

TWIN GPT

Revolutionizing Aftersales for machine manufacturers

Industry's first Generative AI solution for machines

VISIT OUR WEBSITE AT WWW.INDUSTRILITY.COM

Industriality offers a SaaS Platform to machine manufacturers with a focus on increasing After-Sales revenue and customer loyalty.

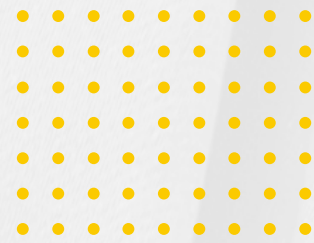


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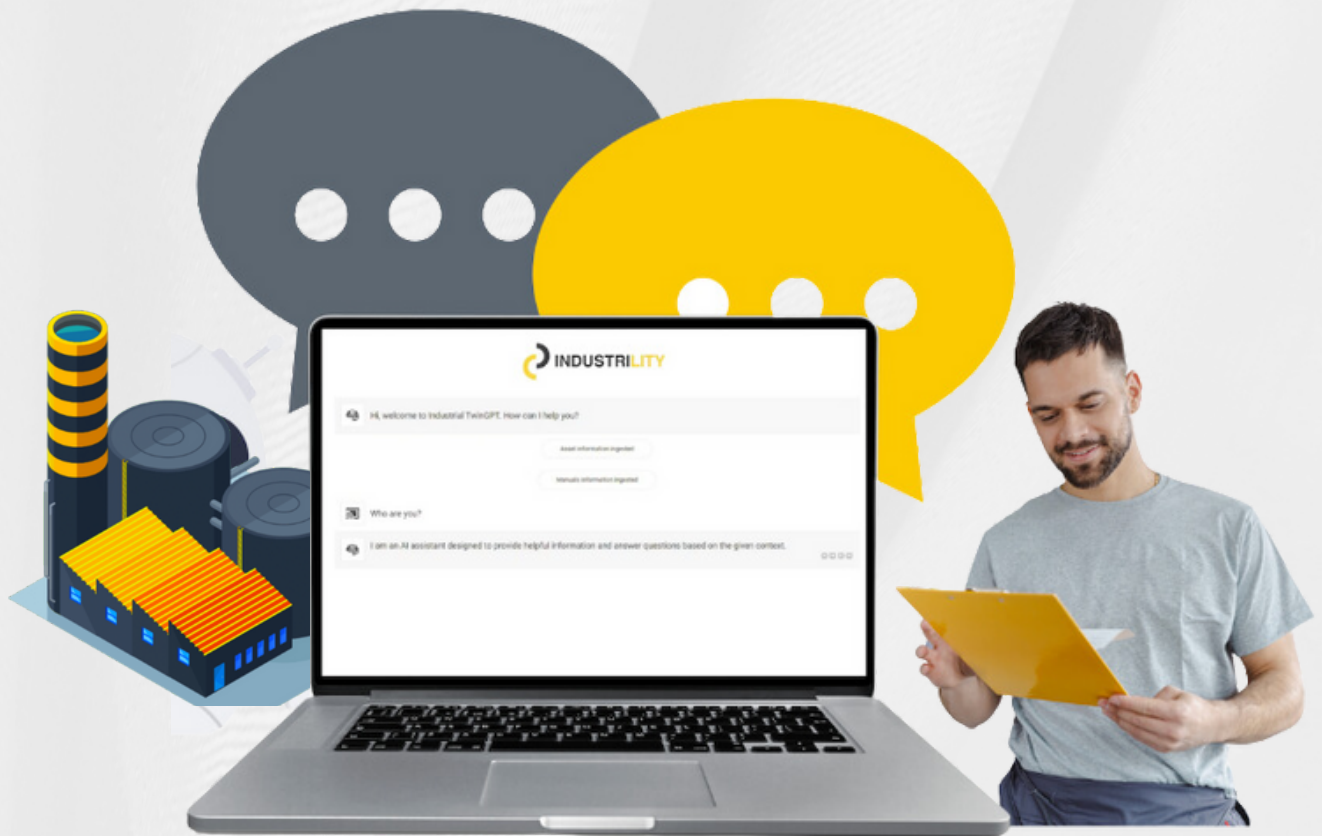


Executive Summary

In an era marked by digital transformation and Industry 4.0, the convergence of artificial intelligence (AI) and industrial machinery is revolutionizing the way we interact with our manufacturing and production systems. This white paper explores the cutting-edge technology of "Machine Digital Twin with Generative AI" and how it enables seamless natural language communication between humans and industrial machines.

The Challenge

Industrial machines have traditionally operated within the confines of complex interfaces and specialized languages, limiting their accessibility and usability. Communicating with these machines often requires extensive training and technical expertise, creating bottlenecks in operations and maintenance.





The Solution

Machine Digital Twin with Generative AI serves as a bridge, connecting the human understanding of language with the digital realm of industrial machinery. Welcome to a world where you can communicate with a machine in natural language. Imagine if you had a virtual assistant just for your machine by your side when you had problems with the machine or you needed help. Troubleshooting your machines doesn't have to be difficult or time consuming but should be a breeze! We are harnessing the power of Digital-twin and Generative AI to launch: **TwinGPT**. OEMs can provide unparalleled personalized technical assistance, offer comprehensive troubleshooting guidance, streamline report generation and information access, deliver proactive alerts, gather valuable feedback, and provide training to experienced and new technicians. TwinGPT allows users to communicate with machines using plain, natural language, thereby democratizing access to critical information and control.

The Product

Twin-GPT is an Industrial LLM designed explicitly for the machine manufacturing industry. It leverages state-of-the-art artificial intelligence(AI) and natural language processing(NLP) techniques, to process and understand complex technical language with exceptional accuracy. By analyzing vast amounts of structured and unstructured data, including manuals, schematics, troubleshooting guides, and historical maintenance records, Twin-GPT can extract valuable insights, enabling OEMs to optimize after-sales support processes. Our Industrial LLM is trained on diverse data sources, including industry-specific documentation, proprietary OEM manuals, and publicly available technical literature. This extensive training ensures that the LLM possesses a comprehensive understanding of the machine manufacturing domain. It is also designed to support continuous learning, allowing it to stay updated with the latest industry advancements and evolving best practices.



Meet John's team.....

John has been working in the Compressor Industry for over 15 years and currently serves as the Maintenance Manager at a leading OEM. He is responsible for ensuring the optimal performance and reliability of a fleet of customer machinery. John is passionate about embracing innovative solutions that can streamline operations and enhance customer satisfaction. John has 3 service technicians working for him.



Challenges John's team is facing:

- **Time Constraints:** Balancing numerous maintenance tasks for a vast machinery fleet which leads to extended downtime.
- **Technical Complexity:** Interpreting intricate technical details and error codes across a diverse range of machinery is challenging.
- **Report Generation:** Struggling with efficiency and consistency while manually creating maintenance, performance, and error reports.
- **Predictive Insights:** Limited resources hinder proactive maintenance, making it difficult to spot issues before they escalate.

Enhanced Troubleshooting and Diagnosis

Use Case #1

CHALLENGES

With a large fleet of machines under his care, John is having trouble with one of the boilers at a drink's manufacturing site which is causing a maintenance backlog and prolonging the downtime. The Boiler is showing an alarm code TE1 which John is struggling to debug.

SOLUTIONS

With Twin-GPT by your side, say goodbye to prolonged troubleshooting sessions. It swiftly analyzes problem descriptions, symptoms, and error codes, providing accurate guidance within seconds



Error Codes



Symptoms



Guidance

BENEFITS

1

Faster time to fix

Quickly identify root causes and receive appropriate solutions leading to faster time to fix.

2

Increase service productivity

Boost your efficiency and service productivity of the equipment and his team.

3

Reduce machine downtime

Avoid maintenance backlog now and reduce machine downtime

TWINGPT CHAT



Hi, Welcome to Industrial TwinGPT.
How can I help you?

I am having trouble with this asset.
It is not starting, and there is an error code TE1 displayed. What should I do?

Error code TE1 indicates a temperature sensor malfunction. Let's start by checking the temperature sensor connections and wiring for any issues. Make sure they are secure and undamaged

I have checked the connections, and everything looks fine.

Great! If the connections are all good, replacing the temperature sensor with a compatible one is next. Ensure that the new sensor is calibrated correctly as per the manufacturer's instructions

I have replaced the temperature sensor, but the asset still won't start

let's perform a quick calibration of the new sensor. Follow the calibration steps provided in the user manual. With the new sensor and calibration, it should start up without any issues.

Accelerated Repair and Maintenance

Use Case #2

CHALLENGES

John has a few new members on his team of service technicians who need to perform quarterly maintenance on all assets under maintenance contracts. This is their first job replacing an air filter and they need assistance on the Compressor.

SOLUTIONS

By swiftly analyzing vast amounts of technical information, TwinGPT simplifies this debugging process. Operators and service technicians can rely on step-by-step guidance during repairs and routine maintenance, leading to shorter time-to-resolution and improved operational efficiency



Simplify on-the-job training



Identify parts quickly



Improved efficiency

BENEFITS

1

Simplify on-the-job training

Discover step by step guidance on replacing the air filter

2

Identify parts quickly

Save time to resolution and avoid prolonged down time

3

Improved efficiency

TwinGPT was able to improve operational efficiency for asset Y

TWINGPT CHAT



Hi, Welcome to Industrial TwinGPT. How can I help you?

How can I replace the air filter?

To replace the air filter, locate the filter compartment on the side panel. Release the latches, remove the old filter, and insert the new one with the arrow facing outward. Secure the compartment and perform a quick test to ensure proper installation



On-Demand Information Retrieval

Use Case #3

CHALLENGES

With a large fleet of machines under contract, John is struggling to access a wealth of structured and unstructured data stored in a myriad of documents and files, in order to learn how often he should recommend his service technicians to perform maintenance on his Chillers.

SOLUTIONS

With Industrility's Digital Twin, you can access a wealth of structured and unstructured data with a quick serial number look-up. Twin-GPT effortlessly retrieves any information operators or service technicians need, ensuring quick access to valuable insights.



Operational Efficiency



Easy to use



Faster Access To Data

BENEFITS

1

Faster access to data

Quick access to a wealth of all structured and unstructured data

2

Easy to use

Quick and valuable insights regarding the Assets Digital Twin

3

Operational efficiency

effortlessly retrieves any information operators or service technicians need

TWINGPT CHAT



Hi, Welcome to Industrial TwinGPT. How can I help you?

What are recommended maintenance intervals for this compressor?

For your compressor, it is recommended to perform routine maintenance every 300 operating hours or every six months, whichever comes first.



Swift Analysis and Optimization Recommendations

Use Case #4

CHALLENGES

During quarterly maintenance rounds, John's team noticed that their generator had prolonged downtime and poor efficiency. John's team wants to get insights into the overall machine health, operational efficiency, potential issues, and precise error location.

SOLUTIONS

TwinGPT provides real-time analysis of machine performance, insights into overall machine health, operational efficiency, potential issues, and precise error locations. It offers recommendations to resolve errors, optimize equipment settings, improve energy usage and reduce operational costs.



Precise Error Locations



Improve Machine Health



Reduce Machine Downtime

BENEFITS

1

Faster time to fix

Helps service technicians quickly and precisely identify error locations.

2

Improve machine lifetime

Get recommendations of improving machine health by proactive maintenance

3

Reduce machine downtime

Identify potential issues and get ahead of any unplanned downtime

TWINGPT CHAT



Hi, Welcome to Industrial TwinGPT. How can I help you?

Can you evaluate the efficiency of this generator?

Based on the data collected, your generator's fuel efficiency has decreased by 15% in the last month. We recommend checking the fuel system for clogs or leaks and adjusting the fuel mixture to improve efficiency and reduce operating costs



Proactive Maintenance and Predictive Analytics

Use Case #5

CHALLENGES

During quarterly maintenance rounds, John's team wants to make sure that besides regular maintenance they address any other potential issues that might arise with their compressor.

SOLUTIONS

Stay one step ahead with Twin-GPT's predictive maintenance capabilities. By analyzing historical data and patterns, it predicts maintenance requirements and potential failures.



Proactively Schedule Maintenance



Increase Asset Lifetime

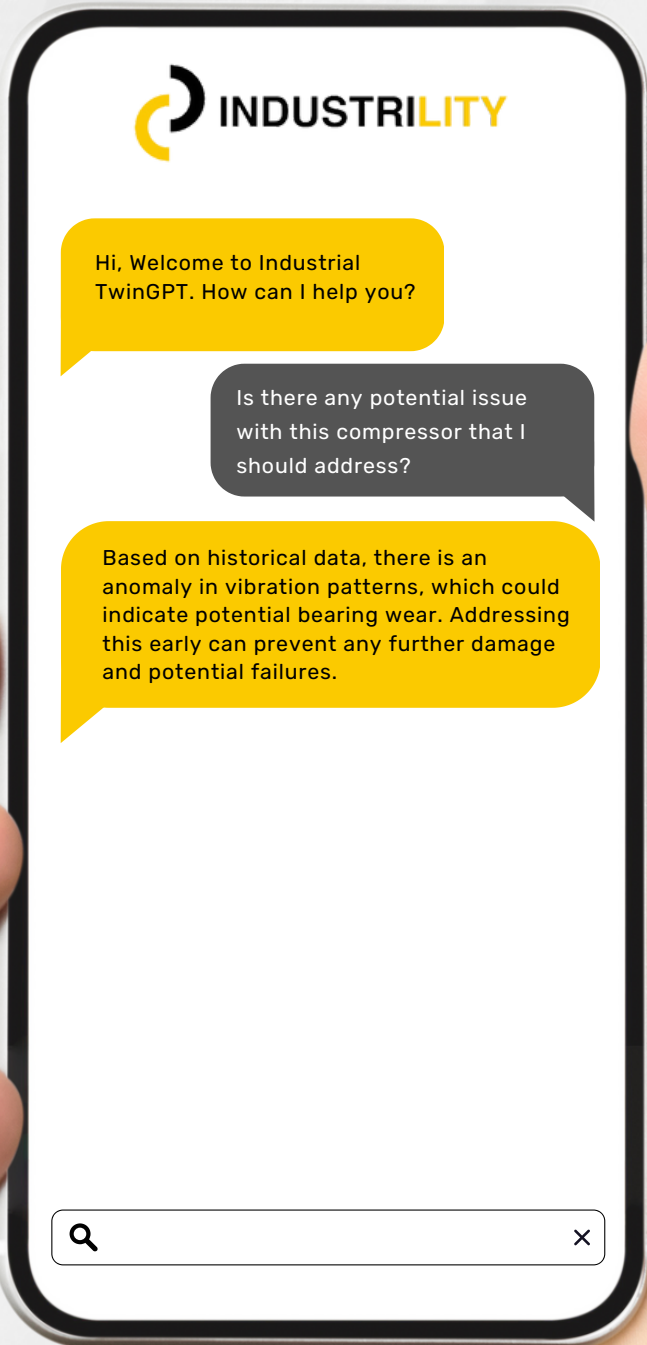


Reduced Machine Downtime

BENEFITS

- Increase asset lifetime**
Proactive maintenance and customer communication of potential problems can improve machines' lifetime
- Brand image a customer loyalty**
By notifying customers of potential problems, You can increase product reliability and customer loyalty
- Reduce machine downtime**
Minimize unplanned machine using condition-based maintenance and IoT sensor data

TWINGPT CHAT



Training and Knowledge Transfer

Use Case #6

CHALLENGES

John recently hired a new service technician to his team, and as his first task, John has asked him to perform maintenance on a Hydrogen Fuelling station. The new hire is struggling to perform the maintenance procedures because it is new technology.

SOLUTIONS

Twin-GPT can be leveraged as a virtual trainer and knowledge resource. It offers interactive training modules, answers questions, and offers guidance on equipment operation, troubleshooting, and maintenance procedures.



Efficient Error Handling



Simplyfy Training



Build Knowledge Base

BENEFITS

1

Simplify training

Easy access to full training modules and get answers to questions with TwinGPT.

2

Efficient error handling

Easily and efficiently troubleshoot error and maintenance procedures using the natural language chat interface

3

Build Knowledgebase

Build an FAQ and knowledge base based on collecting training and common questions

TWINGPT CHAT



Hi, Welcome to Industrial TwinGPT. How can I help you?

I'm not familiar with the maintenance procedures for this asset. Can you guide me through it?

Absolutely! Let's start with a step-by-step tutorial on the basic maintenance procedures for your asset. After that, feel free to ask any questions, and I'll be here to assist you throughout the learning process.



Enhanced Human-Machine Interactions

Use Case #7

CHALLENGES

John's team of service technicians was asked to conduct annual maintenance on asset X. Since John and his team are across the country, their customer is losing out on a large sum of revenue due to unplanned downtime.

SOLUTIONS

TwinGPT understands customer queries regarding troubleshooting, product usage, maintenance, and repairs, providing quick and reliable support, resulting in a seamless and satisfying customer experience



Timely Assistance



Step-by-step Instructions



Independently Resolve Minor Problems

BENEFITS

1

Timely Assistance

Customers can benefit from Twin-GPT's accurate and timely assistance

2

Step-by-step Instructions

Customers can receive step-by-step guidance to identify issues and errors

3

Resolve minor issue Independently

Customers can Independently resolve minor problems causing unplanned downtime

TWINGPT CHAT



Hi, Welcome to Industrial TwinGPT. How can I help you?

I'm facing a complex issue with my boiler. Can you provide some guidance?

Of course! Here's a detailed diagnostic checklist to help you troubleshoot the issue step-by-step. Follow the instructions, and if you encounter any challenges, don't hesitate to ask for further assistance



Assisted Report Generation

Use Case #8

CHALLENGES

A technician on John's team faces the cumbersome and time-consuming task of generating comprehensive service reports, performance reports, and maintenance records for each machine in their facility.

SOLUTIONS

TwinGPT streamlines the report generation process by automating the creation of detailed reports and summaries, saving John's team valuable time and effort.



Report Generation



Reduce Manual Effort



Formatting Reports

BENEFITS

1

Generate Reports

Generate comprehensive reports with just a few prompts, reducing the manual effort required.

2

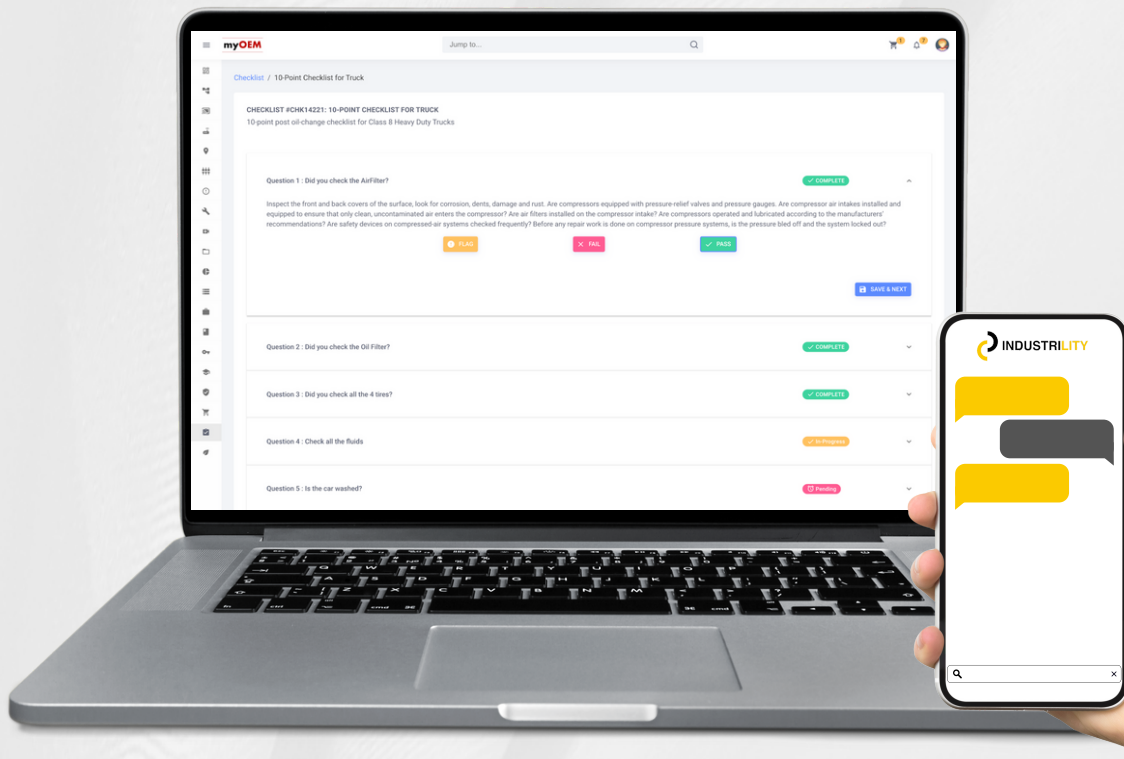
Reduce Manual Effort

Automation eliminates tedious report writing, allowing users to focus on more strategic tasks.

3

Formatting Reports

TwinGPT ensures consistent formatting and content in all reports, maintaining a professional image.



Additional Benefits for OEMs

COST REDUCTION AND RESOURCE OPTIMIZATION

John's procurement team struggles with maintaining an optimal inventory of spare parts. Over-ordering or understocking often leads to financial losses and operational disruptions.

SOLUTIONS

TwinGPT's accurate parts identification and maintenance scheduling capabilities help the OEM optimize their inventory management, leading to cost savings.



Inventory Management



Cost Saving



Maintenance Scheduling

BENEFITS

1

Inventory optimization

Accurate parts identification prevents overstocking and reduces unnecessary parts orders, saving costs.

2

Parts availability

Efficient maintenance scheduling ensures the availability of critical parts, minimizing equipment downtime.

3

Save cost

Reduced inventory costs and minimized downtime directly contribute to significant cost savings.

IMPROVED CUSTOMER SATISFACTION AND RETENTION

John struggles to meet customers' high expectations for quick and accurate support. Long resolution times and repeated issues lead to dissatisfaction and potential churn.

SOLUTIONS

TwinGPT empowers John's team with accurate and swift technical assistance, enhancing the overall customer support experience.



Quick Error Resolution



Increase Customer Loyalty



Customer Support

BENEFITS

1

Faster first time fix

With TwinGPT's assistance, John's team can resolve issues more quickly, meeting customer expectations for timely support.

2

Customer loyalty

Swift and accurate support boosts customer satisfaction, increasing loyalty and reducing the risk of churn.

3

Hyper-personalized service

TwinGPT enables John's team to provide tailored solutions, addressing each customer's unique needs effectively.



Summary

This technology finds applications across various industries, including manufacturing, energy, healthcare, logistics, and more. It streamlines operations, reduces maintenance costs, and accelerates innovation. With Industrility’s visionary approach, we usher in a new era of after-sales support, solidifying our position as the industry’s foremost thought leader while maximizing customer satisfaction and operational excellence. With TwinGPT OEMs can enhance customer satisfaction, streamline maintenance processes, and deliver more efficient and personalized support experiences. It enables OEMs to leverage state-of-the-art AI technologies to improve their post-purchase customer engagement and reinforce their brand reputation.



“Our customers' time is valuable, and we know that they need quick, convenient access to parts information and services to keep their equipment running optimally. MyPDCMachines, Powered by Industrility, is a product of our commitment to customer service, simplifying service and support, reducing our customer’s total cost of ownership”

Bree McQuillan
VP, Aftermarket Growth,
PDC Machines, US



“Industrilty's product helped digitally transform Glevum Heating. It is now more efficient, paper-free and forward-looking. Its application platform provided a stellar after-sale experience to our customers, helped us become more proactive than reactive and empowered the service technicians with tools to think beyond the boilers”

Anish Patel
VP, Operations, Glevum
Heating



Reduce time to find information by 2.5 hours



Improve service reporting efficiency by 15%



Increase customer registration rates by 25%



Increase machine lifetime by 2 years



Time-to-fix reduced by 8+ hours



Contact us for
further inquiries



contact@industrility.com



<https://www.industrility.com/apps/TwinGPT/>



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