

AI on the Move: Trends Shaping Corporate Strategies in 2025



Edge AI, Agentic AI, and AI Robustness Are Transforming Industries

The artificial intelligence field is rapidly evolving, with new capabilities and use cases emerging on a daily basis. What was once considered a niche field is now transforming industries ranging from manufacturing and logistics to agriculture and energy. Within this fast-moving landscape, the automotive sector has become one of the most dynamic environments for AI innovation as it adopts and adapts AI technologies both inside the vehicle and across its operational and commercial ecosystem.

Given the breadth of the AI field, this report focuses on three particularly impactful trends that hold significant value for the automotive world, as well as for adjacent sectors: **Edge AI**, **Agentic AI** and **AI Robustness**

Edge AI refers to the growing trend of running AI models directly on devices at the “edge” of the network such as vehicles, sensors and industrial machines, rather than relying solely on centralized cloud servers. By processing data locally, Edge AI enables real-time decision-making, increases privacy and improves reliability in environments where continuous connectivity cannot be guaranteed.

Agentic AI represents a new generation of autonomous AI systems that can independently make decisions, set goals and take proactive actions based on changing circumstances. These systems can break down complex objectives into actionable steps, interact with other systems or AI agents and adapt in real-time. These capabilities unlock new possibilities for vehicle automation, fleet management and predictive operations.

AI Robustness addresses one of the most critical needs in deploying AI systems, the need to ensure that they perform reliably, safely and ethically across unpredictable conditions, varied data inputs and high-stakes environments. This is especially vital in industries like automotive, where AI-driven systems often carry direct implications for human safety and operational continuity.

While each of these three trends serves a distinct purpose, they are closely interconnected. **Agentic AI** systems will increasingly need **Edge AI** infrastructure to function effectively in real-time and in decentralized environments, while both will rely on **AI Robustness** frameworks to ensure safety, reliability and trustworthiness.

Together, these trends are shaping the next chapter of AI-driven innovation in automotive and beyond.

This report provides a concise overview of each trend, highlighting the opportunities and challenges they present, their significance for key stakeholders in the automotive industry and beyond and real-world examples from the field.

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Edge AI: Bringing Intelligence Closer to Action

➤ What is Edge AI and why is it important?

Edge AI refers to the deployment of AI models directly on devices at the "edge" of a network such as sensors, vehicles, robots and any other IOT devices.

In Edge AI devices, the AI processing happens locally on the device where data is generated, rather than relying on centralized cloud servers.

Edge AI provides several key advantages over cloud-based AI, which is especially valuable for certain applications:

Firstly, by processing data locally on the device, Edge AI significantly **reduces latency** (the time delay between when a system receives input data and when it produces a response or action) and enables faster responses and real-time decision-making. In addition, it allows devices with AI capabilities to operate reliably in environments with **limited or no internet connectivity**. Another important benefit is that Edge AI improves **data privacy and security** by keeping sensitive information on the device, avoiding the risks associated with transmitting data over networks. Additionally, Edge AI helps **lower bandwidth usage and cloud infrastructure costs** by minimizing the amount of data that needs to be sent to remote servers (though of course, it introduces other operational costs of its own).

➤ What are the building blocks of Edge AI solutions?

Edge AI solutions are built on several key building blocks that work together to enable AI processing at the edge of networks. Here is a breakdown for these blocks:

- ➔ **Edge Devices:** Physical devices such as drones, autonomous vehicles, smart cameras and industrial robots where AI processing happens locally. The edge devices collect data through embedded sensors and run AI models directly on the device without needing to send data to the cloud.
- ➔ **AI Models and Algorithms:** Machine learning and deep learning models specifically optimized to run efficiently on resource-constrained or unconnected edge devices, often using techniques like model compression or pruning (removing unnecessary components in AI models).
- ➔ **Edge AI Chips and Processors:** AI-optimized chips, processors and accelerators like NPUs (Neural Processing Units), TPUs (Tensor Processing Units) and AI-enhanced microcontrollers. These components are designed to deliver high performance with low power consumption and minimal latency.
- ➔ **Edge AI Software Frameworks:** Software frameworks which provide the tools and environments necessary to develop, deploy and manage AI models on edge devices. These frameworks support model optimization, hardware compatibility and real-time inference on edge platforms.

> What are the challenges?

Edge AI solutions face several technical and operational challenges in their mission to bring advanced AI capabilities to edge devices:

- **Limited computing power:** edge devices have less processing power, memory and energy capacity compared to cloud infrastructure. This makes it difficult to run complex AI models, especially in applications that demand real-time performance and reliability.
- **Model deployment & updates:** Deploying AI models across thousands of distributed edge devices and then managing updates, retraining or rollback securely and efficiently may be operationally complex. For comparison, cloud deployment including over the air optimization is easier to centralize and manage
- **High development costs:** the limited computing power and model optimization challenges lead to costs associated with designing custom AI chips, improving AI models, developing optimized software and maintaining scalable management tools. As a result, the key innovation challenge is to improve the efficiency of hardware or software in a way that remains cost-effective and practical for the edge devices.

> Where does it meet the industry?

Edge AI is gaining growing importance in the automotive and similar industries, as companies seek AI systems capable of making fast, real-time decisions directly within the edge device:

- **OEMs** rely on Edge AI solutions to power real-time decision-making in safety-critical systems like autonomous driving, ADAS and in-cabin monitoring, as they look to lower the latency and dependency on constant connectivity.
- **Tier 1 suppliers** are integrating Edge AI into cameras, LiDARs, ECUs and telematics systems, which allow them to offer advanced capabilities like object detection, driver state monitoring and predictive maintenance at the edge.
- **Fleet owners** can leverage Edge AI to enable predictive diagnostics, driver behavior analytics, route optimization and real-time alerts and by that improve their operational efficiency and reduce downtime without depending on cloud-based processing.
- **Mobility operators** can use Edge AI to manage vehicle availability, safety features, passenger services and real-time fleet coordination, and by that improve their responsiveness and ensure more reliable performance in dynamic or bandwidth-limited environments.

Conclusion

Edge AI is emerging as a vital enabler for industries like automotive, where fast, reliable and secure AI-driven decisions are needed directly at the point of data generation. Thanks to its unique advantages, it is opening new opportunities for operational efficiency and real-time intelligence.

While challenges remain, this is the right moment for key stakeholders to explore where Edge AI can deliver value and strengthen their capabilities and launch innovative and high-impact initiatives. Those who act early will be positioned to lead the next generation of smart and connected systems.

Spotlight On The Industry



> General Motors & Nvidia

- This year, General Motors and Nvidia announced an expanded partnership focused on integrating advanced Edge AI technologies across GM's vehicle lineup and manufacturing operations.
- As part of the collaboration, GM will adopt Nvidia's solution designed for development of autonomous vehicles to its next-generation vehicles. This Edge AI system will enable real-time processing of data from cameras, LiDARs and radars, and support advanced driver assistance systems and future autonomous driving capabilities
- Beyond the vehicle, GM will implement Nvidia's Edge AI platforms to create real-time digital twins of its factories and optimize robotics operations. By running AI models locally on factory floor systems, GM aims to improve production efficiency, reduce downtime and enhance operational flexibility.

Drive TLV & Edge AI



> Hailo (FastLane 1)

- Hailo is a chip company that designs AI processors and accelerators, which enable high-performance deep learning applications on edge devices across sectors such as automotive, security, retail and industrial environments.
- In 2024, already holding unicorn status, the company secured an additional \$120 million in funding, bringing its total raised capital to over \$340 million. According to Hailo, the new funds were raised to support its expansion into developing generative AI accelerators for edge devices and to position itself as a leader in this field.
- In recent years, Hailo has broadened its business by launching new Edge AI processors and accelerators while forming partnerships with companies across a range of industries, including the automotive sector.
- One notable automotive collaboration is with iMotion, a Chinese automotive technology supplier, to deliver solutions for autonomous driving, parking and other related applications.

Agentic AI: The Next Leap in AI Capabilities

> What is Agentic AI and why is it important?

Agentic AI refers to AI systems designed to act as autonomous agents, capable of making decisions, setting goals and taking actions independently to achieve those goals within a given environment. Unlike traditional AI tools that passively execute tasks when prompted, Agentic AI systems can proactively plan, reason and adapt based on changing circumstances or new information. In addition, these AI agents can break down complex objectives into sub-tasks, interact with other systems and learn from feedback.

Agentic AI represents a significant shift from AI as a passive tool to AI as an active problem-solver that can manage complex and dynamic tasks with minimal human intervention. This capability is crucial for tackling challenges in various areas where decisions need to be made in real-time and across interconnected systems. By autonomously setting goals, adapting to new information and coordinating with other agents or humans, Agentic AI can improve efficiency, unlock new types of services and allow the use of more scalable, responsive and intelligent systems.

> What are the building blocks of the Agentic AI solutions?

The Agentic AI industry is built on four main layers:

- **Foundational Layer – AI infrastructure:** The base layer for AI agents which include computing infrastructure, cloud platforms, accelerators, data sources, knowledge bases and foundation models for reasoning, language, vision and multimodal tasks.
- **Cognitive Layer – decision-making & planning models:** This layer equips AI agents with decision-making, task planning and goal decomposition abilities. It uses decision models and planning systems to help agents choose actions and manage increasingly complex tasks.
- **Agent Creation Layer – development & management platforms:** Tools and frameworks for designing, deploying and managing AI agents. These platforms handle agent design, decision frameworks, multi-step task planning, API integration, memory, and context management. These platforms enable developers to build agents across industries, often without deep AI expertise.
- **Control Layer – Agentic AI robustness:** Platforms that ensure trust, safety and reliable AI agent performance. These platforms provide security, alignment with goals, operational compliance and tools to minimize errors, promote reliability and defend against misuse of the agents.

> What are the key trends of the market?

Key trends shaping the Agentic AI market include:

- **Multi-Agent Systems:** Systems which are composed of multiple autonomous agents that interact, collaborate or even compete to achieve individual or shared goals. These agents can communicate and adapt to their environment, making them useful for solving complex problems across interconnected fields.

- **Domain-Specific Agentic Solutions:** Rather than general-purpose agents, many companies are developing AI agents tailored for specific industries by combining general reasoning with specialized tools for greater accuracy and efficiency.
- **Physical AI:** Extending AI agents into physical space by allowing devices, robots and machines to perceive, move and act autonomously in real-world environments.

> What are the challenges of the Agentic AI industry?

As Agentic AI evolves, it faces several challenges:

- **Scalability:** As the demand for agentic AI solutions grows, they require more powerful infrastructure and reliable coordination in complex multi-agent environments, which create significant technological and financial challenges.
- **Reliability:** Since the agentic AI based autonomous systems must align with human goals, values and safety standards, their “independence” raises concerns around AI alignment, ethics, explainability and accountability.
- **Security risks:** As AI agents become more connected and autonomous, they become more vulnerable to adversarial attacks, manipulation and misuse.
- These challenges grow even tougher for **Physical AI systems**, where real-world safety, operational risks and liability in case of harm demand stricter oversight and regulation.

> Where does it meet the industry?

Agentic AI is set to reshape the automotive industry by impacting the full value chain:

- **OEMs** can use AI agents in R&D for design and testing, on production lines to assist or replace human workers and in vehicles for tasks like voice assistants and autonomous driving.
- **Fleet owners** can benefit from using AI agents through smart dispatch agents, predictive maintenance and back-office automation. AI agents can also impact the operational side by optimizing routes, monitoring vehicle health and automate routine maintenance tasks like charging.
- **Mobility operators** can use AI agents for fleet management, real-time routing and in-vehicle copilots that enhance the passenger and driver experience in and outside of the vehicle.
- Beyond automotive, **logistics and manufacturing industries** can adopt agent-based systems for supply chain optimization, route management and smart and creation of automated production environments.

Conclusion

Agentic AI is quickly moving from concept to practice, with the potential to transform industries that rely on complex and real-time decision making. As these systems mature, businesses that act early to explore practical and high-impact applications will gain a meaningful advantage.

Organizations should identify where AI agents can enhance efficiency, improve services or unlock new business models. Those who lead today will shape the intelligent and autonomous systems of tomorrow.

Spotlight On The Industry

Today, the two most prominent uses of AI agents integrated into vehicles by OEMs are voice assistants and autonomous driving systems:

Voice assistants, representing a simpler application of Agentic AI capabilities, have been adopted in the past two years by manufacturers such as Mercedes-Benz, Volkswagen and Audi. These systems are typically based on models like ChatGPT, enabling drivers to control vehicle systems and receive relatively complex information using natural voice commands.

In contrast, autonomous driving systems represent the most advanced application of AI agents in the physical world, replacing human drivers with autonomous systems by taking the responsibility for performing either part of the driving tasks (ADAS to level 3 autonomous vehicles) or the entire driving process (Level 4 or 5 autonomous vehicles).

In addition, startup companies developing agentic solutions to address various challenges in the mobility industry have started attracting increased attention and significant funding in recent months.

For example, the U.S.-based Boon, which builds AI agents to help fleet operators optimize operations, planning and back office tasks, recently raised \$20 million.

Drive TLV & Agentic AI



Deontic (Fastlane 10)

- Deontic is developing a platform that enables the generation of scenarios for the verification and validation of ADAS and autonomous vehicles, in line with regulatory and technical requirements.
- Leveraging the power of large language models (LLMs) and Generative AI, Deontic's vision is to use AI agents that will efficiently process textual deployment requirements for autonomous vehicles, generate relevant scenarios for the verification and validation processes of self-driving system models and produce comprehensive test reports.
- According to the company, its platform can significantly reduce the development time and costs of self-driving systems and help accelerate the deployment of autonomous vehicles.

AI Robustness: Building Trustworthy AI Systems in Unpredictable Environments

> What is AI Robustness and why is it important?

AI Robustness refers to the ability of AI models to maintain reliability and validity throughout their operation and to ensure that they function correctly across different conditions, data variations and real-world applications. Robust AI models must remain consistent in their predictions, minimize bias, prevent unintended consequences and transition smoothly from training environments to real-world deployment.

As AI becomes deeply integrated into various industries, its reliability directly impacts safety, efficiency and business performance. While AI is known for streamlining processes and improving decision making, failures in AI applications can lead to serious risks and negative results. In other words, while AI applications offer substantial potential for creating competitive advantages for the organizations that adopt them, their failure can have the opposite effect and lead to significant harm.

> What are the existing solutions to ensure AI models work?

AI robustness solutions generally fall into two categories: **Data-centric** and **Model-centric**:

Data-centric solutions focus on improving the quality, diversity and accuracy of training data to better reflect real-world conditions. Key approaches include:

- **Data Annotation & Labeling:** Tagging raw data (images, text, audio or video) with accurate labels. This can be done manually or through automated and semi-automated tools that improve speed and precision.
- **Synthetic Data & Data Augmentation:** Generating new data samples or modifying existing ones to increase data diversity and help AI models generalize better, especially in edge cases.
- **Data Validation:** Detecting and correcting errors, inconsistencies and missing values of datasets to enhance model performance and reduce “noise”.

Model-centric solutions aim to strengthen the AI model's architecture, algorithms and training methods. These methods include:

- **Model Validation:** Assessing accuracy, generalization and robustness before deployment through techniques like cross-validation and stress testing of the model.
- **Model Monitoring:** Tracking performance, accuracy and data drift (a change in the statistical properties of the input data) after deployment with real-time alerts and retraining tools to maintain model's reliability.
- **Model Observability & Explainability:** Analyzing internal model behavior and making AI decisions transparent, interpretable and accountable to humans.



What are the challenges of AI Robustness solutions?

The field of AI robustness faces several technical and operational challenges:

- **Lack of standardized metrics:** There is no universal benchmark or agreed standard for measuring AI robustness across different domains. This makes it difficult to consistently evaluate and compare the resilience of AI models.
- **Adaptability to real world changes:** It can be difficult for systems that validate AI model or data robustness to cope with real-world changes because the environment is dynamic, unpredictable and filled with rare edge cases that often do not exist in training data or predefined test scenarios.
- **The robustness of AI robustness solutions:** Just as AI robustness systems monitor model accuracy or data quality, the more they rely on advanced AI models themselves, they too must be monitored to ensure they fulfill their purpose.



Where does it meet the industry?

AI robustness is critically important in the automotive industry, where AI systems operate in complex, unpredictable and safety-sensitive environments:

- **OEMs** that operate in the self-driving space must ensure that their autonomous driving and advanced driver-assistance systems perform reliably across edge cases, which is necessary for meeting safety standards and avoiding liability issues.
- **Fleet owners**, who increasingly rely on AI for various uses such as fleet management, driver monitoring and planning must ensure their models are robust and capable of reliably optimizing operations.
- **Mobility operators** that depend on AI for routing, passenger interaction and operations management need to maintain system reliability to protect customer trust and service credibility.
- **Manufacturers** that implement AI-powered systems should use AI robustness systems to guarantee that they perform reliably and to ensure product quality.

In short, AI robustness solutions are crucial both internally and externally as they ensure that AI systems reliably support internal processes while maintaining trust and credibility with external stakeholders such as customers, suppliers and regulators.

Conclusion

As AI adoption accelerates, ensuring robustness is no longer optional but a strategic necessity. Organizations integrating AI into critical systems must proactively invest in robustness frameworks, combining both data-centric and model-centric approaches. By embedding AI robustness practices throughout development and deployment, organizations can protect against risks, secure operational reliability and unlock AI's full potential without compromising safety and reputation

Now is the time for decision-makers to prioritize AI robustness as a core component of their AI strategy.

Spotlight On The Industry



> BMW

- BMW i Ventures, the corporate venture capital arm of the BMW Group, has led a \$10 million Series A funding round in Qualytics, a company specializing in automated data quality solutions.
- Qualytics leverages automation technologies, including anomaly detection and smart rule generation, to help organizations continuously monitor, manage and resolve data quality issues.
- According to BMW, this investment addresses the growing need for reliable and high-quality data to power AI and analytics initiatives.
- As BMW increasingly relies on big data and AI across areas such as engineering, manufacturing, customer experience and autonomous driving, the collaboration with Qualytics is expected to strengthen the robustness and reliability of its AI-driven systems.

Drive TLV & AI Robustness



> Foretellix (Fastlane 3)

- Foretellix provides a verification and validation platform for autonomous driving and ADAS and enables comprehensive testing and safety assurance of AI models across millions of simulated driving scenarios. Its technology helps identify edge cases, anomalies and model vulnerabilities, and by that enhancing the AI robustness of autonomous systems in sectors such as automotive, trucking and mining.
- To date, the company has raised approximately \$135 million through multiple funding rounds, supporting the accelerated development and expansion of its product portfolio.
- Over the past years, Foretellix has established partnerships with leading automotive manufacturers, including Geely and Mazda, as well as autonomous trucking company Torc Robotics, a Daimler Truck subsidiary, and Nuro, a provider of self-driving technology solutions.

Summary

This report presents a brief overview of three major trends shaping the broad and rapidly evolving world of artificial intelligence. Each of these trends holds significant implications for how corporations can and should adopt AI technologies. They touch on critical questions such as where to implement AI within the corporation's products and services, how to integrate it effectively and how to ensure it delivers real and reliable value aligned with business goals.

Of course, these trends represent only the tip of the iceberg.

As AI continues to reshape industries and redefine the rules of competition, corporations that recognize the urgency of embracing AI must stay vigilant. Keeping a close eye on emerging developments is not optional but a must as forward-thinking organizations need to continuously assess how these trends and others affect their strategic priorities and translate insights into concrete and future-ready action plans.

Here at Drive TLV, we will continue to closely follow developments in the fascinating world of AI, as we keep exploring innovative and relevant initiatives that can meaningfully impact the fields we operate in – and beyond.

Acknowledgements and Disclaimer

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This report was written by our Head of Research, Nadav Yetinson, as part of our ongoing research efforts. Our goal is to support our partners, startups, and ecosystem and provide them with knowledge, insights, and our view of the industry.

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