WHITEPAPER

# AUTOMATION IN INSPECTION AND MAINTENANCE

## A REVOLUTION FOR INDUSTRIAL DIVERSITY AND PRECISION

How cutting-edge technologies are redefining the future of inspection in workshops, industry, aviation and rail transport

MAHA

**WHITEPAPER**

**MAIA**
Automation in inspection and maintenance: a revolution for industrial diversity and precision
How cutting-edge technologies are redefining the future of inspection in workshops, industry, aviation and rail transport.

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# 1 INTRODUCTION: THE GROWING CHALLENGES ENCOUNTERED IN INSPECTION AND MAINTENANCE.

## The importance of inspection and maintenance – now and in the future

Technical equipment requires regular inspection and maintenance to ensure its functionality, precision and reliability in the long term. Wear, damage and necessary recalibrations make continuous inspection essential to avoid consequential damage caused by neglected maintenance work. Particularly in safety-critical areas, such as in vehicles, appropriate protection and safety systems protect not only the equipment itself, but also the occupants and surrounding environment. With the increasing proximity of man and machine, and the growing adoption of functions by assistance systems, technical systems are becoming more efficient, precise and available and, at the same time, the risk of accidents caused by human error is reducing. In parallel, the degree of autonomy of such systems is continuously on the rise, thereby also increasing the dependence on their functionality. In this context, preventive inspection and maintenance based on real-time data is becoming increasingly important and is progressively replacing conventional periodic maintenance.

## The challenges encountered in inspection and maintenance

In a time of profound change and rising technological demands, companies worldwide are facing increasingly complex challenges in inspection and maintenance. Whether in workshops, industry, aviation or rail transport – the demands for precision, efficiency and sustainability are continuously growing. At the same time, global trends such as climate change, the skills shortage and digital progress are increasing the pressure on companies to make their processes futureproof [1][2].

## The growing complexity of modern technologies

The technological complexity of vehicles, machines and systems is steadily increasing. Advances in electronics, software and systems integration have caused conventional testing methods to reach their limits [3][4]. Modern vehicles are equipped with highly sensitive sensors and software-controlled systems that require more precise diagnostic methods. The likes of UVeye and ProovStation rely on AI-supported systems to efficiently identify damage and anomalies [2][5]. It is essential to comply with legal requirements while simultaneously meeting customer expectations with respect to safety and functionality [6][7].

## Sustainability and the role of inspection

Climate change and the growing demand for sustainability are driving innovation in the inspection industry. Companies must work in a way that conserves resources, extend systems' service lives and reduce emissions. Automated inspection systems such as those from Michelin

Tyre IA or the Fraunhofer Institute for Machine Tools and Forming Technology (IWU) enable not only cost savings through precise diagnostics, but also contribute to reducing environmental impact [1][9][12]. So sustainable maintenance strategies are no longer optional, but rather a regulatory and economic necessity [10][11].

## Digitalisation and enhancing efficiency

Digitalisation is revolutionising inspection and maintenance processes. Networked systems such as the Twinner and ClearQuote platforms enable real-time analysis of large volumes of data and optimise workflows [14][15]. By using technologies such as Digital Twins, as developed by the Fraunhofer Institute for Production Systems and Design Technology (IPK) and iuna.ai, companies can minimise downtimes and achieve efficiency gains [16][17]. This opens up new possibilities for integrating inspection processes into digital infrastructures, improving both transparency and decision-making [13][18].

## Internal challenges: skills shortage and increasing demands

The skills shortage remains a key challenge. Highly qualified employees are often overworked, as they have to contend with both routine tasks and complex problem-solving [19]. Automated systems such as the solutions developed by Boston Dynamics or Innok Robotics relieve the strain on skilled workers by taking over standardised inspection tasks [10][20]. At the same time, specialised inspection systems can support employees in completing complex inspection tasks. This not only enhances efficiency; it also boosts the accuracy of inspection processes.

## Regulatory pressure and customer expectations

Stricter legal regulations and increased customer expectations are putting additional pressure on companies. Regulatory authorities are demanding detailed inspection reports and standardised procedures, while customers are insisting on transparency and precision. Technologies such as those from DeGould and Hennecke Fleet meet these requirements by using AI-based inspection solutions [22][23].

## Cost and competitive pressure

The growing technical complexity of equipment and the associated rising qualification level of employees, coupled with the skills shortage, are leading to increasing hourly rates. At the same time, customers are becoming increasingly price-sensitive, while growing market transparency and global competition are upping price pressure.  (Partially) automated inspection and maintenance can cut costly personnel deployment and thus secure competitive prices.

Commercial operators of systems and vehicles are also dependent on high levels of availability. Downtimes due to maintenance or failure put a strain on this availability.

### Market transformation

Particularly in the mobility sector, but also in various branches of industry, a separation between use and operation is becoming apparent.

In a first step, customers are refraining from buying vehicles themselves, operating them and thereby assuming responsibility for maintenance and repair. Instead, they are relying on leasing or rental offers and are shifting responsibility for maintenance to large fleet operators. In a second step, mobility itself is increasingly becoming a service that is provided by central providers. Similar developments are also evident in other industrial sectors.

Due to this shift, the economic viability of fleet operators and mobility service providers depends heavily on systems' availability and reliability. This, in turn, increases the demands placed on effective yet efficient inspection and maintenance [28].

### The necessary paradigm shift

The challenges mentioned make a paradigm shift in the inspection and maintenance industry necessary. The combination of robotics, AI and digital systems, as developed by leading innovators such as Ravin AI and NVIDIA, opens up brand-new possibilities for efficiency, precision and sustainability [24][25]. These technologies have the potential to revolutionise industries and set new quality and productivity standards [26][27].

## 2 SOLUTIONS IN INSPECTION AND MAINTENANCE

### Automated assistance systems

Automated systems based on artificial intelligence (AI), robotics and data-driven approaches offer new opportunities to enhance efficiency and improve precision [2][5][6].

They can take over inspection and maintenance tasks completely independently or support and relieve the strain on specialist personnel as assistance systems to improve the quality of results and efficiency of personnel deployment.

### Reduction in downtimes through automation

Automated inspection systems such as those from ProovStation and Michelin Tyre IA significantly reduce downtimes by allowing inspections to be carried out partially during operation [1][2]. The combination of real-time data analytics and predictive maintenance, as developed by the Fraunhofer Institute for Machine Tools and Forming Technology (IWU) and Twinner, enables needs-based planning and identification of wear before failure occurs [3][12]. This

data-driven strategy replaces rigid maintenance intervals with flexible measures that cut costs and conserve resources [9].

### Increasing precision through AI and robotics

Modern AI-supported systems analyse large volumes of data in real time and detect even minimal deviations. Systems such as those from UVeye and DeGould use high-resolution cameras and sensors to inspect difficult-to-access areas and achieve reproducible results [5][6]. This precision is particularly important in safety-critical sectors such as aviation or for autonomous vehicles [10].

### Integration into digital ecosystems

The integration of automated inspection systems into digital infrastructures enables efficiency gains and facilitates cross-site collaboration. Digital twins, as developed by the Fraunhofer Institute for Production Systems and Design Technology (IPK), precisely model the condition of machines and simulate maintenance measures before physical intervention is required [16][17].

### Flexibility for sector-specific requirements

Modular solutions such as the MAHA Autonomous Inspection Assistant (MAIA) can be adapted to meet the specific requirements encountered in different industries. Examples of this include inspections on wings and engines in aviation or the autonomous inspection of rails and wagons in rail transport [9][13]. The ability to integrate specific sensors and tools makes these systems versatile and efficient [10].

## 2.1 CONCLUSION

### Automation in inspection and maintenance: a paradigm shift

The progressive automation of inspection and maintenance processes offers companies a strategic opportunity to respond to the increasing efficiency, precision and sustainability demands. Innovative technologies such as robotics, artificial intelligence (AI), digital twins and autonomous navigation are setting new standards in these areas. By using these technologies, processes can not only be optimised, but completely reimagined. Automated solutions have become an indispensable part of modern corporate strategies and are raising standards in inspection and maintenance to a whole new level [2][6][12].

## 2.2 SUMMARY

### Superiority of automated systems

In an increasingly digitalised and networked world, automated inspection systems are the key to remaining competitive in the long term. Companies that adopt these technologies early on benefit from optimised processes, greater productivity and increased customer satisfaction [2][6][15].

**Prospects for the future:** round-the-clock inspections for maximum availability

Another decisive advantage of automated inspection systems like MAIA lies in the possibility of inspecting vehicles outside of active usage times. This opens up whole new dimensions for sectors in which availability and operational efficiency are essential:

- **Automated overnight inspections:** Trucks, buses, autonomous vehicles, rail vehicles or urban fleets can be automatically checked by MAIA during idle times – at night, for example. This allows defects to be detected and remedied early on before the vehicles are put back into service the next morning.
- **Elimination of night shift personnel:** While maintenance and inspections have previously often had to be carried out with high personnel costs in night shifts, MAIA can completely automate this process. This significantly cuts operating costs and enables consistently high inspection quality around the clock.
- **Maximisation of operating times:** Thanks to continuous monitoring outside of usage times, vehicles with optimised safety and reliability are ready without any need for additional maintenance downtimes during daytime operations.
- **Integration into fleet management systems:** MAIA can be directly linked to digital maintenance and fleet management systems, so that maintenance measures can be controlled based on data and planned efficiently.

This prospect shows how automated inspection systems extend beyond mere defect detection and serve as a strategic building block for maximum availability, cost efficiency and a modern, digital maintenance strategy.

# 3 PROSPECTS FOR THE FUTURE

### Automated inspection and maintenance taking on new dimensions

Automated inspection and maintenance systems are already having a significant impact on efficiency and precision in numerous industries. But the full potential of these technologies is far from being exhausted. With the integration of new technologies and the expansion of fields of application, countless possibilities are opening up to raise inspections and maintenance to a whole new level. The future will be shaped by trends such as predictive maintenance, real-time analytics and the connection between virtual and physical worlds [2][6][15].

## 3.1 TRENDS IN AUTOMATION

### Predictive maintenance and predictive defect detection

Predictive maintenance is a key trend in automation. By using sensors that continuously collect data on machine or vehicle conditions, automated systems detect deviations and anomalies at an early stage. AI-based models analyse this data in real time and predict wear patterns or potential failures before they occur. This significantly shortens unscheduled downtimes and extends components' service life. This is particularly advantageous in cost-intensive sectors such as aviation and heavy industry [5][8][17].

### Augmented reality (AR) for visual support

The integration of augmented reality (AR) into inspection systems opens up brand-new possibilities for providing technicians with visual support. With AR glasses or mobile terminal devices, inspectors can project visual overlays onto machines or vehicles that guide them through complex processes. Critical components or defects are highlighted, while real-time data and interactive instructions are available. This improves accuracy and allows even less experienced technicians to perform challenging tasks both safely and efficiently [9][18].

### AI-based analytics and real-time decision-making

Advances in artificial intelligence allow automated systems to do far more than just collect data. Future systems will be able to make autonomous decisions in real time. With the help of machine learning algorithms, they can do more than just detect anomalies; they can also prioritise them and recommend appropriate measures. This real-time decision-making capability will be crucially important, particularly in critical scenarios such as aviation or autonomous vehicles [12][16][20].

## 3.2 EXPANDING THE RANGE OF POSSIBLE APPLICATIONS

### Applications in cross-industries

Automated inspection systems have the potential for use in industries that have so far only benefited to a limited extent from automation. In shipping, for example, they could check the condition of ship hulls, propellers or loading systems. In heavy industry, they would be suitable for inspecting large machines and production facilities to minimise safety risks and maximise productivity. Even in aviation, which is already heavily regulated, automated systems could set new standards, for example through even more efficient monitoring of avionics systems or material fatigue [3][7][13].

### Dynamic tests under real-life operating conditions

Future inspection systems will be capable of conducting dynamic tests under real-life conditions. This includes the likes of testing radar systems, conducting dynamic brake performance

tests or checking vehicle functions while driving. These tests offer crucial insights into machine or vehicle performance that static inspections often cannot provide. They supply valuable data for design improvements and optimised maintenance schedules [10][14][21].

### Future technologies: inspections for autonomous vehicles and smart factories

The rapid development of autonomous vehicles and smart factories will require a new generation of inspection systems. Autonomous vehicles, which rely on precise sensors and control systems, must be regularly tested and calibrated. Automated systems can efficiently perform these tasks and ensure that autonomous systems work reliably under all conditions. In smart factories, inspection robots could be seamlessly integrated into networked production lines to ensure continuous quality monitoring in real time [6][15][19].

## 3.3 SUMMARY

### The future of automated inspection and maintenance

The future of inspection and maintenance will be significantly shaped by automation and technological innovation. Trends like predictive maintenance, augmented reality and AI-supported real-time analytics do more than just enhance the efficiency and precision of existing systems; they also enable the development of brand-new areas of application.

Whether in aviation, shipping, heavy industry or autonomous vehicles – the next generation of automated inspection systems will raise safety, sustainability and productivity to a whole new level. Companies that invest in these technologies early on not only secure competitive advantages, but also lay the foundations for futureproof and sustainable maintenance strategies [8][16][22].

# 4 MAIA – THE SOLUTION FROM MAHA, AN AUTOMATION PIONEER

Digitalisation and automation are decisive driving forces of technological progress in modern industry. Innovative solutions play a key role – particularly in the automotive industry, where the demands for precision, efficiency and sustainability are constantly growing. Against this backdrop, MAHA developed the MAHA Autonomous Inspection Assistant (MAIA) – a pioneering technology that revolutionises existing inspection methods and sets new standards.

MAIA represents the pinnacle of modern technology by combining robotics, artificial intelligence (AI) and advanced sensors in a fully autonomous inspection system. This system was developed to address the challenges encountered in workshops, production lines, test centres and special applications, while maximising efficiency, quality and precision at the same time. At its

core is the vision of taking automation to a whole new level, and not just achieving economic benefits, but also simplifying existing workflows and making them safer.

This section explains in detail MAIA's technological foundations and practical applications. It illustrates how MAIA takes a leading position in the industry due to its innovative architecture, flexibility and scalability. It also highlights the advantages of this system compared to conventional manual and automated solutions to demonstrate its potential for different industries and areas of application.

## 4.1 WHAT IS MAIA?

MAIA, the MAHA Autonomous Inspection Assistant, is a state-of-the-art system based on the principles of automation and artificial intelligence. The aim of this development was to create a tool that completely revolutionises inspection and maintenance processes by making them more efficient, precise and flexible. MAIA is more than just an extension of existing technologies; it is also a brand-new approach that fundamentally changes the way inspections are carried out.

### A technological masterpiece

At the very heart of MAIA are three technological pillars that enable its outstanding performance and versatility: the integration of AI algorithms, a highly developed, variable measuring head and an autonomous mobility concept. The AI algorithms enable MAIA to learn independently, adapt to new tasks and carry out inspections with an accuracy that far exceeds human capabilities. This is achieved through the use of machine learning and big data analytics, which enable MAIA to recognise patterns and deviations in real time.

The measuring head, which is the central element of MAIA, combines cutting-edge technologies such as 3D and 2D cameras, gap antennas, electromagnetic measuring systems and lasers to collect comprehensive data about the object to be inspected. These sensors enable detailed analysis of surfaces, gap dimensions and material conditions – even in difficult-to-access areas. Depending on the application, the measuring head can be designed to be non-tactile or tactile. This offers maximum flexibility, as the sensor system can be adapted to the specific requirements of the inspection task in question.

MAIA's mobile platform is another unique selling point. Equipped with omniwheels, which enable movement in all directions, and a height-adjustable chassis, MAIA can work even in the tightest of spaces. This makes it suitable for use in workshops, as well as in production lines or test centres. Additionally, the main components, such as the robot arm, the transport platform or the measuring head, can be exchanged or extended as required. This is made possible by the use of the ROS2 framework, which supports a modular architecture. For some applications, the likes of the robot arm could be completely eliminated, while the measuring head would be attached to a drone or used in a stationary position. This modularity makes MAIA one of the most versatile solutions available on the market.

### The vision behind MAIA

The development of MAIA was driven by a clear vision: to create a system that not only improves existing processes, but also opens up brand-new possibilities. In a time when the skills shortage is a growing problem and modern vehicles are becoming ever more complex, MAIA offers a viable solution. It relieves the strain on skilled workers by taking over repetitive tasks, while at the same time enabling higher quality assurance through consistent and objective results.

Another goal of MAIA is to facilitate the transition to Industry 4.0 by allowing it to be fully integrated into digital processes. With the ability to collect, analyse and document data in real time, MAIA supports workshops and production facilities in digitalising their workflows. At the same time, the use of digital twins – i.e. virtual replicas of physical objects – enables rapid and cost-effective optimisation of processes before they are implemented in reality.

### MAIA's role in automation

In the automotive industry, workshops, production facilities and test centres are coming under increasing pressure to meet the requirements encountered in modern vehicles. With the emergence of electric and hybrid vehicles, the increasing integration of advanced driver assistance systems (ADAS) and the growing demands placed on safety and sustainability, it is becoming clear that conventional inspection methods are often reaching their limits. This is where MAIA comes into play.

MAIA makes it possible to perform complex inspection tasks in a fraction of the time that a human would need, and with a precision that has no subjective fluctuations. One example of this is checking whether a vehicle's front radar is precisely aligned in the right direction – with a tolerance of just ±0.017 degrees (1 arc minute). Such tasks cannot be performed precisely by humans, whereas MAIA completes them both reliably and reproducibly. Its ability to continuously learn and adapt to new challenges makes it an indispensable tool for modern working environments. What's more, its modularity and scalability offer a futureproof solution that grows with the demands of the industry.

## 4.2 COMPARING MAIA: ADVANTAGES, COST-EFFECTIVENESS AND SCALABILITY

The advantages of MAIA become particularly clear when it is compared with both conventional manual inspection methods and other automated systems. Thanks to its technological innovation, flexibility and economic scalability, MAIA is setting new standards in inspection and maintenance technology. This sub-section analyses the advantages that MAIA offers in detail and highlights why it is considered the benchmark in automation.

## Advantages over manual inspections

### Precision and consistency

Manual inspection methods are often prone to errors, as they depend heavily on human factors such as fatigue, experience and subjective perception. MAIA overcomes these limitations through the use of AI algorithms and advanced sensor technology:

- **Objective results:** AI-based analytics ensure consistent quality, regardless of external influences or an inspector's mood on the day [3][8].
- **Error avoidance:** MAIA detects even the smallest deviations and damage that often remain invisible to the human eye [5][9].
- **Repeatability:** Automated processes deliver identical results at all times, making the inspection data highly comparable [17].
- **Time savings:** Manual inspections are time-consuming, especially for complex vehicles or machines. MAIA significantly shortens the inspection time.
- **Efficient workflows:** Tasks such as calibrating ADASs or analysing gap dimensions are completed in a fraction of the time [4][1].
- **Higher throughput rate:** Workshops and production lines can process more vehicles or products in less time without compromising on quality.

## Reduced strain on staff

In times of skills shortages, MAIA offers an effective solution:

- **Automation of routine tasks:** MAIA handles recurring work such as surface inspections, tyre analyses or gap dimension measurements. This allows skilled workers to focus on more complex and strategically important activities [3][8].
- **Workload reduction:** Automation improves resource utilisation and increases staff satisfaction and efficiency.
- **Trust and monitoring:** In countries with high inspector verification requirements, MAIA can additionally document and check the inspection results to avoid incorrect assessments.

## Advantages over other automated systems

### Flexibility due to modular architecture

When compared to other automated systems, MAIA is characterised by its exceptional flexibility:

- **Adaptability:** Thanks to its modular design, MAIA can be adapted to the specific requirements encountered in different industries and applications. This is particularly advantageous for special vehicles or complex production lines [11][19].
- **A wide range of possible applications:** While many systems are specialised in a specific area, MAIA covers a broad spectrum – from workshops to aviation.

### Digital twins and simulation

One of MAIA's most innovative features is the integration of digital twins. This technology is made possible by the MAHA software, which simulates and optimises the use of MAIA before it is used in practice:

- **Risk minimisation:** Potential errors and vulnerabilities can be identified and remedied in a virtual environment [11].
- **Enhanced efficiency:** Development and maintenance cycles are shortened through simulations. MAIA can also be trained and optimised in a digital environment, increasing its adaptability [19].
- **Maintenance and remote control:** MAIA can be maintained, trained and improved remotely, cutting operating costs and increasing availability.

### Live annotation and continuous learning

MAIA differs from other static AI models through its learning and adaptation capabilities:

- **Real-time training:** Human inspectors can guide MAIA in real time during inspections, continuously improving the system's capabilities [19].
- **Network-based knowledge transfer:** MAIA systems can share their knowledge via cloud infrastructures, creating a global knowledge base that benefits all connected systems [11][20].

## Cost-effectiveness and scalability

### Cut labour costs

Automating numerous tasks with MAIA leads to considerable cost savings:

- **Efficient personnel deployment:** Highly qualified skilled workers can focus on strategically important activities, while MAIA handles routine tasks.
- **Long-term savings:** The costs spent on investing in MAIA quickly pay for themselves through reduced personnel and time costs [20][21].

### Central data management

MAIA enables efficient management and analysis of inspection data:

- **Data centralisation:** The results are stored in a central database, ensuring transparency and traceability. Depending on customer requirements, this can be done using the MAHA Cloud, a customer-specific cloud or completely offline [12].
- **Effective data analytics:** The collected data provides valuable insights that can contribute to process optimisation.

**Scalability**

MAIA grows with its users' requirements:

- **Modular expandability:** New technologies or requirements can be easily implemented by integrating additional modules or software updates [20].
- **Futureproofing:** MAIA is designed to meet changing market requirements without any need for expensive hardware upgrades.

# 5 CONCLUSION: A NEW ERA OF INSPECTION AND MAINTENANCE

The inspection and maintenance industry is at a turning point. Increasing technological complexity, stricter regulatory requirements and the skills shortage make innovative solutions absolutely indispensable. Automation is more than just an option in this respect; it is a necessity for remaining competitive in the long term and meeting increased efficiency and precision demands [2][6][13]. The MAHA Autonomous Inspection Assistant (MAIA) shows how cutting-edge technologies can overcome these challenges. MAIA is setting new benchmarks for efficiency, precision and sustainability and is redefining the standards for inspection and maintenance.

Traditional inspection methods are increasingly reaching their limits. Time-consuming processes and dependence on qualified inspectors make efficient inspection and maintenance difficult. At the same time, subjective assessments and human fluctuations lead to inconsistent results that often do not meet growing precision and documentation requirements. However, regulators and customers are expecting inspections to be increasingly precise and standardised, and this can no longer be achieved using conventional methods [3][5][6][10][12][14]. This is where automated solutions such as MAIA come into play, as they significantly shorten downtimes through faster processes and their ability to work around the clock. Thanks to AI-supported analytics, these systems deliver objective and reproducible results, while the reduction in the number of manual interventions cuts operating costs in the long term. In addition, the modularity and digital integration of solutions such as MAIA offer futureproofing through their modularity and digital integration, and this allows them to adapt to changing requirements [2][4][5][7][9][13][15][17][19].

Automation is having revolutionary effects across all industries. In the automotive industry, automated systems are optimising vehicle acceptance, inspections and production quality. Aviation is benefiting from precise inspections that increase safety and shorten unscheduled downtimes, while, in rail transport, regular monitoring of axles, brakes and switches ensures greater reliability. In industry, automated quality assurance and real-time analytics are improving production processes and significantly reducing material waste [6][7][9][10][11][13][14][18][20]. At the same

time, these systems are contributing to sustainability by cutting material consumption through optimised processes and the use of predictive maintenance, and by detecting errors at an early stage through predictive maintenance to avoid unnecessary repairs. This not only reduces the environmental impact, but also leads to economic benefits [12][19].

The MAHA Autonomous Inspection Assistant is a pioneering example of the future of automation and a pioneer in inspection technology. With features such as autonomous navigation, live annotation and the integration of digital twins, MAIA is setting new precision and flexibility standards. Its versatile potential uses in workshops, test centres, aviation, the rail sector and specialised sectors such as heavy industry underlines the added value it delivers for a wide range of applications. Optimised processes and precise defect detection not only cut costs, but also reduce environmental impacts. Thanks to machine learning, MAIA is constantly evolving and dynamically adapting to new requirements [5][6][7][8][12][13][17][18][19][20].

The automation of inspection and maintenance processes heralds the beginning of a new era in which companies can work more efficiently, more precisely and more sustainably. MAIA is more than just a technological tool in this regard; it is a symbol of progress and innovation. Companies that invest in such technologies early on are securing decisive competitive advantages and are actively shaping the future of inspection and maintenance. At the same time, they are contributing to a more sustainable and innovative world in which automation is not just a technological achievement, but a central component of a modern, futureproof economy [2][7][15].

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**About the author**

I have been involved in innovation for 25 years and began working on test vehicles incorporating high-end technologies at an early stage. My focus is on developing and optimising new technologies. Today, as Managing Director of MAHA, I stand for practical innovations and reliable solutions in inspection and workshop technology.

**'Learn more about the importance of precise, automated inspection processes and their prospects for the future in this whitepaper.'**

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