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# How much does downtime really cost?

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Downtime is a nasty term and subject of many staff meetings, reports, continuous improvement programs and company metrics. You would think that something so important to nearly every industrial sector would have a clear set of definitions and methods by which to calculate it.

Almost every factory loses at least 5% of its productive capacity from downtime and many lost up to 20%. In addition, downtime consultants estimate that 80% of industrial facilities are unable to estimate their downtime accurately and that many of these facilities are underestimating their Total Downtime Cost (TDC) by 200-300%!

Is this a cause for worry? Consider that not knowing TDC compounds itself when organizations seek to prioritize capital investments. As these organizations get more sophisticated at using financial tools like return on investment (ROI) and other leverage metrics, these tools become the key criteria in selecting and approving projects. When ROI is used, it's especially important to know the real cost of downtime in your plant. By underestimating it significantly, you could be missing out on valuable opportunities for your own plant, making poor decisions, or neglecting what you intuitively know are the most important priorities.

Knowing your TDC can help you pick the best capital projects and then help you make better decisions within these projects. Sometimes the overall approach to a project can change based on this important number. It is not uncommon for the TDC on a retrofit project to approach or exceed the project's capital cost. In a situation like this, the right project delivery method and the right

project delivery team is critical when executing an aggressive plan to minimize downtime. Selection decisions on your engineering, contracting, and other team support must be based on increasing your total project ROI (including reducing downtime and risk). This may be contrary to your normal purchasing methods. Keep your eye on the project ROI "ball" to overcome these hurdles to building a great team.

A major challenge of calculating downtime costs is that many of the real costs are hidden in other cost areas and don't "show up" unless you account for them properly. To effectively calculate TDC, all these costs must be uncovered and listed in a separate "downtime" category.

Let's take a look at the important components of Total Downtime Costs (TDC). As you read the list, assess whether your downtime number fully includes these issues.

## Equipment Related Costs (annually calculated as a constant unit price)

- **Labor Cost** - Account for the full cost of direct and indirect labor with benefits, and include a share of all overhead positions in the plant like managers and support staff.
- **Product Cost** - The cost per unit of production at each stage in the process along with the units per hour at the machine/profit center can tell you the value of the product lost during an incident.
- **Startup Cost (per machine, line, cell, and profit center)** - Include energy surge costs, set up (materials and manpower), percent of reduced production (units per hour lost), scrap produced (include recycle costs

and/or scrap value), quality (inspection and rework costs), as well as other startup costs.

- **Bottleneck Cost** - The impact on downstream equipment at each stage in process.
- **Sales Expectation** - Include the excess capacity such as larger buildings, spare production equipment, etc.

## Downtime Costs (per occurrence)

- **Time** - Calculate/record the time from the first occurrence of equipment breakdown to the time when equipment was back into full production.
- **Reduced Production**
- **Scrap**
- **Band-Aid Costs** - The costs of temporary fixes until the permanent fix is in place.
- **OEM, Consulting, and Contractor Costs** - Include the annual fee or estimated cost per year for support during downtime.
- **Tooling** - Calculate the replacement or rework cost for tooling (per occurrence).
- **Parts/Shipping Cost**

Obviously, there is a lot to think about when determining TDC. With so much at stake the payback can be found in a number of ways.

*This study and summaries of it can be obtained along with other project delivery information from the Business Industrial Network at <http://www.downtimecentral.com>.*

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