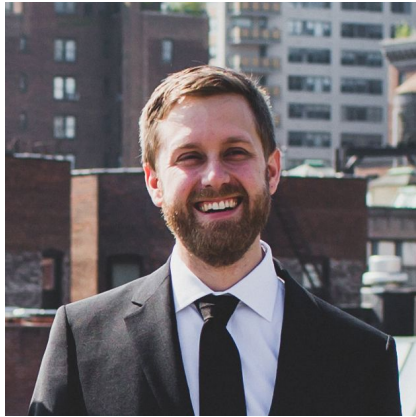# Title:

Monuments and Hamburgers

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Headshot:

Work is often allocated based on *CapEx* and *OpEx* budgets. These allocations can happen via the org chart, as a separate career ladder for engineers who are developing new products and features versus those who maintain software that's already been deployed. In other types of organizations, the same team may do both and it will fall on an engineering manager to help classify the expenses. In those cases, you may field questions from the finance department asking if you can CapEx this project or set up a time tracker. It's easy to brush these topics aside as bureaucracy, but by investigating how they work in your organization, they can help you understand the business case for your team's work. As a manager, becoming familiar with that business case and understanding the budget that funds your team will help you take on more ambitious initiatives.

First, some background. **CapEx**, or **capital expenditures**, are costs that go towards the creation of an asset that holds lasting value. Think of a monument. These are treated as an expense that is spread across the expected life of the asset. Sure, that pyramid cost us a lot to build, but it's something we can amortize across thousands of years, so our cost per year is low. There are standards for whether an expense qualifies: it must already be feasible, and management must have explicitly allocated resources to it in advance. These expenses are omitted from the EBITDA, the standard measure of the company's performance, and are treated as investments on the company's balance sheet. They also have a different tax treatment, which is why your finance team cares about them when they're closing the books for a quarter

or year. They are also the type of investments that certain investors—especially venture capitalists—chase because they believe in the strategic value a new technology will create.

Operating expenditures, a.k.a. **OpEx**, are the opposite of a capital investment. When you're in the business of making a consumable product, like hamburgers, you hope they will be delivered in the same fiscal year. Most of the cost of that burger is OpEx. These costs are included in the EBITDA and are important to evaluating the business operating margin, signaling how profitable the business is.

Software is a famously high margin business. Once your team develops the product, it can be sold for the cost of distributing it, which is almost nothing on the Internet. This dynamic also implies that product roles are predicated on there being a continuous stream of projects that will yield a positive ROI for the company either by reducing costs or driving revenue growth. Beware of CapEx roles at a company that's decided to stop innovating. Here's how Google talks about CapEx in their annual report to investors:

> **As we continue to look for new ways to serve our users and expand our businesses, we will invest heavily in R&D and our capital expenditures will continue to fluctuate.**
> We continue to make significant research and development (R&D) investments in areas of strategic focus such as advertising, cloud, machine learning, and search, as well as in new products and services. The amount of our capital expenditures has fluctuated and may continue to fluctuate in the long term as we invest heavily in our systems, data centers, real estate and facilities, and information technology infrastructure.

Whenever you can eliminate a substantial recurring operating expense with a one-time CapEx project, you can create value, so as an engineering leader it makes sense to identify, execute, and deliver CapEx projects.

The opposite strategy can also be effective. AWS lets millions of companies shift what were once large CapEx investments in datacenters and hardware into more bite-size OpEx rental fees for their "cloud". Of course, Amazon's own profit margin on this business comes from their ability to make the CapEx that they're investing into your OpEx, and to amortize that investment across as many customers as possible. This idea underpins the rise of SaaS companies: if you can take what was a substantial CapEx investment for your customers and instead meter it based on usage in a given year, the waste that's reduced and the risk eliminated will create a significant ROI.

For anyone who started their career as a freelancer, your core unit of work was the "project," which was probably someone else's a CapEx investment. The maintenance and hosting fees were OpEx. Every business has this dynamic. The language is a little more *Investopedia* and a little less Knuth, but your ability to become fluent enough to use it will help you understand how

the market measures your performance. You can start by identifying where your budget appears in the company's balance sheet.