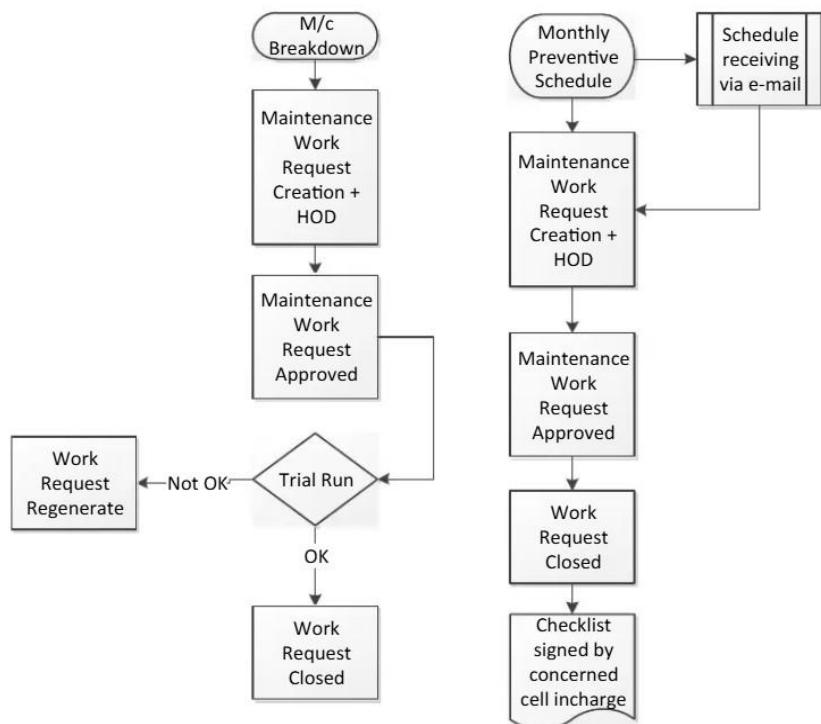


THE MANUFACTURING MAINTENANCE METHODOLOGY is to guarantee that production systems, such as CNC machines, run regularly, effectively, and efficiently over the course of their lives. Analysing structured maintenance schedules in CNC machining processes occurs through an investigation. Effective maintenance practices increase operational efficiency, security, and product quality while lowering costs, extending equipment lifespan, and decreasing downtime. Increasing machine reliability and resource efficiency are often the main goals of maintenance procedures in industrial manufacturing. These goals must be achieved by applying preventative, predictive, and corrective maintenance strategies that adapt to the particular needs of a variety of machinery and production environments. The maintenance approach depends significantly on continuous improvement initiatives, real-time condition monitoring, and statistical analysis.

The manufacturing sector has evolved due to advancements in automation, digital production, and data-driven decision-making. By supporting precise maintenance activity management and effective asset management, these technological advancements provide high production productivity and consistency in goods. Optimal maintenance performance is ensured by a systematic strategy that includes work execution, monitoring, feedback, and control. Scheduled tasks are managed by computerized work order systems, and equipment is coded. Early wear indicators are found using predictive maintenance methods like thermal scanning and vibration analysis. Data analytics and real-time monitoring improve maintenance effectiveness by seeing any problems before they cause operational disruptions. Maintenance reports and equipment data on performance were collected as part of a study centred on CNC machining processes. Strategies for preventive, predictive, and corrective maintenance optimize machine dependability and operational effectiveness, providing high output and reducing unexpected breakdowns.



Maintenance Flow Chart