

**Aero
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**Integrating drones into a plant
maintenance solution**

Introduction

Any organisation that implemented a plant maintenance solution in the past, understands the fact that you only can maintain a solid ROI by reviewing on a regular basis the complete process chain (Controls, Visibility and Efficiency), by failing doing so, your ROI will decrease exponential over the years, as leading industrial practices and technologies are evolving on a rapid pace. Validating a plant maintenance solution, is not just reviewing the “as is” and the “to be” situation, is also holding the current business processes against the light, validating if leading industrial practices and technologies, enables your organisation to increase or maintain the expected ROI.

One of the new technologies that can increase your plant maintenance solution and to reduce the overall cost for any organisation that has a substantial volume of fix assets, rolling stock or special structures (e.g. windmills, transmission towers, flares...) is by introducing and integration drone technology into your business process.

Challenges

As an organisation, you will be facing some challenges by introducing drones into your organisation

Analysis

Before starting any solution implementation, it's important to have the 3 W's answered

- Where will the drone be deployed: on the premise, public space, highly secured area...
- What will be the mission of the drone: Inspection, security surveillance...
- When will the drone be used: daily basis, on demand, monthly...

From experience, the conclusion is that medium and large organisations will benefit the most from a hybrid model. Meaning that an organisation procures an industrial drone, enabling them to perform 75 – 80% of the inspections work and the rest will be DAAS (Drone as a Service); a 3rd party responsible specific inspections, requiring specific type of drones.

Selection

Once the conclusion of the analysis is presented and accepted, the selection process can start. The outcome of the selection processes is based on the approved selection criteria matrix that's been compiled during the analysis process.

The selection process exists out of two parts

- Technical: validates the technical capabilities of the drones
- Financial: validates the total ownership cost of the drone(s) or 3rd party service.

Final outcome of the selection once both technical and financial are matched at the end.

Integration

The integration of drone information into a plant maintenance solution, should not be a gimmick piece of work, as the information produced by drones exists mainly out of imagery, sensor and spatial information, which can be easily digested by a geographic information system (GIS) and the plant maintenance solution.

Daily operations

Before deploying drone solutions within your organisation, it's imperative that following items are in place or have been executed

- Operational handbooks have been updated;
- Necessary training is provided; and
- Dry runs have been held and possible operational issues have been corrected.

It's important that everybody within and outside the organisation, knows all the new procedures, ensuring that the newly implemented solution doesn't come to a grinding halt.

Benefits

Most likely identified benefits of a drone are:

- Fast deployment
- Easy to use
- Faster

As the above items are a few of the operational benefits; From a business process and cost benefit perspective you can add following items

- Cost reduction in general terms (less specialized equipment required, insurance, FTE's....)
- Quality improvement from a planning perspective
- Quality improvement from a logistical perspective
- Quicker turn-a-round time between SoW and final results of the inspection
- Quality improvement between GIS and plant maintenance solution.
- Quality improvement from a data perspective (imagery, spatial...)

Conclusion

By holding your different plant maintenance business processes against the light on a regular basis, validating them against the latest industrial standards and technologies, ensures solid ROI.

For organisations that have a plant maintenance implementation, but no integration with GIS or Digital Asset Management solution, it's recommended to do so, to increase the ROI of your plant maintenance solution into your organisation from an overall perspective, as all data (received, generated, derived, combined) will be optimally used and throughout the solution.

For organisations that are dealing with a substantial volume of fix assets, rolling stock or special structures (e.g. windmills, transmission towers, flairs...), it's absolutely recommended to look into the usage of drones or DAAS and an implementation of GIS and Digital Asset Management solution into your plant maintenance solution.