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Whitepaper

Using Project Management Software in the Automotive Industry

How Digital Tools Ensure Project Success in the Automotive Industry

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CHAPTER 01

Project Management in the Automotive Industry

Project management is essential in the automotive industry in order to efficiently control complex development processes, technological innovations and global supply chains. From vehicle development to production optimization, it ensures smooth processes and compliance with regulatory requirements.

The Importance of Project Management in the Automotiv Industry

Well-structured project management is a key prerequisite for competitiveness in the automotive in dustry. In order to successfully manage complex development and production processes, companies are increasingly relying on proven methods and specialized software solutions. The importance of project management is also reflected in specific training courses - for example, institutions such as the VDI or the GPM Deutsche Gesellschaft für Projektmanagement e.V. offer specialist seminars on the special requirements of the automotive industry. In addition to training courses and best practices, the role of project management is also discussed in specialist literature. One example is the book Projektmanagement in der Automobilindustrie (Project Management in the Automotive Industry) (Hab/Wagner, Springer Fachmedien Wiesbaden 2013), which discusses the special requirements of this sector in detail. In 2010, GPM also published the study Projektmanagement in der Automobilindustrie – Status quo und Potenziale (Project Management in the Automotive Industry - Status Quo and Potential), which, despite the fact that it has been published long ago, continues to highlight relevant optimization potential. Especially the findings on savings through the targeted use of project management software are more relevant today than ever and underline the fact that efficient project management remains a decisive success factor for companies in the industry.

Use Cases from the Automotive Industry

In the automotive industry, project management plays a central role in the planning, control and im plementation of complex projects. Companies use specialized project management software in vari ous areas to increase efficiency, minimize risks and comply with legal requirements.

1 Development of New Vehicle Models

The conception and production of new models is a long-term process that requires close coordination between research & development, design, production and suppliers. Project management software helps to coordinate all phases - from concept development and prototype construction through to se ries production. For example, a manufacturer of a new electric vehicle can ensure that battery tech nology, chassis development and software integration are optimally coordinated and that all departments work together seamlessly.

2 Introduction of Autnomous Driving Systems and Digital Technologies

Modern vehicles are more and more equipped with autonomous driving functions, AI-supported assistance systems and networked infotainment solutions. The implementation of such technologies re quires close cooperation between software development, sensor integration

and vehicle safety teams. Project management software allows agile development to be carried out in sprints so that new func tions can be tested iteratively and feedback from real driving situations can be included at an early stage.

3 Optimization and Automation of Production Processes

In series production, the aim is to make manufacturing processes efficient and error-free. Project man agement software helps automotive manufacturers to optimize supply chains, manage resources and adapt production lines. For example, when adapting a factory to new vehicle models, PM software helps to ensure that machine changeovers, personnel planning and material logistics are perfectly co ordinated in order to minimize downtimes

4 Introduction of New Drive Technologies (Electric, Hydrogen, Hybrid)

The transition to sustainable mobility solutions comes with enormous challenges. The development of new battery technologies, charging infrastructures and alternative drive systems requires strict project management in order to harmonize technical innovations with regulatory requirements. At the same time, manufacturers must meet CO_2 reduction targets and ensure that new technologies are economi cally viable.

5 Quality and Safety Management

Car manufacturers must meet the highest safety standards in order for their vehicles to be approved for the market. Project management software helps to organize crash tests, certifications and quality inspections efficiently and to comply with the requirements of authorities such as the EU, NHTSA or KBA. One example is the changeover to new safety standards, where all approval steps must be sys tematically documented and completed on time.

6 Management of Suppliers and Global Supply Chains

The automotive industry is heavily dependent on international suppliers and complex logistics net works. Project management software helps manufacturers to monitor supplier management, production capacities and material availability. For example, a company can use precise resource planning to ensure that semiconductors or battery cells are delivered on time, and thus avoiding production delays.

7 Sustainability and Circular Economy in the Automotive Industry

With the increasing demands for environmental friendliness and recycling, project management plays a decisive role in the development of new sustainable production methods. One example is the use of recycled materials or the optimization of production processes to reduce CO_2 emissions. Companies not only have to take ecological factors into account but also have to comply with new legal requirements for the circular economy

02 CHAPTER

Common Mistakes in the Management of Automotive Projects

The complexity of automotive projects makes structured planning and control indispensable. Nevertheless, mistakes often occur that can cause time and cost overruns.
Here are typical mistakes and their solutions:

Insufficent Risk Analysis

Mistake: Without targeted risk management, potential project risks such as delivery bottlenecks, supplier problems or technical challenges remain undetected, which can lead to unexpected delays or additional costs

Solution: .The early use of structured risk management with regular risk analyses and preventive measures allows critical scenarios to be identified at an early stage and minimized in a targeted manner.

Poor Resource Planning

Mistake: Inaccurate planning of skilled workers, materials or production capacities leads to bottlenecks in the production chain, jeopardizing schedules and increasing costs..

Solution: Dynamic resource planning with real-time monitoring allows you to identify bottlenecks at an early stage and flexibly adjust capacities. The use of project management software makes it easier to optimize resource utilization.

Unclear Objective Definition

Mistake: If project objectives are not clearly formulated or changed in the course of the project, this leads to misunderstandings, inefficient workflows and delays.

Solution: Setting precise project objectives with clear milestones and KPIs ensures that everyone involved is on the same page. Regular coordination and transparent communication help to identify changes at an early stage and adapt processes accordingly

Poor Communication

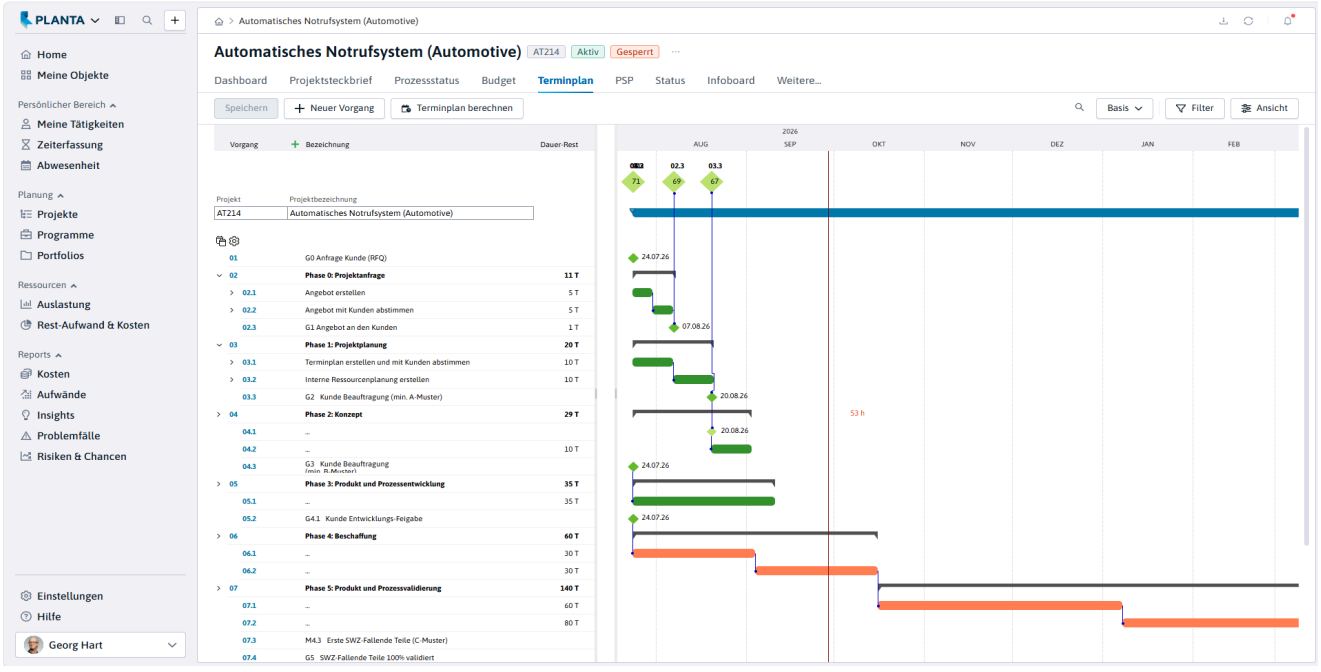
Mistake: In automotive projects, it is often the case that various teams from different specialist areas and locations work together. A lack of coordination or unclear communication channels can result in important information not being passed on to the persons concerned by it in time or not at all.

Solution: Regular meetings, clear communication structures and the use of digital collaboration platforms ensure that everyone involved is always informed about the current project status.

Missing Change Management

Mistake: Automotive projects are often subject to changing requirements – be it due to new safety regulations, market requirements or technological developments. Missing or inadequate change management means that necessary adjustments are implemented too late or inefficiently.

Solution: Systematic change management allows you to manage changes in a targeted manner and evaluate their impact at an early stage. Project management software helps to record change requests, set priorities and document adjustments in a structured manner.



Time schedule in PLANTA Project

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One Software for Everything

PLANTA Project

Project management-software

PM-Methods

Plan your projects in an agile, traditional, or hybrid manner—according to your requirements

PPM

Don't take any risks—rely on project portfolio management

Integrations

Adjust the software to your needs and extend it using our interfaces.

Single and multi-project management

Comprehensive project management software for every project

Read more

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CHAPTER 03

Supporting PM Tools

Using the right tools, even complex projects in the public sector become easier to manage.

Methods in Project Management: Agile, Waterfall and Hybrid Approaches

Projects in the automotive industry are extremely diverse - from research and development to vehicle testing and series production. Different methodological approaches are used depeding on the project type. While development projects often require agile methods in order to react to rapid mar ket changes, the traditional waterfall approach remains indispensable in areas with fixed process steps, such as series production. In practice, many companies rely on hybrid a proaches that combine agility and structure.

Agiles Projektmanagement: Flexibilität für Entwicklungsprojekte

Agile methods make it possible to react flexibly to new requirements and technological changes. In the automotive industry, agility is primarily used in **innovative development projects**, for example in the development of new drive systems, autonomous driving systems or software solutions for con nected vehicles.:

A typical example is **agile software development for control units**: Development teams work in **sprints** with regular tests and feedback loops in order to be able to react to technical challenges or changing requirements at an early stage. Kanban boards and scrum methods help to visualize the workflows within the teams and quickly identify bottlenecks.

Agility has also proven its worth in **prototype development**. Small, cross-functional teams work itera tively on design and technology by regularly testing and developing new components.

By working closely with test and production departments, errors can be identified at an early stage and market maturity can be accelerated

.Waterfall Approach: Structure for Standardized Processes

The waterfall approach is used where a **fixed sequence of process steps** must be adhered to. This is

particularly the case in **series production**, where milestones such as prototype construction, testing, production start-up and market launch are clearly defined.

The waterfall approach also makes sense in **regulatory projects**, such as the implementation of new safety standards or legal requirements (e.g. Euro 7 emissions standard). Since such projects are often subject to strict schedules and require documentation, the traditional approach ensures reliable con trol of all processes.

Even in development projects, some of which are carried out in an agile manner, the waterfall ap proach remains essential for higher-level approval and certification processes. One example is the ho mologation of new vehicle models, where defined testing and approval processes must be adhered to

in order to obtain approval

Hybrid Approach: The Ideal Combination for Complex Projects

The hybrid methodology combines **the structure of the waterfall approach with the flexibility of the agile method** and has proven to be particularly effective when projects require both rapid adjustments and long-term planning.

One example is the development of a new vehicle platform:

• The **vehicle concept** and **technical specifications** are defined using **traditional methods**, as these basic parameters are binding for all teams.

• **Software and electronics development**, on the other hand, is managed in an **agile** manner, as new features have to be continuously tested and adapted.

• **Production and the supply chain** remain organized in **waterfall** fashion to ensure a smooth ramp up.

A major advantage of the hybrid approach is the **interdisciplinary collaboration**: Development engineers can interact with production teams at an early stage to ensure that new components are ready for **series production**. At the same time, the agile approach allows new technologies to be iteratively tested and further developed while the overarching production goals are planned in a structured manner.

This combination not only **shortens the development time**, but also **increases quality**, as problems are identified and rectified at an early stage. The hybrid methodology also promotes **greater identification with the project objectives by all persons involved**, as both flexible and structured processes are taken into account:

Ramp-Up – A Critical Stage in Product Development in the Automotive Industry

The term ramp-up is used in the automotive industry to describe the start-up phase of series production of a new vehicle model or a new component. In this phase, production is gradually ramped up in order to move from small pre-series production to full series production.

Typical steps in ramp-up:

• Prototype production – The first models are built in small quantities to test the design, technolgy and production processes.

• Pre-series (pilot production) – A limited number of vehicles or components are produced in order to optimize production processes and carry out quality assurance.

• Start of series production – Production capacities are gradually increased while final adjustments are made.

• Full series production – Production reaches the planned volume and the market launch of the vehicle or component begins.

Relevance for project management:

Ramp-up is a critical stage in product development, as this is the point where it is decided whether the vehicle model or component is suitable for series production. Mistakes made in this phase can result in high costs, as production facilities, suppliers and logistics processes are already geared towards the planned production volume.
It is therefore important that project management methods help to control the ramp-up efficiently, identify bottlenecks at an early stage and adapt the production process.

Essential Software Functions in Project Management

In the automotive industry, project management faces particular challenges, as projects often involve complex, international production chains, high costs and strict regulatory requirements. Here are the key software features that project management tools offer for this industry:

Project Portfolio Management

Project portfolio management enables the management of multiple projects in a comprehensive port folio and ensures that all projects are strategically aligned with the company's objectives. For the au tomotive industry, this function is crucial to ensure that resources are distributed and prioritized efficiently, be it in the development of new vehicle models, the introduction of autonomous driving systems or the integration of e-mobility. Strategic project portfolio management allows for a central ized view of all projects so that resources can be optimally coordinated between development, pro duction and supplier projects.

Resource Management and Capacity Planning

The automotive industry relies heavily on precise resource management to ensure that production ca pacities and human resources are optimally utilized. Capacity planning helps to identify bottlenecks in the production line and in the availability of resources at an early stage. Precise resource manage ment ensures that the availability and utilization of machines and specialist staff is planned in such a way that the production flow is not interrupted, even in the case of large-scale projects involving different locations or suppliers.

Financial and Budget Management

As automotive projects often require high investments and are closely linked to budgetary require ments, financial and budget management is of crucial importance. This function allows continuous monitoring of all financial aspects of the project so that project managers can immediately recognize deviations and take action. Through detailed cost analyses and real-time monitoring, budget management supports-compliance with financial project targets and the timely detection of cost overruns, for example due to unexpected material costs or delayed deliveries.

Risk Management

The automotive industry harbors many potential risks due to its complexity and global supply chains. Specialized project management software provides tools for risk identification, assessment and monitoring so that companies can take preventive action before risks seriously affect the project. For example, risks relating to material procurement, supply chain disruptions and legal changes can be addressed in a targeted and timely manner, minimizing delays in production and ensuring the quality of the end product.

Reporting and Dashboarding

Real-time dashboards and detailed reports help project managers to maintain an overview of com plex automotive projects and make data-based decisions. The visualization of key performance indi cators (KPIs) makes it possible to measure progress in all project phases and make any necessary adjustments quickly. This function is particularly valuable for projects that involves different teams at different locations, as it provides a central overview and supports efficient decision-making.

Dependencies and Milestones

Automotive projects often depend on the synchronization of different teams and departments that have to work within a fixed time frame. The dependency and milestone function makes it easier to coordinate the project phases and ensure that all teams complete their tasks in line with the general schedule. This avoids bottlenecks and delays, and the individual production stages run synchronously and efficiently.

Automation and Workflows

Automated workflows standardize recurring tasks and minimize manual interventions. This function supports automotive projects that often place high demands on the efficiency and accuracy of production and development processes. Automation can speed up and simplify release processes for documents, approvals and quality checks, which reduces the workload and optimizes throughput times

Role and Access Management

The automotive industry has specific requirements for data protection and data control, especially when working with various suppliers. Role and access management ensures that only authorized team members have access to sensitive project data, which supports compliance with data protection regulations and contributes to efficiency by allowing project employees to work with the data rele vant to them.

Monitoring and Quality Management

For the automotive industry, quality management is an essential part of project management, as it en sures compliance with standards and specifications. Monitoring continuously controls the project progress and ensures that schedules and budgets are adhered to.

By integrating quality checks into the project process, this function ensures that the end product meets the specified standards. Automated quality controls and complete documen tation help to ensure the quality of the results and to rectify any defects in good time

Top 10 Best Project Management Tools for Automotive Projects

Choosing the right project management software is a key success factor in the automotive industry. Depending on the type of project and the methodology used - whether agile, traditional or hybrid - companies need specialized tools to support them in planning, managing and monitoring their projects. Modern software solutions help to coordinate complex vehicle developments, comply with regulatory requirements and ensure efficient resource management. A factor that is particularly important is the ability to connect different teams and departments and to enable transparent collaboration between development, production and suppliers. The section below presents ten proven project management tools that are particularly suitable to tackle the challenges that exist in the automotive industry.

1. PLANTA Project

PLANTA Project is a powerful multi-project management tool for automotive projects that includes detailed resource planning, budget tracking and sophisticated risk management. The software helps project managers to maintain an overview even in complex projects and to react to deviations at an early stage. It is characterized by flexibility and adaptability, two factors that are specially tailored to the requirements of the automotive industry..

2. Microsoft Project

Microsoft Project offers efficient Gantt chart and resource management and is suitable for automotive projects with complex schedules. Project managers can use it to track dependencies and monitor schedules and milestones in a structured manner..

3. Smartsheet

Smartsheet combines a spreadsheet-based interface with project management functions and is well suited for the organization of automotive projects that require a high degree of flexibility. It offers ex tensive integration options and can be adapted to specific requirem.

4. Wrike

Wrike offers both agile and traditional PM methods and various integration options. It provides auto motive teams with functions for task management, team collaboration and progress tracking and al lows to flexibly adapt to changing project objectives.

5. ClickUp

ClickUp is known for its flexibility and its support of agile methods, making it an ideal solution for au tomotive projects with dynamic requirements. With functions such as time recoding, Gantt charts and task prioritization, it helps teams to monitor project progress and react quickly to changes.

6. Airtable

Airtable offers a flexible and user-friendly platform that combines spreadsheet and database func tions. The tool is particularly suitable for managing projects in the automotive industry that require a large number of data records, such as material management. Thanks to its visual customizability and the integration of various apps, Airtable is a good choice for smaller teams looking for a simply structure.

7. Trello

Trello is a simple, Kanban-based tool that is well suited for the visual management of smaller automotive projects. The platform is ideal for teams that need a clear overview of tasks and progress without requiring complex functions such as resource or budget planning.

8. Asana

Assana offers a user-friendly interface and task tracking features that make it ideal for finance and insurance projects that require the coordination of many teams. It supports the monitoring of project schedules, documents and tasks and provides a transparent overview of the project status

9. Monday.com

Monday.com is a flexible project management tool that is well suited for the management of internal and regulatory projects. The software offers numerous integration options and customizations that make it suitable for use in financial and insurance projects where transparency and compliance are crucial.

10. Zoho Projects

Zoho Projects offers a vast variety of functions for project planning, task distribution and budget mon itoring. It is particularly useful for financial projects that require strict control of costs and resources. Zoho Projects helps teams plan and monitor with precision so that all projects stay on time and on budget.

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Project Management-Knowledge for Everyone für alle

Resource management, agile task management, working in dispersed teams and more:

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CHAPTER

04 Testimonials

Field reports and testimonials from experts and companies that have successfully implemented multi-project management offer valuable insights into how theoretical concepts can actually lead to success when applied in practice.

Field Reports: BMW Group und KA-RaceIng

The **BMW Group** uses PLANTA Project in the areas of “Complete Vehicle Testing” and “Crash” in order to efficiently control the demanding processes of vehicle testing. The software is seamlessly inte gra- ted into the existing IT landscape and interconnects central systems such as **SAP and time recording**, creating a consistent database. This resulted in a substantial improvement of **transparency in resource and budget planning** and allows for projects to be managed precisely.

Initially, the company examined whether an individually developed software solution could better meet the specific requirements. In the end, however, the company opted for PLANTA Project, as the extensive customization options allow them to tailor the software according to their needs. The in- tro duction of the software led to a **more efficient use of resources, a higher quality of project manage ment and lower implementation costs** - around a third cheaper than in-house development

BMW

“The connection to the extensive database environment permits end-to-end infomation flow, and the automated effort assignment also produces cost transparnecy“

Read how our customers managed to improve their projects:

planta.de/references

KA-RaceIng, the Formula Student Team of the **Karlsruhe Institute of Technology (KIT**), successfully uses PLANTA software to efficiently organize the development of its racing cars. With PLANTA Project, the team leaders plan the upcoming tasks, deadlines and schedules at the start of each season, providing a **comprehensive overview of all project steps**. As the season progresses, the members use PLANTA pulse for the detailed planning and **management of tasks**, especially for **events such as the rollout of the new racing car**. This combination of traditional and agile project management helps the team to react flexibly to challenges and optimize collaboration.

KA-RaceIng

"That's why PLANTA is great for us, because it simplifies many things and offers us quicker solutions for such organizational problems"



Conclusion

The automotive industry is facing profound change. Increasing demands for electrification, sustain ability and digital transformation as well as compliance, cybersecurity and product flexibility are shaping the industry.

Project management software is an essential tool that allows companies to tackle these challenges. Specialized solutions support strategic resource planning, risk monitoring and regulatory compliance, while promoting collaboration between development, production and suppliers.

A hybrid project management approach that combines agile methods for innovation projects and structured processes for production and certification enables companies to be flexible and stable at the same time. This improves coordination between teams, makes more efficient use of resources and increases adaptability to market changes..

FAQs

How does PLANTA software support the automotive industry in complying with-regulatory requirements?

PLANTA software allows you to precisely document and track all project phases, which is crucial for compliance with the strict safety and environmental standards the automotive industry is subject to. Functions such as compliance tracking and automated quality controls ensure that all requirements are met and can be audited at any time.

What advantages does the hybrid project management approach offer for automotive projects?

The hybrid approach combines structure and flexibility and thus allows you to comprehensively involve your entire workforce. Development and production teams can work together efficiently, react flexibly to changes and manage tasks and working hours in an agile manner. This promotes trans parency, improves communication and contributes to higher quality and efficiency.

Can PLANTA software also be used in global projects?

Yes, PLANTA software is perfectly suited for global automotive projects. It offers real-time dashboards, reporting functions and comprehensive resource management, which facilitates collaboration between different international locations and suppliers. The software can be adapted to company processes and supports communication between project teams across different time zones and locations.

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