INNOVAPPTIVE

10 Must-Have Features for a Connected Worker Application

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Index

Plant Maintenance by the Numbers

One recent estimate found **four out of five** manufacturing plants in the United States **don't know how much downtime they endure in a year**. They don't keep track of downtime at their plant and they aren't able to make an accurate estimate.

What these plants don't know is likely costing them a lot of money in terms of lost production, lower revenues and greater profit margin pressures. How do we know this? Because surveys reveal several interesting statistics about plant downtime.

- Plants lose between **5% to 20%** of their production due to downtime
- The average manufacturing plant suffers **800 hours** of unplanned downtime every year
- The average cost of downtime is **$260,000 per hour**
- Unplanned downtime costs industrial plants an estimated **$50 billion** every year
- The average age of industrial equipment and assets is nearly **20 years**
- Aging equipment is the leading cause of unplanned downtime, but only **10%** of industrial equipment wears out - meaning the majority of mechanical failures are avoidable
- **70%** of plants don't know when their equipment is due for maintenance
- Preventive maintenance is favored by **80%** of maintenance personnel, but just over half of plants actually use it
- Running equipment to failure can cost **10 times** as much as a preventative maintenance program
- **44%** of plants still use paper records for maintenance reports and **55%** use spreadsheets and schedules

Reactive, Run-to-Fail Maintenance Hurts More than Helps

Plants employ a maintenance staff to keep production units, lines, equipment and machinery up and running. It's their job to ensure unscheduled downtime is kept to a minimum to maximize production and to keep plant revenues flowing.

A run-to-failure maintenance program just doesn't offer as many benefits as its proponents claim. The run-to-failure philosophy doesn't do much, if anything, to mitigate downtime, and costs more money in lost production. It's no wonder so many maintenance personnel prefer preventative maintenance.

Furthermore, using paper maintenance reports, spreadsheets and schedules, either as part of a run-to-fail or preventive maintenance program, hasn't proven to be an effective way for frontline workers to gather mission-critical information or to disseminate it to decision makers for quick action. There are several reasons for this:

- Higher administrative costs
- Reduced wrench time and productivity
- More travel
- Greater compliance risks

The Costly Disconnect Between FrontLine Workers, Back-Office and Systems of Record

Using paper forms leads to higher administrative costs. Someone has to enter all the information on those forms into the plant's back-office system of record like SAP so that it can be shared electronically with decision makers – the so-called "lastmile" of the data collection process. But that last-mile procedure takes time, and time is, after all, money.

So someone has to be paid to perform this function. If that's a dedicated person for whom this is a primary task, that means keeping that person on the payroll at the expense of perhaps adding another employee somewhere else where there is a more pressing need. Or if the job of SAP input is assigned to someone as an added responsibility to their existing duties, input takes that worker away from more productive work If a frontline maintenance worker enters in the data, that technician is left with less time to perform needed maintenance. Data entry certainly isn't the best use of the technician's time and talents.

We've yet to note the extra hours spent looking for lost or misplaced paperwork, arranging files into proper order, deciphering handwriting, filing and other tasks. Paper forms inhibit communication and collaboration between workers, departments and plants. They also don't offer much security. Paper data collection is not only outmoded, it may cost more than it's worth in time, effort, productivity and money.

McKinsey research found that changing from a paper-based data management system to a digital one can increase productivity up to 25%. A digital system is much faster than a paper one. It takes less time to gather needed data, process it, get it entered into the back-office system like SAP then disseminate it to production, operations and maintenance executives, directors, managers, planners and supervisors.

Paper-Based Maintenance Processes Hamper Wrench Time

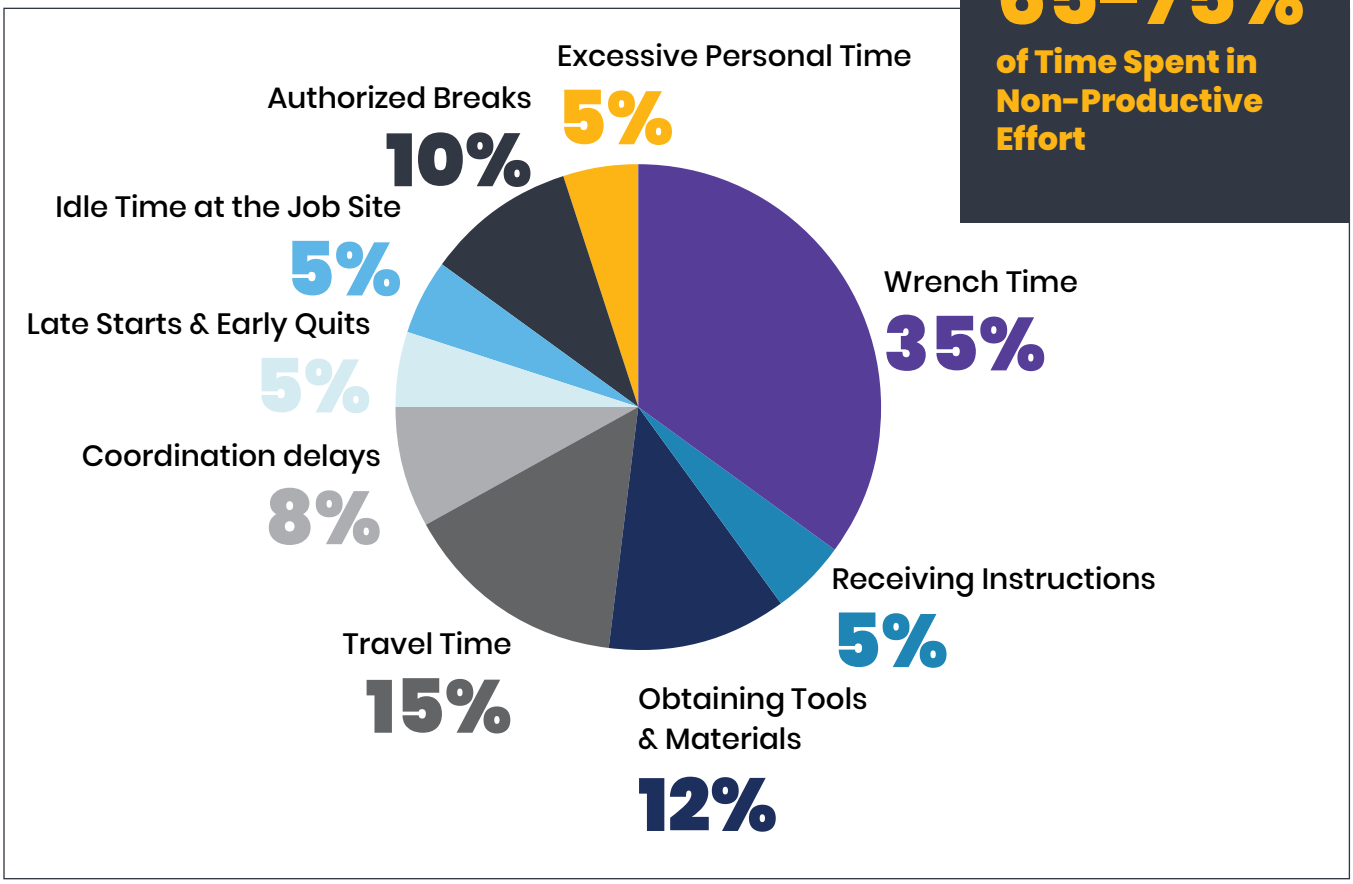
It's estimated that two-thirds to three-quarters of an industrial frontline worker's time is wasted on non-productive effort. Only 25% to 35% is devoted to actual wrench time. That means in an eight-hour day a craftsperson is doing less than two hours and 45 minutes of the work expected.

How's the rest of the time spent? It's wasted on preparing and transitioning, traveling from one assignment to another, or waiting for instructions, materials and equipment. Based on the Bureau of Labor Statistics' estimate of an average maintenance technician's salary ($50,440), time spent on unproductive tasks comes out to about $38,082 in labor costs per worker per year.

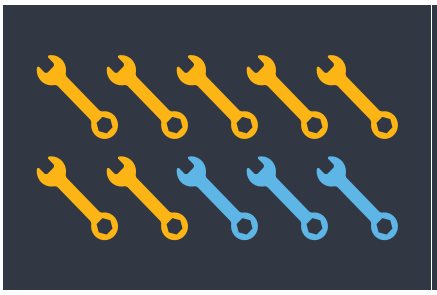
4X Higher Maintenance Costs due to Inefficient Maintenance Operations, Spare parts Unavailability, Maintenance Backlogs and Unplanned Downtime

A paper-based, reactive maintenance program hurts visibility into the entire process. Supervisors are stuck in information silos. They have no way of knowing the status of work being performed or its outcome until paper reports are turned in or manually uploaded into the back-office system. This makes it hard to plan and schedule maintenance activities, effectively allocate labor and material, and prioritize work. It also increases work order backlogs, putting maintenance staff even further behind and forcing them to perpetually play catch-up, increasing the risks of equipment failure and unplanned downtime.

A Day in the Life of a Typical Maintenance Crafts Person



65–75% of Time Spent in Non-Productive Effort



70% Preparing, Transitioning, waiting for materials, equipment, information

30% Direct Wrench Time

Using a paper-based maintenance program doesn't help frontline workers be more productive on the job. It may do the opposite as they fill out forms and complete checklists with clipboards and pens, search for equipment information or repair procedures through manuals missing pages or whole sections, try to remember where they left the compliance log, or leave a work assignment early because they need to collect and input the day's forms into SAP.

Skills gaps of frontline workers are widening and impacting asset uptime.

The Problem:

- Average age of frontline worker widening (44.1)
- Skills gaps widening and tribal knowledge disappearing
- Rapid ramp up of skills critical in harsh operating environments with complex processes
- This aging workforce, coupled with a tight labor market has resulted in critical skills and talent gaps impacting the ability of asset-intensive industries to recruit, train and retain a workforce with suitable competencies.

The Solution:

It's critical for enterprises to start thinking about how digital transformation can help them combat these big-picture trends. Merely replacing paper and delivering a mobile app for your frontline worker is not the right solution. You need to be thinking of a connected worker strategy that puts your frontline worker at the center of all your disparate systems, transforming them into a "Connected Worker". A Connected Worker strategy converges different technologies like cloud, mobile, web, chat, social, wearables, AI/ ML and more to change the entire working life of your frontline worker.

It is important that you not only think of enabling your frontline worker with important SAP operational data, but also empower him with step-by-step guided work instructions that help him get the job done faster, better, cheaper and safer. You need to be thinking about the growing population from 7.6B to 9.6B and the demand for your products and services, and you need to think of bridging the skills gap between a new frontline worker and an experienced frontline worker. Experts will more and more be used to help 4-5 frontline workers from the comfort of their homes. Remote guided assistance and over the shoulder coaching with smart glasses and video conferencing experience will not just be a "cool technology", but a necessity in the next 3-5 years.

Best-in-class Connected Worker software helps combat the macro trends that enterprises are expected to witness in the near future. Best-in-class Connected Worker platforms will not only digitalize the last mile of frontline workers with visual, guided and step-by-step work instructions, but will also unlock and combine operational data from your system of record such as SAP on mobile devices and smartglasses.

It's easy enough to share an operation such as "fix a pump" from an SAP Work Order on a mobile app. However, the difference between a pump being fixed in 30 minutes or an hour depends on the step-by-step guided instructions that bridge the skills gap and integrate the field data capture back into SAP. Best-in-class connected worker platforms deliver these connected worker experiences, both on mobile devices and smartglasses.

Manual, Tedious and Linear Process Means More Travel, Less Work

Excessive travel is another factor that hampers frontline worker productivity. This can be travel ranging from too many trips to the parts warehouse across the production floor to having to drive back and forth between an office or parts depot to far-flung units within a plant.

Why all this extra travel? Most enterprise workflows are highly dependent on paper, making for a highly manual, tedious and linear process. Frontline workers have to pick up daily required paperwork or drop it off so that it can be entered into SAP. They use walkie-talkies and walk around with large binders. Travel time takes these employees away from other, more mission-critical tasks, including repair work orders. If all this travel time across the plant is added up over a year, the results might prove shocking. This is valuable time essentially wasted on a non-productive task that adds nothing to the bottom line.

Inaccurate Field and Maintenance Data Capture Increases Compliance Risks

Government agencies at every level – federal, state, county and city – are increasing environmental, health and safety (EHS) regulations to keep workers safe. Ensuring compliance with them can be labor-intensive and time-consuming.

Using a paper-based data collection process adds greater, needless risk to a plant's compliance efforts. How? By slowing down the process and turning it into a chore. A frontline maintenance technician conducting an operator round, a safety check or a risk assessment has to fill out the form by hand, take it back to the office, file it and enter it into SAP. That entire "last-mile" process can take hours, or sometimes days, to complete.

During that delay, a manageable issue could grow into a crisis, leading to an EHS incident and a potential compliance violation. If plant decision makers had access to information in a more timely fashion, they could have taken preventative measures that might have forestalled a crisis. That lack of timely information could result in unplanned downtime, and even fines and sanctions, both of which can put a serious crimp on revenues and profit margins.

A "Connected Worker" Strategy to Overcome These Challenges

Industrial plants have invested untold millions of dollars on operational and production optimization and enhancement programs. Some have yielded results, others not so much. A Connected Worker strategy is beyond deploying a Connected Worker application. It involves reimagining your workflows, processes, people, competencies and ultimately the technology that can enable an end-to-end connected worker strategy. Forward-looking companies realize a Connected Worker strategy by empowering the frontline worker to do more with less.

Best-in-class Connected Worker applications should be able to share pictures, videos and marked-up PDFs in return to clarify a situation without ever having to leave the site or return to the shop. Two-way video calls, over-the-shoulder remote coaching and hands-free operations can be accomplished with industrial smartglasses. Supervisors and decision makers review work progress and see results in real time on mobile devices and desktop applications. Thanks to immediate electronic access to data, decision makers can spot issues, analyze trends, formulate action plans, issue work orders to remedy problems and track progress at every step, with no delays.

10 Must-Have Features in a Best-In-Class Connected Worker Application

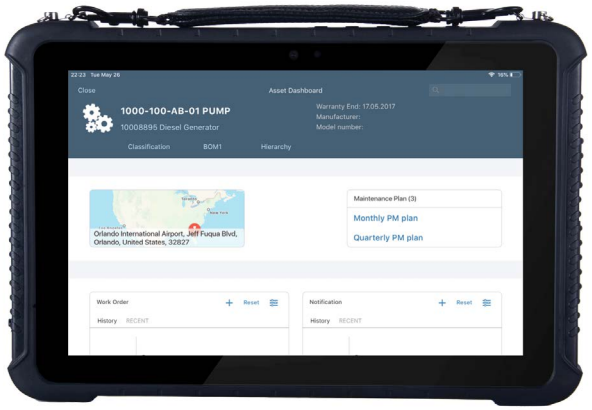
A Connected Worker application helps you use current, accurate operational data to cut the unplanned downtime that leads to lost production, lower revenues and greater profit margin pressures.

What should you look for in a Connected Maintenance Execution application? Any application you consider ought to be guided and intuitive. It should be easy for frontline workers to use and enable them to receive guidance at any time. The system should also be agile and configurable. The platform should enable you and your management team to rapidly and successfully respond to an ever-changing business and regulatory environment. Finally, it needs to empower workers, departments and management to operate and collaborate anywhere, at anytime. It should facilitate greater communication, flexibility, nimbleness and cooperation in data collection and problem solving.

If you're in the market for a Connected Maintenance Execution application, here are 10 essential features you can't do without.

1. Remote Guided Work Instructions and Assistance via Smartglasses

- Remote guided assistance is a hands-free collaboration and tele-presence for frontline workers.
- Enables frontline workers in the field to get assistance from experienced technicians.
- Enhanced two-way video call experience where the expert can remotely see and hear from the worker's point of view.



2. Asset Equipment Dashboard

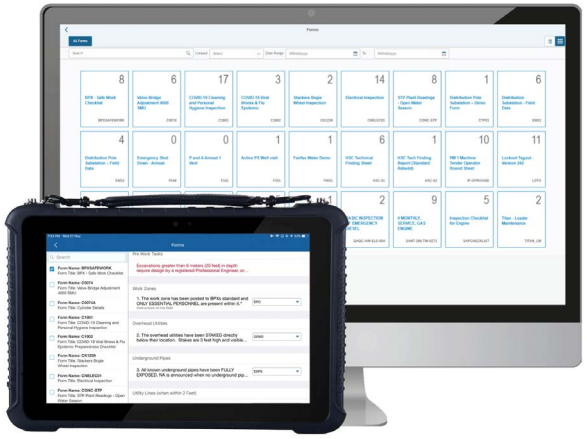
- Auto-detect equipment's complete health history with one scan via mobile or smart glass device.
- Empower planners, schedulers and technicians with important machine and equipment data at their fingertips.
- Make smart and intelligent decisions to keep work projects moving.

3. Configurable Dashboard

- Personalize Connected Maintenance Execution experiences by user personas, sites, plants and geographies.
- Simple and easy-to-use personalization helps connected frontline workers get the job done faster, better, cheaper and safer.

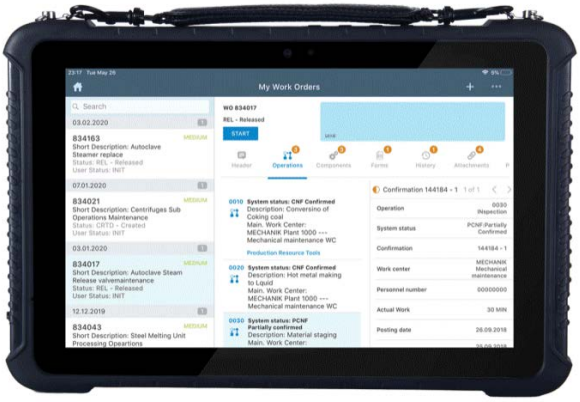
4. Embedded Work Instructions, Safety and Compliance Checklists

- Make use of a digital library of prepackaged work instructions, inspections, compliance and safety procedures.
- Use forms as-is or reconfigure as needed, make changes to suit your specific needs and submit in SAP notifications and work orders.



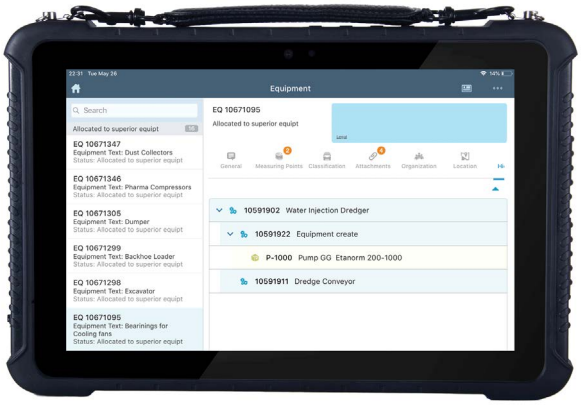
5. Auto Time Capture

- Track time at an operations level.
- Accurately post to SAP Work Orders or CATS time sheet.



6. View Functional Location and Equipment Hierarchies

- View functional location hierarchy.
- View equipment hierarchy.
- View Bill of Materials and spare parts.



7. Capture and Annotate Images, Videos and PDFs

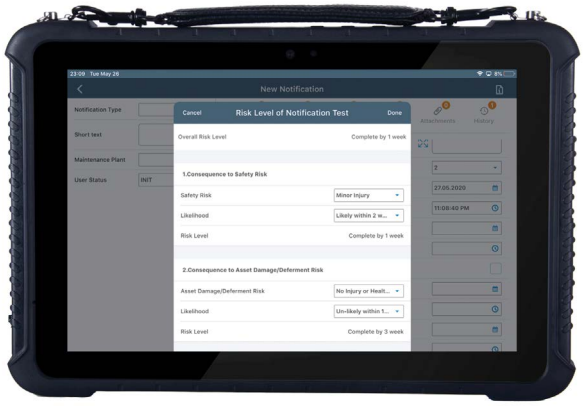
- Graphically annotate documents and images attached to work orders, notifications, equipment, functional locations and other maintenance components.
- Add notes, call outs, arrows and shapes to highlight important content.
- Add a digital signature where tracking and approvals are required.

8. Optical Character Recognition (OCR)

- Recognize text and numeric information and digitize it during the data capture process in a second - no barcode necessary.
- Capture equipment identifiers, numeric meter readings, paper document content and more.
- Embedded in search screens, object lists and forms anywhere data capture is required.

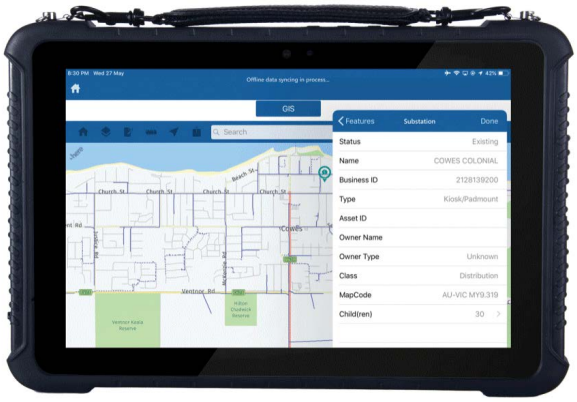
9. Configurable Risk Matrix

- Build a risk profile of all plant equipment.
- Prioritize notifications and work orders by severity, likelihood and potential duration.
- Embed risk and safety measure information within work orders.



10. Geographical Information Spatial (GIS) Integration

- Integrate any GIS - such as ESRI or GE Small World - with SAP(work orders, notifications, equipment, functional location), and guided step-by-step work instructions, inspections and compliance forms.



Questions? We're here to help

Innovapptive – a Connected Worker platform provider – has a simple mission: "Connect and create conversations between people, machinery and work processes while improving people's lives." Innovapptive offers the only Connected Worker platform and Connected Maintenance Execution application that ***digitizes the last mile of frontline workers*** into SAP and IBM (watch a short video here). We'd like the opportunity to personally show how our Connected Maintenance Execution application can help you successfully start and complete your journey to more efficient, safe and productive plant maintenance. Schedule a free demo today by calling 844-464-6668 or by clicking here.

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