
Preventive Maintenance Program Gap Analysis Checklist

1.0 Program Objective & Scope

The Preventive Maintenance (PM) Program Gap Analysis Checklist is designed to systematically evaluate the completeness, effectiveness, and compliance of an existing PM program against industry best practices and corporate reliability goals. The primary objective is to identify gaps in asset coverage, scheduling accuracy, task completeness, data collection, and continuous improvement loops. This checklist applies to all production-critical and infrastructure assets within the facility, including mechanical, electrical, and automation systems. The scope includes reviewing PM schedules, work order history, technician feedback, and spare parts availability to ensure that the PM program is not merely a paper exercise but a driver of equipment reliability and reduced unplanned downtime.

2.0 Key Performance Indicators (KPIs) & Metrics

The following KPIs are used to quantify gaps and measure program maturity:

- (1) PM Compliance Rate = (Number of PMs completed on time / Total scheduled PMs) x 100.
- (2) PM Effectiveness = (Number of failures prevented by PM / Total failures) x 100.
- (3) Schedule Adherence = (PMs started within $\pm 10\%$ of due date / Total PMs) x 100.
- (4) Backlog Ratio = (Open PM work orders / Total PM work orders) x 100.
- (5) Mean Time Between Failures (MTBF) trend for assets under PM.
- (6) Mean Time to Repair (MTTR) for PM-related corrective actions.
- (7) Percentage of assets with a documented PM plan.
- (8) Percentage of PM tasks with defined standard operating procedures (SOPs).
- (9) Technician feedback capture rate = (PMs with feedback recorded / Total PMs completed) x 100. (10) Spare parts availability for PM tasks = (PMs completed without parts delay / Total PMs) x 100.

3.0 Roles & Responsibilities

Maintenance

Manager: Owns the gap analysis process, reviews checklist results quarterly, prioritizes corrective actions, and allocates resources for PM program improvements.

Machine Operators: Provide daily feedback on equipment condition and PM effectiveness via shift logs or digital checklists; flag any recurring issues or missed PM tasks. **Plant Leadership (Plant Manager / Operations Director):** Reviews gap analysis summary reports, approves capital expenditures for PM program upgrades (e.g., CMMS implementation, training), and ensures alignment with production goals. **Reliability Engineer (if applicable):** Conducts the detailed gap analysis using the checklist, analyzes failure data, and recommends changes to PM frequencies or task content.

CMMS Administrator: Ensures accurate data entry, maintains asset hierarchies, and generates compliance reports for review.

4.0 Program Execution & Data Collection

The gap analysis is executed on a quarterly basis using a standardized checklist that covers six domains:

- (1) Asset Coverage – Are all critical assets included in the PM program? Are PM plans documented for each asset?
- (2) Schedule Accuracy – Are PM frequencies based on OEM recommendations, historical failure data, or run-time hours? Are schedules realistic given production constraints?
- (3) Task Completeness – Do PM tasks include specific steps, tools, and safety requirements? Are there clear pass/fail criteria?
- (4) Data Quality – Are work orders completed with accurate time, parts used, and technician notes? Is feedback captured?
- (5) Compliance & Backlog – What is the current PM compliance rate? How many PMs are overdue?
- (6) Continuous Improvement – Are PM tasks reviewed and updated based on failure analysis? Is there a formal process for adjusting frequencies? Data is collected from the CMMS (e.g., ServiceGrid), technician interviews, and direct observation of PM execution. Each domain is scored on a 1-5 maturity scale, and gaps are documented with specific evidence and recommended actions.

5.0 Review, Reporting & Continuous Improvement

The completed gap analysis checklist is reviewed by the Maintenance Manager and Reliability Engineer within two weeks of data collection. A summary report is presented to Plant Leadership during the monthly operations review, highlighting top gaps, root causes, and proposed corrective actions. Each gap is assigned an owner and target completion date. High-priority gaps (e.g., missing PMs for critical assets, low compliance) trigger immediate corrective actions, such as updating the CMMS, retraining technicians, or adjusting schedules. Medium-priority gaps are addressed in the next quarterly planning cycle. Low-priority gaps are tracked for continuous improvement. The checklist itself is reviewed annually to ensure it reflects current best practices and regulatory requirements. Data from the gap analysis feeds into the capital expenditure (CapEx) process by identifying needs for new tools, training, or CMMS upgrades. The ultimate goal is to achieve a PM program maturity level of 4 or higher (out of 5) within 18 months.

Regulatory Disclaimer: This program document is a generic strategic template. The end-user assumes all liability for aligning these metrics, KPIs, and reliability frameworks with specific corporate goals and OEM engineering standards.