

Achieve Plant Optimization Through ASSET PERFORMANCE MANAGEMENT (APM)



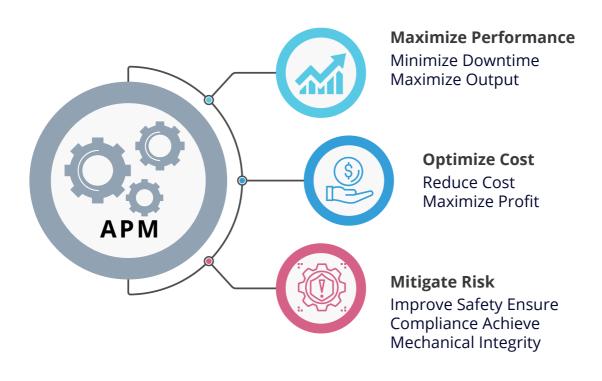


WHAT IS ASSET PERFORMANCE MANAGEMENT (APM)?

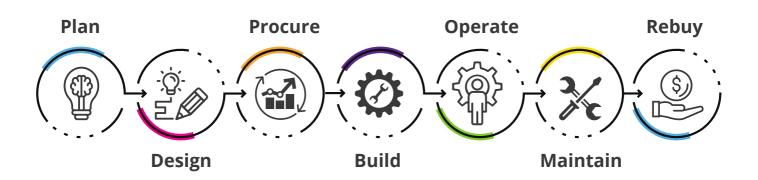
APM is a set of work methodologies focused towards maximizing performance, optimizing operation & maintenance cost, and mitigating risk of the existing physical assets of an organization.

An APM system ensures that an organization has the required processes, support system and human resources to make the asset's life cycle decision efficient, that will in turn optimize the value delivered from the asset.

Waiting for an equipment to break-down often causes longer and costlier delays that impacts the production schedule, output quality and safety. So, it is essential to monitor the current asset health to make timely and accurate decisions. APM helps to achieve the above and makes the business more sustainable

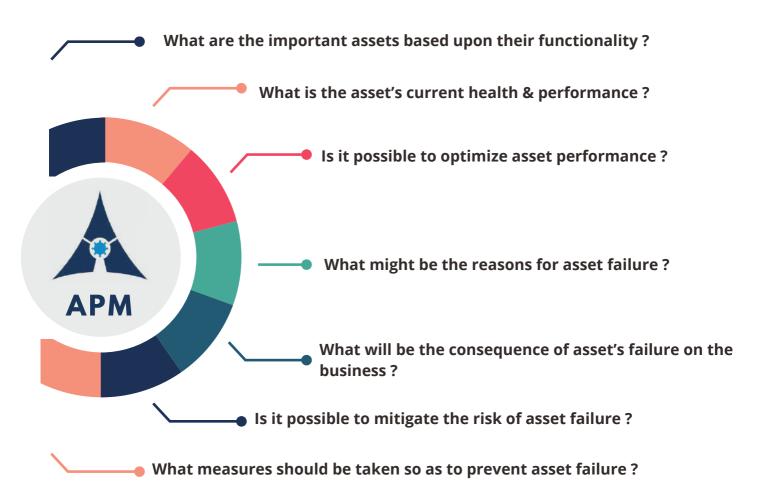


A TYPICAL ASSET LIFECYCLE





KEY QUESTIONS FOR ASSET INTENSIVE INDUSTRY ———







INDUSTRY PROBLEMS & OUR SOLUTIONS ———

PROBLEMS FACED BY O&M

LOSS IN PRODUCTIVITY

Equipment failure at bottleneck process leads to complete shutdown of production process. Failure will lead to loss in productivity as machine downtime is increased.

HIGH MAINTENANCE COST

Failure of equipments occurring even though PM tasks are performed regularly. Increased cost due to unwanted or incorrect PM tasks.

INCONSISTENT PRODUCT QUALITY

Due to defective equipment product quality gets even more inconsistent with passage of time.

HEALTH AND SAFETY ISSUES

Complex machines can fail suddenly without any prior indication thereby causing fatal injury, this is referred as risk of failure.

LESS OR NO DATA ABOUT ASSETS

As very less or no data about assets is available it becomes difficult in taking life cycle decision about the asset. This leads to unscheduled maintenance, excess spare inventory and incorrect PM tasks.

ARRELIC'S SOLUTION: APM

INCREASED PRODUCTIVITY

Productivity is increased since equipment downtime is reduced and operational availability is increased.

REDUCTION IN O&M COST

APM optimizes maintenance schedule, reduces spare part inventory and suggests best maintenance strategy leading to overall cost reduction. Also increases asset life thereby reducing investment cost.

IMPROVED MTBF

Through increase in labour availability, trained workforce & optimized maintenance techniques, asset's MTBF is improved.

IMPROVED SHE

Improved safety, reduced health and environmental risk. As failures are reduced factory premises become safe for employees. Increase in efficiency reduces environmental effect.

ASSET DATA AVAILABILITY

Creates database for every asset regarding its failure modes, PM tasks, LCC, risk associated, maintenance cost etc.



APM MAJOR & MINOR







RCM is used to develop maintenance strategy based upon the failure modes and risk associated with the failure.

Failure Mode Effect & **Analysis**

Criticality Analysis & Ranking

Run to Failure

PREVENTIVE MAINTENANCE **OPTIMIZATION**



It is an optimization technique between PM and RM strategy. Unwanted PM tasks are removed, so as to reduce maintenance cost.



Opportunistic Maintenance

Spare parts Management & Optimization

Risk Based Inspection

Reliability modelling



Waste Management Maintenance

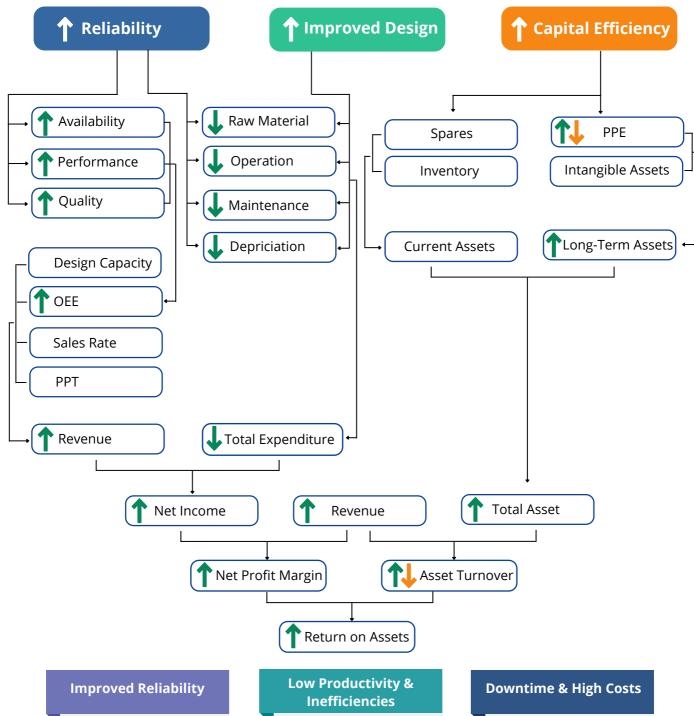
DEFECT ELIMINATION



DE is a tool that seeks to proactively identify product and process defects, allocate them a priority, and then identify and eliminate the root cause.



IMPACT OF APM ON RETURN ON ASSETS



Improved asset reliability leads to fewer failures thereby increasing operational availability, improved performance and improved quality. These further leads to increase in revenue through increase in Overall Equipment Effectiveness (OEE).

Improved design leads to lowered consumption of raw materials, fewer operational processes, reduced maintenance cost and depreciation. This leads to reduction in overall expenditure, which finally increase return on assets.

ROA can be increased by replacing inefficient assets, new asset acquisition, selling underutilized assets, by reducing spare inventory and at the same time ensuring appropriate spare availability.

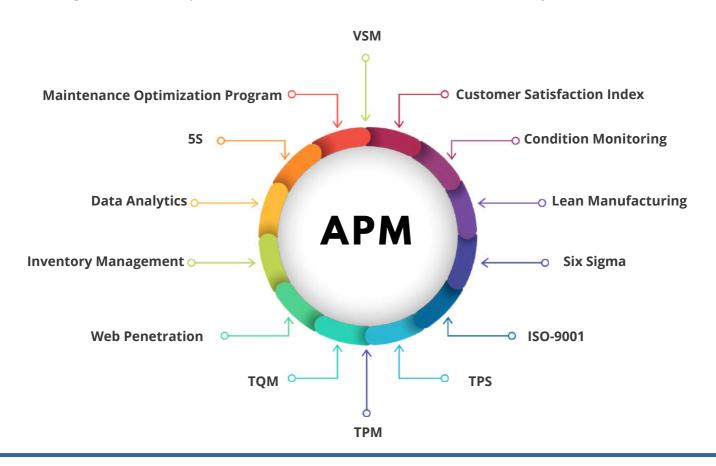


KEY BENEFITS & APM INTEGRATION ———



APM INTEGRATION WITH OTHER PROCESSES

Asset Performance Management from Arrelic can be seamlessly integrated with any existing service at the plant to enhance the overall benefit of the ecosystem.





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arrelic.com

info@arrelic.com / training@arrelic.com Toll Free : 1800 890 6250 / 1800 889 6350

Mobile: +91 98619 14400 LEI: 984500A013C40F436C26

306, Webel Tower - II, BN-9, Sector V, Salt Lake, Bidhannagar, Kolkata, India - 700091 ARRELIC RELIABILITY PRIVATE LIMITED • ALL RIGHTS RESERVED