

BearingPoint®

Surpassing current Maintenance Operations Challenges



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Today's importance of maintenance in different industries

The maintenance activity, as it stands today, holds a pivotal position in ensuring the smooth functioning and reliability of various sectors, ranging from manufacturing and transportation to infrastructure and technology. However, this indispensable sector is not without its share of challenges, and one of the most prominent ones lies in the realm of data handling.

In recent years, the maintenance landscape has witnessed a profound transformation, driven by advancements in technology and the rise of the Industrial Internet of Things (IIoT). The widespread integration of sensors, IoT devices, and automation systems has led to an explosion of data generated by machinery and equipment. While this data offers unprecedented insights into the health and performance of assets, its sheer volume and complexity present significant difficulties for maintenance professionals.

Current challenges of maintenance managers

Nowadays, maintenance teams encounter a multitude of challenges when it comes to managing information effectively. Data arrives in various formats, sizes, and from diverse sources, making it challenging to gather comprehensive and crucial information. Important details are often communicated via phone calls, emails, or in meetings, leading to potential oversights and missing data. Additionally, valuable data may get lost or isolated within different existing enterprise systems, leaving collaborators with limited access to essential information. Maintaining up-to-date information is vital for successful maintenance projects, as it involves managing various stakeholders and complying with complex regulations.

In this chapter, we will explore some of the most common challenges faced by maintenance teams, impacting the smooth and efficient execution of maintenance tasks:

- **Data management complexity:** With maintenance projects becoming more intricate, involving multiple stakeholders, and complying with strict regulations, managing communication becomes increasingly difficult due to the growing responsibilities.
- **Delays and overruns:** Maintenance projects often face delays and budget overruns, mainly caused by time-consuming manual inspections, fragmented data in various systems, and poor coordination among team members.
- **Resource allocation inefficiency:** Efficiently allocating resources such as equipment, materials, and labor is crucial for maintenance project success. However, manual approaches often result in suboptimal resource utilization and unnecessary expenses.
- **Safety concerns and risk management:** Maintenance tasks can also pose safety risks, and it is crucial to implement vigilant safety measures and risk mitigation strategies. Without proper digital support, safety protocols may be compromised, leading to accidents and legal liabilities.
- **IT safety:** There are many external stakeholders who take part in maintenance activities in all organizations, all of them having different IT security measures and regulations, so therefore supplying a safe IT environment might be difficult.
- **Operational inefficiencies:** Inefficient workflows, lack of collaboration, and outdated communication channels hinder productivity and progress in maintenance projects.
- **Lack of acceptance due to poor usability of applications:** Required entries into the maintenance system are not made or not made promptly because maintenance staff do not use the "tools" provided. Sometimes, they might feel exhausted from all the software tools that they have to use, especially if there are multiple solutions that they must use for different activities.
- **Mixed infrastructure or systems in companies:** It is a challenging task to connect multiple stakeholders that have distinct levels of digitalization, so connecting everyone can lead to a substantial additional cost.

These challenges in daily maintenance operations can significantly impact project success and profitability. Therefore, mastering effective data management and utilizing digital tools to streamline maintenance processes are essential to ensure smooth and efficient execution of maintenance tasks. By addressing these challenges head-on, maintenance teams can enhance their performance, reduce downtime, and maximize the value and longevity of the assets they maintain.

The need for a streamlined maintenance process

In today's numerous industries, maintenance plays a crucial role in overcoming numerous challenges. The lack of digital solutions tailored to the industry's unique needs and the impact of the current social and political climate, which has led to soaring material prices, further compound these difficulties.

This whitepaper delves into the significance of streamlined maintenance processes and how they can serve as a solution to these pressing issues. By prioritizing efficient maintenance practices, including inspections, upkeep activities, and damage reports, maintenance managers can create a more resilient and proactive approach. Implementing digital solutions and incorporating innovative technologies will enable better tracking, scheduling, and resource allocation, leading to enhanced productivity and cost-effectiveness, and an easier way to supply all information needed.

Digital solutions to overcome the challenges

To overcome the challenges faced in maintenance, the industry requires a transformative shift towards adopting digital solutions. It is evident that digital technologies are no longer a luxury but a necessity for effectively tackling maintenance-related issues. Embracing these digital advancements offers numerous benefits, enhancing efficiency, productivity, and overall maintenance outcomes, paving the way for a more advanced and sustainable future.

One of the primary advantages of digital solutions in maintenance is the facilitation of enhanced collaboration. By adopting such a platform, digital tools enable stakeholders to collaborate and share real-time information seamlessly. Team members, clients, and relevant parties can access and contribute to the maintenance progress from anywhere, overcoming geographical barriers and time zone constraints. This fosters effective communication, reduces delays, ensures up-to-date information sharing, and empowers better decision-making, leading to improved maintenance project outcomes.

Another significant advantage lies in improved planning and predictability. Accurate data and advanced analytics empower maintenance managers to better plan, forecast, and assess risks, thus reducing uncertainties. With access to such data, maintenance managers and stakeholders can make informed decisions concerning timelines, resource allocation, and budgeting, leading to more efficient maintenance practices.

Digital solutions also enable optimal resource allocation in maintenance projects. By leveraging digital tools, maintenance managers can track and monitor resource utilization in real-time, optimizing labor, equipment, and materials usage to minimize waste and boost productivity.

Safety and risk management in maintenance benefit from digital solutions. Real-time monitoring, analytics, and early warning systems offered by digital tools help identify potential safety hazards and mitigate risks proactively. For example, digital platforms can monitor the condition of equipment, detecting signs of malfunction or imminent failure, allowing maintenance teams to take timely preventive actions. This proactive approach prevents accidents, breakdowns, and costly repairs, ensuring the safety of personnel and the longevity of assets.

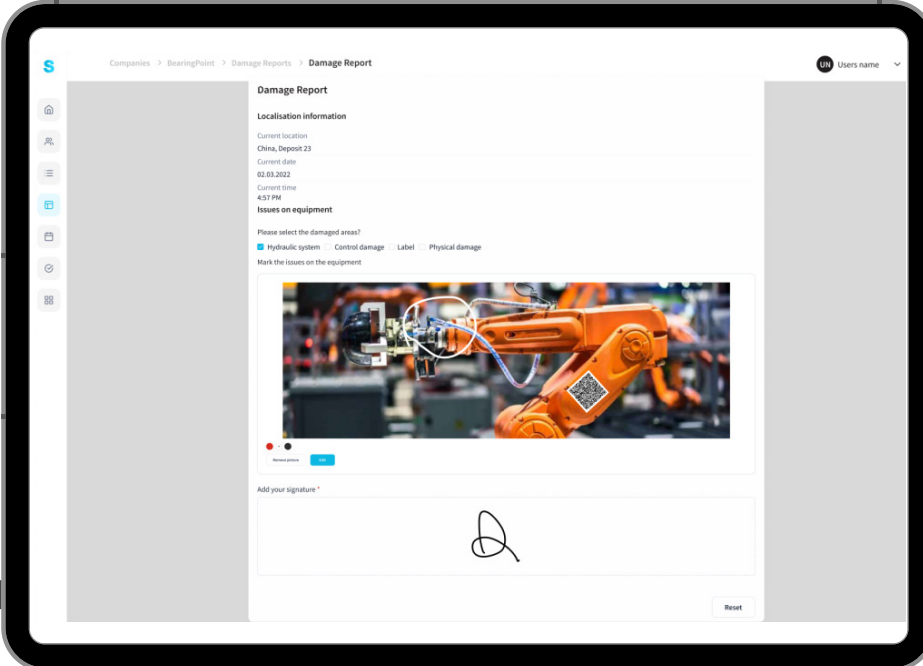
Furthermore, digitalization streamlines workflows, automates processes, and eliminates bottlenecks, enhancing overall operational efficiency and productivity in maintenance tasks. By automating repetitive and manual tasks, such as data entries or scheduling, maintenance teams save time and reduce the risk of errors. Digital solutions can automate work orders, schedule preventive maintenance tasks, and facilitate timely procurement, reducing project delays and optimizing maintenance efficiency.

Maintenance practices on the example of Swarm

BearingPoint Swarm is a cutting-edge digital solution designed to revolutionize maintenance practices. It is an automated solution for smart data collection, integration, and analysis through digital forms. Its connectors safely integrate data into your existing enterprise systems without exposing it to external threats. To maximize your efficiency, you can personalize the data collection according to your business needs. This is done through easy-to-customize templates and various input types. This increases acceptance, simplifies use, and saves time, resources, and money.

Also, all these operations can be done only when it is needed, having the option to customize it even to this level.

The next picture illustrates a Swarm form that is tailor made for a damage report, having the option to upload pictures as well to pinpoint the exact part that is damaged.



The screenshot shows a mobile application interface for a 'Damage Report' form. The form is titled 'Damage Report' and is part of a 'Damage Reports' section. It includes a navigation bar at the top with 'Companies', 'BearingPoint', 'Damage Reports', and 'Damage Report'. The form is divided into several sections: 'Localisation information' with fields for 'Current location' (China, Deposit 23), 'Current date' (02.03.2022), and 'Current time' (4:23 PM); 'Issues on equipment' with a prompt 'Please select the damaged areas?' and radio buttons for 'Hydraulic system', 'Control damage', 'Label', and 'Physical damage'; a photo of an orange robotic arm with a red circle indicating a damaged area; and a signature field with a handwritten signature and a 'Reset' button.

Example of damage report done in Swarm

Maintenance managers must adhere to safety, quality, and industry standards while overseeing equipment and facility maintenance. BearingPoint Swarm, a digital solution, can help them by streamlining operations. Data analytics can be used to identify trends, predict failures, and optimize maintenance schedules for efficient asset management. With Swarm's mobile app, maintenance teams gain on-the-go access to work orders and asset information, enhancing communication and response times. It maintains comprehensive records of maintenance activities and inspections, facilitating compliance with regulations that can be integrated with the current existing systems.

The following image shows how Swarm forms can be customized in depth, in a way that they can be used in activities such as equipment inspection, having the option to create everything from scratch.

The image shows a tablet displaying a 'Build form' interface for a 'Quarterly Equipment Inspection'. The interface is split into two main sections: a configuration sidebar on the left and a form preview on the right. The sidebar includes sections for 'General' (question text, scale), 'Required' (checkbox), 'State' (Default, Disabled, Hidden), 'Columns' (grid), 'Options' (Interval, 'I don't know' option, point text), and 'Use words' (toggle and list). The form preview shows a title 'Quarterly Equipment Inspection', a list of aspects (Engine, Breaks, Tires, Transmission, Emissions), a 'Visual Inspection' section, a 'Review the equipment' section with a risk indicator scale (0-5), and a 'Review the equipment' section with checkboxes for alarms and a wheel pressure slider.

Example of a quarterly inspection form which is filled out in Swarm

Key aspects of BearingPoint Swarm in the context of maintenance include:

- Overview and core concepts: BearingPoint Swarm utilizes swarm intelligence algorithms and machine learning techniques to facilitate decentralized decision-making and collaboration among maintenance project stakeholders. As a centralized platform, it effectively integrates, analyzes, and visualizes maintenance data.
- Key features and functionalities: BearingPoint Swarm offers a diverse range of features tailored to meet the specific needs of maintenance managers. These include real-time monitoring, predictive analytics, resource optimization tools, risk management capabilities, and interactive communication channels.
- Customization: the platform includes a versatile form builder experience, enabling users to create surveys for various maintenance purposes, from equipment inspections to service evaluations. The forms can store data, compute assessment scores with instant results, and communicate with other systems like SAP, Salesforce, and more.
- Integration with digital technologies: BearingPoint Swarm seamlessly integrates with existing digital technologies, ERPs, and cloud solutions that maintenance teams may already utilize. This integration ensures real-time data exchange from diverse sources, optimizing decision-making processes and providing a comprehensive overview of maintenance operations.
- Benefits and value proposition: BearingPoint Swarm offers significant benefits to maintenance managers, empowering them to enhance project outcomes, reduce operational costs and minimize delays. With optimized resource allocation and the ability to proactively manage risks, maintenance teams can improve the safety and longevity of assets. The platform's efficient workflows and advanced analytics contribute to increased operational efficiency, streamlining maintenance processes, and facilitating proactive maintenance strategies.

Conclusion

A digital solution like Swarm is of paramount importance for maintenance due to its potential to revolutionize the way the industry operates and brings substantial value to the table. By harnessing advanced data analytics, IoT integration, and predictive capabilities, Swarm enables maintenance professionals to transition from reactive to proactive strategies.

Swarm's data handling capabilities play a crucial role in addressing the complexities of modern machinery. Its ability to effectively manage and analyze the vast amount of data generated by sensors and equipment empowers maintenance teams to identify patterns, detect anomalies, and predict potential issues before they escalate. This shift to predictive maintenance not only minimizes downtime but also optimizes asset performance and extends the lifespan of critical machinery, resulting in significant cost savings for businesses.

Moreover, Swarm fosters interoperability and data standardization by providing a unified bridge that can integrate data from various sources and equipment types. This streamlined data exchange promotes a holistic view of operations, enabling maintenance professionals to make well-informed decisions and prioritize critical tasks effectively.

Ultimately, Swarm brings immense value to the maintenance industry by enabling a digital transformation that optimizes efficiency, enhances asset performance, reduces operational costs, and ensures a safer and more reliable operation. By leveraging its data-driven approach, predictive capabilities, and focus on data security, Swarm empowers maintenance professionals to stay ahead in a fast-evolving landscape, driving sustainable success for businesses across various sectors.

About BearingPoint

BearingPoint is an independent management and technology consultancy with European roots and a global reach. The company operates in three business units: The first unit covers the advisory business with a clear focus on five key areas to drive growth across all regions. The second unit provides IP-driven managed services beyond SaaS and offers business critical services to its clients supporting their business success. The third unit provides the software for successful digital transformation and regulatory requirements. It is also designed to explore innovative business models with clients and partners by driving the financing and development of start-ups and leveraging ecosystems.

BearingPoint's clients include many of the world's leading companies and organizations. The firm has a global consulting network with more than 10,000 people and supports clients in over 75 countries, engaging with them to achieve measurable and sustainable success.

For more information, please visit:

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Any questions? Our Swarm experts are ready to [help with your queries](#).

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