

## **Integrated Asset Management: predictive, future responsive and use orientated decision making.**

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In the recent years Port of Rotterdam worked on a higher level in Asset Management of its maritime infrastructure, which is confirmed by achieving the ISO 55000 certification. The currently running program Integrated Asset Management adds to this basis to look at the assets as part of the logistics chain and/or nautical process and ensure the availability of (asset related) information for all in the chain involved parties, not only within the Port of Rotterdam organization but beyond, such as customers and other stakeholders. The customers and stakeholders want to know more about the assets, but we want to know more about how customers use and need the assets with the aim of increasing efficiency in all parties. In society and the world around us we see increasingly challenges that result in threats and opportunities, not just for individuals and the environment, but also for organizations such as the Port of Rotterdam. This includes issues such as climate change, world population growth and more specific issues for the port authority like energy transition, autonomous sailing, alliances in the container transport and the demand for mobility. At the same time, there is exponentially increase in digitization. Everything is measured or can be measured and is available digitally. POR will have to prepare for major changes in the field of digitization and robotization in the port, which is already recognized in the ports digitization strategy: PoR's aim is not only to have the best port infrastructure, but also the smartest. Same goes for the assets of PoR in the future. Where the assets are "dumb" now, they will be in the future equipped with smart sensors. These sensors monitor continuously the assets of PoR. Integrated, anywhere in the Port, all at the same time, all together and on every second of the day, assets will cooperate with each other. Hence: "the Inspector of the future is a sensor." No longer doing things right, but doing the right things in asset management Using smart and integrated analyses (Analytics) that make it possible to understand and anticipate better and that now are still unknown and unforeseen. Analytics within Asset Management is seen as one of the critical success factors to assets and modalities to make timely measures and developments in the port. Analytics allow us to make future-oriented decisions based on facts, so called ' what-if ' scenarios and to develop aging models based on actual use. This allows us to optimize the performance of assets and modalities based on real time and future use (like predictive maintenance and future-responsive). Analytics will also tell us on which areas insufficient information is available to support adequate decision-making. Also analytics will trigger for the tuning of appropriate information based on, among other things, sensors, external data sets, and big data. The availability of (real time) data will also provide benefits in the design of new assets. Integrated asset management does not start when a new asset is built and delivered, but gives added value in the design process, by making clear what the

longer term effects are of choices in the design, based on data from actual use. In the end it delivers a saving of deployment of hours and money. On several areas there is now talk about scaling up, so also in asset management. Eventually, the shared information, lead to systems that are associated with each other and communicate with each other independently, a complex of systems, where plans, information and so on is shared between organizations and leads to more cooperation and decision making based on the interests of the entire chain of systems. What eventually leads to an even more efficient port management. The benefits are evident.

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