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Avoid Unnecessary Gold Plating: Maintenance Decisions and the Capital Allocation Process

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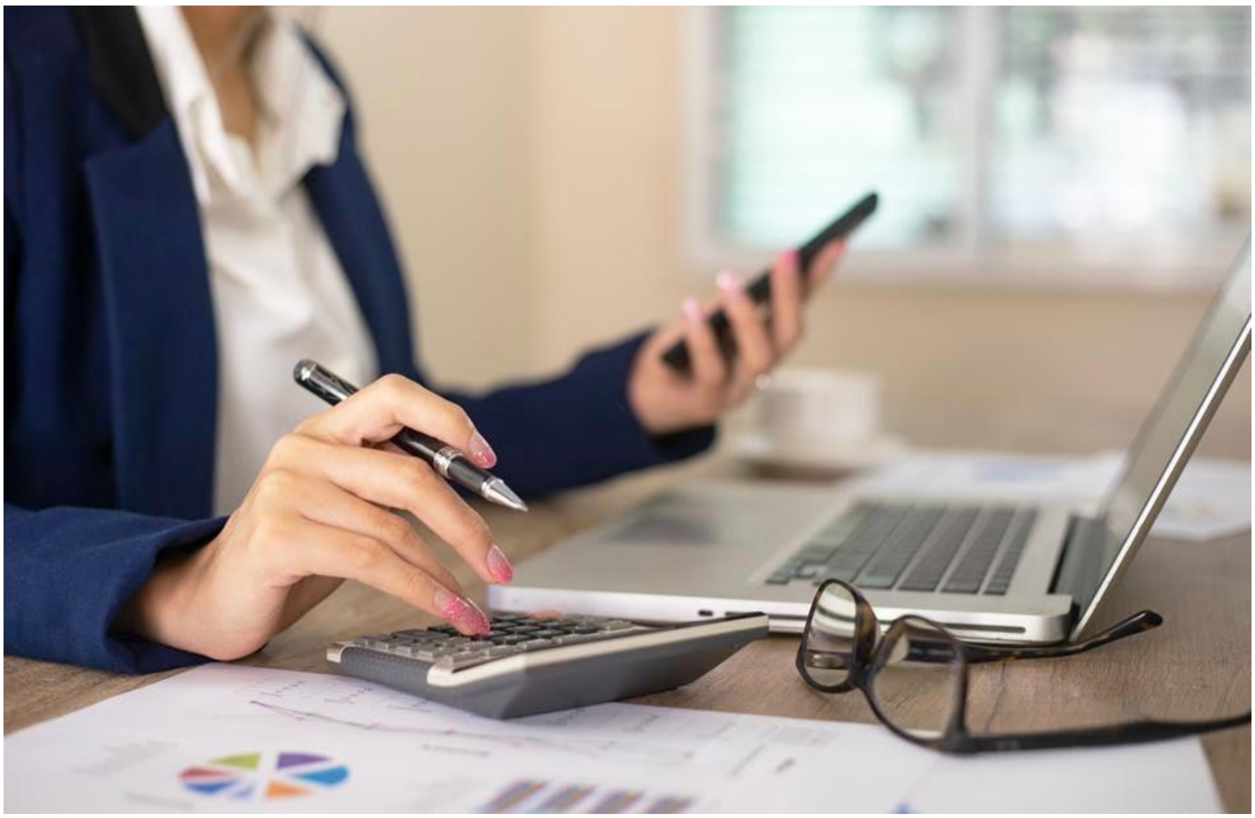

Many years ago, as a flight control engineer, I designed engine control systems. Many of my colleagues at the time had worked on the Apollo Lunar Module (LM), which landed on the moon. The LM engineers spent inordinate amounts of time and money designing to meet extreme specifications for its structures and systems. After that experience, these engineers sometimes had a tendency to overdesign everything they did, a trait that my engineering manager called "unnecessary gold plating."

Some years later, my family and I relocated to London. Our first temporary apartment had a small appliance that washed and dried clothes. It had countless buttons and was very difficult to operate. At the time, I was advising the company that made the appliance and told the management board that their product design process should focus more on winning customers rather than impressing other engineers.

As an engineer myself, I can admit it's in the nature of many of us to overdesign; however, for many companies, this leads to overspending on maintenance capital expenditures (capex) and expenses. In the interest of "fixing it right," too much capital is spent, often too early, putting unnecessary pressure on the company's financial and share price performance.

What is maintenance capex?

Maintenance capex is the recurring capital spend a business needs to maintain its current operations. You could, for example, be replacing engines in a group of trucks or replacing motors in a conveyor belt system. The term "maintenance" can be used when you replace part of an existing system (engine, motor) or the whole system (truck, conveyor belt system).

As with any capital decision, I recommend always using the net present value (NPV) rule, but the way to apply it to maintenance is a bit different from investing in growth or cost reduction. The following suggestions apply to large maintenance capex projects. These principles, though maybe not all the explicit math, can be applied to smaller projects too.

Begin by identifying the alternatives.

For example, if a truck engine is not performing properly, you can either spend the maintenance capex now to replace the truck engine, you can delay spending until later and keep using it as is, replace the truck with a new one or dispose of the truck without replacing it.

For each alternative, build a cash flow forecast by estimating the incremental revenue, cost and capital, including any salvage value for partial or whole assets replaced or sold.

If you spend the maintenance capital to replace the engine now, you must estimate the capital and expense associated with the installation and any operating savings due to improved efficiency and reliability. There might even be a benefit to revenue since the new engine will have less downtime.

Repeat this for each of the other alternatives.

If you delay the spending, you will incur higher operating costs to keep the failing engine running. You will likely also suffer more downtime, which leads to either a loss of revenue or a potentially costly burden on other assets used to compensate for the lost capacity. Other consequences, like declining service and reliability, can have big implications too.

If you replace the entire truck, you will spend much more capital up-front, but the new truck will last longer, and operating expenses will be lower, especially during the warranty period. Better fuel efficiency, smaller carbon footprint and other potential benefits should also be considered in the cash flows. Be careful, though—this is the easiest maintenance option for the engineers but often not the most attractive NPV.

The last option of simply disposing of the asset is often not even considered, but it can be a good option when the company has sufficient available capacity where other existing assets in the fleet can easily absorb the work of the truck being disposed of without requiring additional expenses or capital. Of course, where capacity is tight, this option will have very bad cash flow implications and a low NPV.

The decision process ends with selecting the highest NPV option.

Often, a business is maintaining a fleet of trucks, and owners don't want to have to do this full analysis every time an asset approaches the end of its useful life. To help, you can generalize this process and establish NPV-based criteria for either replacing engines now, delaying until later, replacing entire trucks or even retiring them. For example, the nature of the engine problems, along with the age and mileage, might be inputs to such decisions.

Often, the analysis can be simplified, especially when there are dire consequences to losing capacity. For example, if you don't fix a leaky roof, you may need to shut down an entire operation, which may be far more negative on NPV than the other alternatives.

However, be careful because engineers (like me) often argue, "If we don't replace this truck engine, a disaster will happen." On closer examination, we sometimes find the consequences are less calamitous, and there may be more suitable workarounds without exorbitant spending on maintenance capex.

In all too many companies, the engineers simply let us know when maintenance capital is needed without providing the same level of financial rigor as other potential growth investments receive. When companies skew their attention and scrutiny to certain buckets of capital spending and ignore others, they can end up over-allocating their budget to maintenance at the expense of future growth.

These companies would benefit from taking a closer look at their capital allocation decision process to be sure they avoid any unnecessary gold plating.

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