MAINTENANCE SUCCESS CONTROL
(KEY FIGURES AND CONTROLLING IN MAINTENANCE)

The importance of maintenance has increased during the last years. Costs for maintenance are seen as valuable investments. Key figures and controlling are important instruments to make transparent both actual services and value of maintenance.

Keywords: reporting, maintenance controlling, key figures, KPI’s.

1. Goal

A goal of this article is to show some practical examples for key figures in the area of maintenance. A suitability, as well as preconditions and limits of applicability for maintenance will be discussed.

2. Problem description

Measurability as well as attainability of economical and technical targets - committed in a contract – are essential factors for a successful progress of outsourcing projects in the area of industrial maintenance.

Therefore, effective controlling and reporting systems, supported by key figures, play an important role in every kind of a maintenance contract implementation - either on a base of a frame contract, or as a main contract or as a full service contract.

3. Why and for what key figures in maintenance

Connexions can be shown in a concentrated way by key figures. Due to their choice they are indicators for what is happening in the field of maintenance in an organisation. You can define main areas of maintenance with a determination of a key figure system:

- Cost control,
- Evaluation of organisational and operational structures on the side of a service provider,
- Long-term planning of maintenance activities,
- Optimisation of maintenance processes.

4. Controlling and reporting systems for maintenance in a refinery

In the following, controlling and reporting systems will be described, which were developed in two levels within the scope of a main contract in a refinery:

- Current and regular reporting to the client (with periodical analysis of costs, activities and weak points, target values (KPI’s), etc.),
- Internal controlling with selected maintenance-typical key figures for ongoing evaluation and supervision of service performance.

4.1. Regular reporting to the client

- Current (client is allowed to look on-line at the CMM system of the service provider or at meetings, if required):
  - Order status,
  - Actual costs of orders,
  - Information regarding problems, bottle necks, deadline shifting.
- Monthly („Brief report“):
  - Detailed performance and cost controlling (budget, order structure) (also in a graphical way),
  - Costs per service / cost category and single work order,
  - Duration statistics of repairs according to priorities,
  - Middle-term planning / situation with resources and scheduling,
  - Status info about (statutory) periodic inspections („compliance report“),
  - Status of committed KPI’s.
- Quarterly („Detailed report“, in addition to a “brief report“):
  - Detailed analysis of weak points and failures (safety, quality and cost relevant aspects).
- Yearly („Management review“, in addition to a quarterly report):
  - Performance / cost controlling (achievement of objectives),
  - Presentation of results concerning a client satisfaction analysis,
  - Agreement on objectives for the subsequent year,
  - Programs for training and qualification measures.

Commitment on key performance indicators (KPI’s) to measure following values:

- Adherence of single and total budgets,
- Availability of (key) plants (mechanical availability),
- Lost time due to accidents,
- Adherence to delivery dates / Throughput time of work orders (duration of repairs according to priorities),
- Quality of workmanship / rate of complaints.

4.2. Key figures as internal controlling instrument

Common key figures of maintenance in practice, which are used for internal evaluation and supervision of service performance:

- Effectiveness ratios:
  - Urgency / priority (Number of immediate corrective maintenance events / Total number of work orders),
  - Rate of labour utilisation Planned and scheduled man hours / Required operation time for scheduled work orders).
- Planning ratios:
  - Degree of preparation and planning (Planned and scheduled man hours as a % of total maintenance man hours),
• Degree of capacity utilisation (Outstanding work orders / available man hour capacity),
• Assignment of own and external personnel,
• Portion of overtime,
• Throughput time of work orders (duration of maintenance events according to priorities),
• Portion of preventive maintenance (Preventive maintenance man hours as a % of maintenance man hours).

Cost ratios:
• Routine maintenance costs,
• Specific maintenance costs,
• Non-affordable maintenance costs,
• Other service costs,
• Project costs,
• Maintenance coefficient (Total maintenance costs / production output).

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5. Summary
A value and an output of maintenance can be presented and supervised only by means of a controlling system. Selected key figures should be created for planning, supervision and optimisation of maintenance activities. As a matter of principle, only company- and operation-related key figures should be determined and the effectiveness should be measured on their improvements.

Please note:
• Key figures are instruments for information, controlling and decision-making.
• Key figures will inform you in a concentrated way about technical, organisational and economical connections.
• If you select key figures, you must be focused to the most important aspects.
• Ratio systems are necessary for transparent presentation of costs and outputs.
• Key figures are the starting point for strategic orientation of objectives.
• Ratio systems will not replace detailed analysis.
• The basic message of key figures depends on a correct interpretation. You will be able to draw the right conclusions only after a critical examination of causes and after implementation of measures for changes.
• Comparisons with key figures of other departments or companies (benchmarking) must be scrutinised because of comparability.

6. References:

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