

Mobility in maintenance

From paper to tablet – Case study

Mobility is a concept becoming increasingly relevant when it comes to management. Not only due to the growing mentality regarding the use of paper, but mostly because maintenance is more of a field job than it is an office one.

When speaking of mobility in maintenance, an IT-based tool is obviously necessary for the following operations to become fast and practical:

- > Access to the equipment history
- > Quick records – Pressure, temperature, Kilometres, amongst others
- > Information in real time; mostly regarding maintenance requests and equipment downtime
- > Recording all interventions
- > Allocation of all the resources required for a maintenance intervention (man-hours, spares and suppliers costs)

So, for this tool to eliminate paper, it is necessary that all information regarding a job is available in a digital format (tasks and resources), as well as an also 'digital' validation process that eliminates physical signatures.

In this article, we will analyse what is expected from a CMMS to make it the necessary tool to advance into **mobility in maintenance**, analyse the process for the implementation of this mobility and go through the advantages of all this, using a real case scenario, Prio Parque Tanques.

Prio Parque de Tanques S.A., located in the Liquid Bulk Terminal of the Aveiro Port, is responsible for the reception, storage, filling (of GPL – Liquefied Petroleum Gas) and dispatching of liquid fuels and GLP. It occupies an area of 4 hectares and it has the total capacity of 75 890 m³. The company is certified in integrated management systems (Environment, Quality and Safety).

Because of the specificity of its functions, maintenance plays crucial role in Prio Parque Tanques, since it allows the continuous operation of the installation and it guarantees that the equipment corresponds to the safety, environment and quality conditions demanded. Being aware of this scenario, Prio Parque Tanques acquired a CMMS in 2013, with the goal of centralizing the information, minimizing equipment downtime, recording maintenance jobs and controlling their execution, and, in the future, allowing the calculation and monitoring of maintenance key indicators – MTBF – Mean Time Between Failures, Downtime due to Failure, Equipment Uptime, MTTR – Mean Time to Repair, among others.

Prio is the only petrol station in the Iberian Peninsula with QSA's triple certification (Quality, Security and Environment), and is constantly looking for opportunities to improve its processes. The company realised that its maintenance jobs were suffering due to an elevated rate of paper dependency, and high administrative times, due to the flow of documents related to maintenance. Prio Parque Tanques understood that the future of maintenance was in *Mobility*.

Prio Parque Tanques decided to replace paper with tablets. For tablets to work in maintenance, it is necessary to have a CMMS implemented that includes a Mobile module, an App or any other mobile solution, yet always connected to their CMMS. Whichever the solution, the interface should be simple and user friendly to enable the technicians to learn how to quickly

check the jobs and the equipment's basic information. Prio Parque Tanques opted for a WEB application of the CMMS that the company already used.

A WEB App complements a maintenance management software, it does not need and cannot have the same level of complexity / features of the main application. It is an application that is suited to the day-to-day maintenance technicians, for them to register corrective tasks, report planned work, check information regarding the maintenance, make quick records (operational parameters and running records), check the availability of the spare parts in stock and apply them (stock outs) to maintenance interventions. For maintenance service providers, it can also be a vehicle for communication with their clients, since the clients have access in real time to the tasks that are being carried and can even *Approve* those tasks carried out. This tool should also allow the maintenance manager to set the level of access that each user is allowed within the available information.

Overall, a maintenance management WEB application should hold the following features:

- › **Accessible** – When it comes to a WEB application, it should be accessible anywhere and it dismisses any need for actual installation;
- › **Simple** – Simple to use; so simple that the users can actually learn by themselves how to work with it; And it shouldn't contain *all* the features available in the CMMS system, running in the backoffice;
- › **Restrictive** – It should be possible to set all access privileges for each user;
- › **Paperless** – All of the people involved in the maintenance processes access the application, dismissing any kind of printouts;
- › **Include a workflow of approvals** – the application should include the status of the interventions (for example: planned, in progress, executed, approved and ended) allowing each user, depending on the access they have, to change the status, leading to a workflow of approvals without the need for physical signatures. Image 1. shows an example of this workflow:

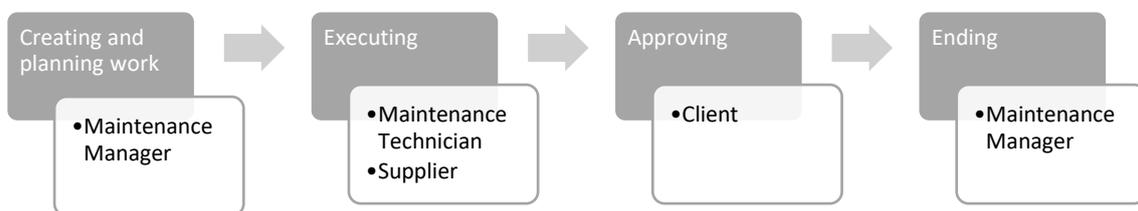


Image 1 – stages of a typical work order

To achieve this modernization, Prio Parque Tanques had to restructure all of its maintenance processes. Before this restructuring, all work orders were attached through a document with all the tasks to be performed in each maintenance. This document was always printed out (as well as the work order), resulting in an average of 3 sheets per work order. In 2016, there were 1237 job orders, which meant 3711 sheets of paper that, beyond environmental impact, represent an average cost of 400 euros per year (in 10 years that equals 4000 euros).

For Prio Parque Tanques to achieve a mobile solution in maintenance, the company had to, first, redefine the maintenance process: the maintenance manager now defines and schedules the work order in the backoffice application; in the Web app, the technician then checks the tasks that were assigned to him (and only those that were assigned to him), carries out these tasks, records the resources used (man-hours, spares, ...) and clicks to End them. In the end of this process, the maintenance manager will be able to see all the work orders that have been Ended and takes one last step: Closes the work orders. Since the maintenance manager is the only one who has access to Create, Schedule and Close the Work Orders, and

since only the technicians have access to End their own Work Orders, the signature of both these people involved becomes unnecessary. In Image 2. a graph with the new workflow of a maintenance intervention:

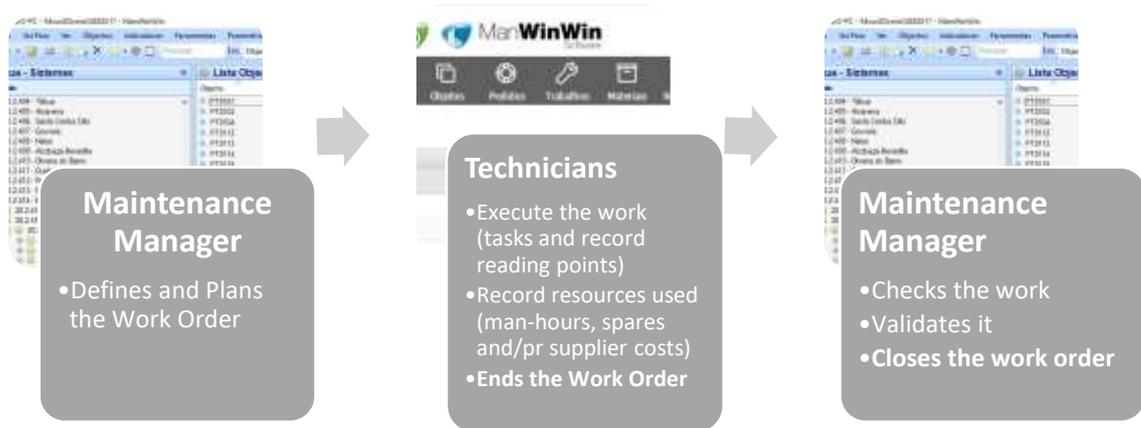


Image 2 - Prio Parque Tanques' Maintenance Process

Besides redefining the process of maintenance, the maintenance plans previously printed and attached to the Work Order, were recorded as tasks and reading points in the CMMS. Prio Parque Tanques had about 304 maintenance plans distributed amongst approximately 400 assets, with the respective tasks and reading points created in the application. This job could have been performed by Prio Parque Tanques alone, yet the company relied on the consultancy services consultancy of ManWinWin Software (Navaltik Management Ltd.). This way, it was possible to bring together Prio Parque Tanques' knowledge of their assets and maintenance work with ManWinWin Software's know-how and experience in maintenance management, since it is the latter company who has a deeper knowledge of the application and the best ways to use this App in practice.

This consultancy work took 4 days. Most of the work was related to 'converting' the physical information into a format that allowed the possibility of managing all the maintenance work in a mobile application. The project ended and the new procedure was gradually implemented in the day-to-day lives of the technicians, and it is today a solidified process and with possibility of being extended to other companies within the group.

This project was only possible because Prio Parque Tanques already used a CMMS and already had a well-structured and well-implemented maintenance routine. Only under these conditions it is possible for any company to advance to a mobile reality successfully.

Mobility in maintenance is a reality and it is the future. Paper and Folders are becoming increasingly obsolete in maintenance. The tablet is the new paper, where we can access any information, anywhere we are. However, when making the transition to mobility, it is necessary that companies are self-aware of their current 'maturity' or status in Maintenance. If the company does not yet have a CMMS, if it doesn't have a complete equipment list or it doesn't have an effective planning of their maintenance work, introducing mobility in maintenance might be a too ambitious step to take and a big reason for any CMMS not to work in that company. All the processes have its stages. First and foremost, it is necessary to have all maintenance processes properly structured, a CMMS running smoothly and, if necessary, use paper during the initial stage, allowing the technicians to adapt to the new processes and to the discipline of reporting the work they carry out. Only after consolidating all of the previously mentioned steps, should a company move towards mobility.

Article published by ManWinWin Software Consultancy Team | support@manwinwin.com