

# Daily waste in maintenance

Nowadays continuous improvement projects in industrial processes have been integrated into the day-to-day business activity of companies, either resorting to expert outsourcing or creating specialized in-house departments.



The continuous improvement work process is based on data collection and analysis, a fact which has exposed frailties that have been neglected until now and made it possible to set more ambitious targets. As a result, there is a growing demand for equipment availability and effectiveness – thus putting more pressure on the maintenance department.

*Today it is not enough that maintenance does well what it has always done, maintenance must do more and do it better!*

The purpose of this article is not a theoretical approach to waste – *muda*, such as it is addressed within the *lean* conceptual framework applied in manufacturing – but rather raise awareness to daily waste generated in any maintenance department and which may be identified and quantified, thus improving the *performance* of the said department.

As a rule the macro-objectives of maintenance involve:

- reducing stoppages (frequency and duration);
- reducing costs;

In order to achieve these objectives pro-activity within maintenance departments has become a must, maintenance departments being required to eliminate waste – *muda* - and create value.

The first step is to run through your daily tasks and identify the *mudas*. Only subsequently, once identification is completed, may the process of eliminating or minimizing them be started.

In the course of the identification stage a simple matrix of identification can be created, with following categories:

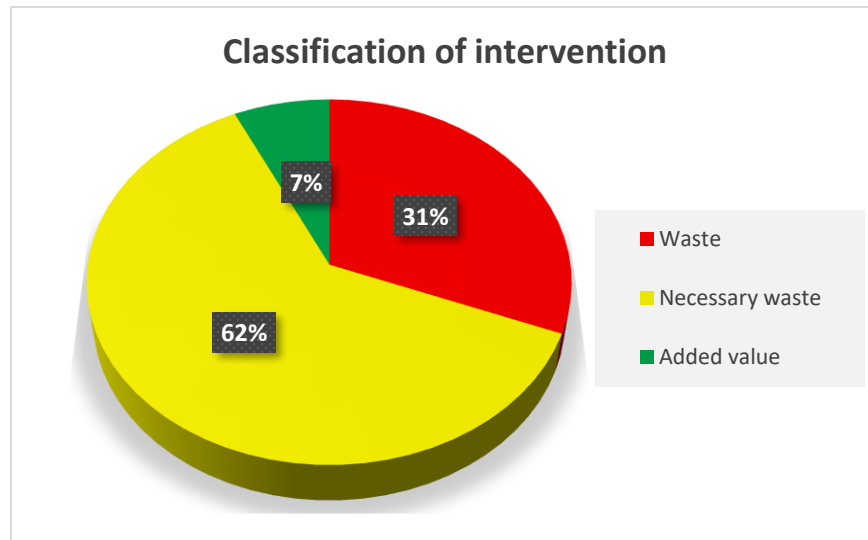
- Waste - something that is unnecessary and adds no value
- Necessary Waste – something that is necessary, that adds no value but can be minimized;
- Value Added - something that really adds value.

This classification can be easily applied. The following table is an example of a corrective intervention, meant to facilitate its understanding:

Actions	Time (min)	Classification	Comment
Call the technician	4		Give as much information as possible on the problem
Technician's site visit	8	Necessary waste	Must be minimized
Movement of employee - walking across workspace to search for technical documents	12	Waste	Documents must be kept on hand, close to the equipment

Diagnosis	20	Necessary waste	Must be minimized
Movement of employee – walking across workspace to retrieve spare parts from the warehouse	15	Necessary waste	Advanced warehouses should be available in each and every location in order to facilitate access to stocks
Searching for spare parts in the warehouse	10	Waste	Good warehouse organization is about not wasting time looking for spare parts
Repair	5	Value added	Time interval that adds value until the required function of the faulty equipment is restored
<b>Overall Time</b>	<b>74</b>		

In this simple example that illustrates a corrective maintenance in a great number of corporations, if we merely analyze the intervention time after the call for technical assistance we find that only 5 (7%) out of the 70 minute repair time added value; as to the actual repair, 22 minutes were pure waste (31%) and 43 minutes necessary waste (62%). If we could reduce the latter to approx. 50%, we would be reducing the intervention by more than 22 minutes, so that a 70 minute intervention would be lowered to merely 26 minutes. It can therefore be concluded that by resorting to a few simple measures intervention time in this case can be improved by 63%.



Similarly to what happens in the remaining departments, if we took greater care in maintenance we may be sure to find some kind of waste in practically all daily activities, among which I would highlight the following:

**Breakdowns** – they are the greatest waste in maintenance; every effort must be done in our daily work to reduce the number of breakdowns as well as outage duration;

**Waiting** – Poor organization, waiting for technicians, tools, a delivery from a supplier, etc;

**Mistakes/Defects** - Incorrect diagnosis, faulty repairs which turn into repetitive breakdowns, etc;

**Stocks** – Poorly organized stocks, time spent searching for spare parts in the warehouse, dealing with “monuments”<sup>1</sup> etc.;

**Motion** – In plants it often happens that maintenance staff needs to walk an excessive distance back and forth, but no value is being added in this movement, technicians are looking for “misplaced” parts and tools that cannot be found easily;

**Technical Documentation** – Keeping technical documents well organized and in optimum locations avoids wasting time searching for them.

Although *lean* practices implemented in organizations focus mainly on manufacturing processes there is a growing awareness of the amount of waste generated in maintenance that can be eliminated. Carrying out effective, sustained work in this field will bring noticeable benefits to the organization in terms of efficiency and cost reduction that will be confirmed by performance indicators.

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<https://manutencaoindustrialmoderna.blogspot.pt>

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<sup>1</sup> large, bulky, fixed pieces of equipment that are difficult and expensive to move or replace, yet are not in the proper place to allow good product flow