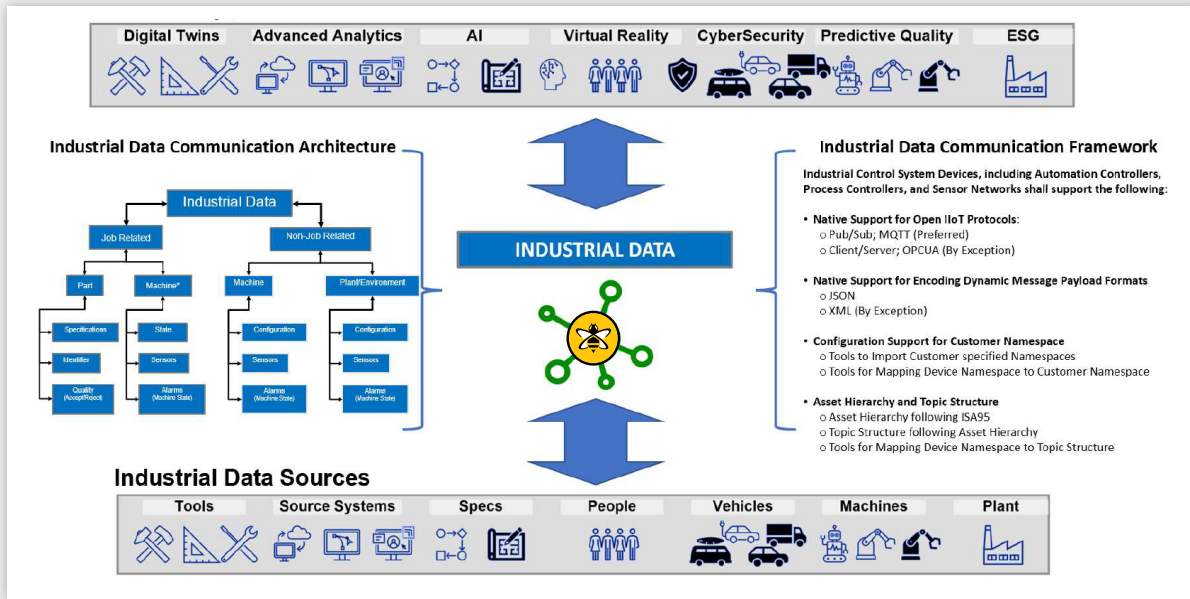
#### **Vendor Lock-in and No Interoperability**

The proprietary nature of existing systems prevents easy integration and flexibility in manufacturing processes.



#### **Data Silos and Scalability Issues**

Data trapped in factory-specific applications and proprietary protocols hinder advanced analytics and scalability.



SAE/USCAR-53 is a model for industrial data at scale, emphasizing the necessity of a comprehensive information model that includes standardized, machine-readable formats. This is where MQTT, supported by solutions like HiveMQ, becomes essential. Unlike traditional human-readable specifications that can lead to inconsistent implementations, MQTT offers a structured, programmable approach that enhances machine-to-machine communication.

## HiveMQ Platform For Automotive Manufacturing

The HiveMQ platform is uniquely positioned to address the challenges of data collection and movement in automotive manufacturing as outlined by the USCAR Roadmap. By providing a reliable, scalable, and secure data abstraction layer between Operational Technology (OT) and Information Technology (IT) systems based on the MQTT protocol, HiveMQ enables heterogeneous machines and processes to work together seamlessly, even in constrained environments. This integration is crucial for achieving the standardization goals set by USCAR.

### Key Benefits of the HiveMQ MQTT Platform in Supporting USCAR Initiatives:

#### Business Critical Reliability



The platform aligns with USCAR's emphasis on robust and dependable data communication standards, ensuring continuous production without disruptions.

#### End-to-End Security



HiveMQ guarantees that applications and data adhere to the highest security standards, supporting USCAR's goal of secure and traceable manufacturing processes.

#### Flexible Integration



HiveMQ streamlines the integration of OT and IT data with enterprise systems, aligning with USCAR's objectives to minimize developer overhead and enhance focus on core manufacturing innovations.

#### Simple-to-Deploy



The platform's ease of deployment on-premise or in the cloud supports USCAR's push for quick adaptability and reduced time-to-market in automotive technologies.

#### Scalability to Support Growth



HiveMQ's design supports millions of connected devices seamlessly, supporting USCAR's vision for scalable and flexible manufacturing solutions.

#### Observable Insights



Keeping automotive manufacturing systems operational and efficient is a priority - HiveMQ provides comprehensive tools and metrics for transparency and observability.