

# The 10 KPIs Your Engineering Firm Needs to be Tracking

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# Introduction

Projects are the core of your engineering firm. Not only do they generate profits, but they're also at the center of your firm's business operations. As such, doing everything you can to ensure their success should be one of your top priorities.

Key performance indicators (KPIs) track project success by measuring how your projects and team are performing. Because each engineering firm has different systems and processes, your KPIs may vary from firm to firm. But it's valuable to identify industry standard metrics so you can benchmark against best practices.

Effective KPIs, regardless of project type, are:

- Well-defined and quantifiable
- Communicated thoroughly to every employee
- Crucial measurements for tracking the progress of your goals
- Applicable to your firm and industry.

Within the world of project performance and finance, certain KPIs should always be used to monitor and improve your firm's success. Here are 10 KPIs that when tracked properly, will transform the way your business operates, and subsequently how profitable each project is.



## 01

# Utilization

Whether you're billing hourly (although it's not recommended) or on a fixed fee, you should keep track of your team's utilization. For hourly projects, poor utilization will result in lost revenue potential. For fixed-fee projects, utilization will give you a better picture of your project's efficiency in terms of billable versus non billable hours.

When charging time to clients, you need to maximize the productive time of employees and determine the overall productive use of an individual or firm. For example, if an employee logs 40 hours a week and 30 of those hours are billable, their utilization rate is 75%. To calculate project utilization, follow the formula below:

$$\text{Utilization Rate} = \frac{\text{Billable Hours Worked}}{\text{Total of Billable and Non Billable Hours}}$$

If your rate is too high, you likely need to add more resources. When your rate is too low, it could mean you are not bringing in enough work. We recommend aiming for a team-wide utilization rate of around 60-65%. That includes looking at all billable and non-billable employees across your firm.

When you know your billable hours worked and total available working hours, a platform like BQE CORE will automatically calculate the balance for you.

# Profitability

Profitability is a comparison of your actual costs versus your revenue (what's been billed), resulting in what is left over. A common misconception is that profitability can only be measured post-project.

This couldn't be farther from the truth. Knowing your project's profitability while it's still a work in progress (WIP) will help you make informed decisions to keep you on track.

Furthermore, profitability is the ultimate gauge of what you should and shouldn't do as your firm moves forward. Increasing revenue doesn't help unless it corresponds to higher profit. In other words, monitoring the profitability of projects will help you spot larger trends about the types of projects your engineering firm should pursue.

To calculate profitability of projects, follow the formula below:

**Project Profit = Project Revenue - Total Project Costs**

To calculate profit as a percentage, take the Project Profit from above, and divide it by the total Project Revenue, then multiply by 100.

Obviously, the higher the number, the more profitable your project is. If your profits are low, you could be spending too much internally or not be operating efficiently. You should be aiming for a profit percentage of around 20%.

When you have a grasp on the project details, a cloud platform like BQE CORE will automatically calculate the profitability of projects and give you a real-time view via visual dashboards and charts.

# Earned Value

Earned value maps out the project plan, actual work, and value of completed work to date. This will help you determine how a project that is underway is performing so you can course correct if needed.

It is true that past performance is a good indicator of future performance. But Earned Value is also a reliable projection of the future success of your project in terms of time and budget.

To calculate Earned Value, follow the formula below:

$$\text{Earned Value (EV)} = \% \text{ of Completed Work} \times \text{Project Budget}$$

For example, if the actual percent complete is 25% and the task budget is \$10,000,  $EV = 25\% \times \$10,000 = \$2,500$ . After applying this method, you should know whether the project is behind or ahead of schedule and whether the project is under or over budget.

When you know your % of completed work and project budgets, software like BQE CORE will automatically calculate the balance for you.

# Work in Progress (WIP)

Your WIP is the billable time and expenses you've completed but have yet to invoice, which is useful for several different reasons. For one, it appears as an asset on your balance sheet. Plus, it tells project managers how far along work is, and also helps lenders more thoroughly assess risk if your firm ever needs a line of credit or loan.

If one week's WIP looks significantly lower than what your firm typically averages, that could be a signal that not everyone is making the most of their time.

Many firms will require a more sophisticated calculation to determine WIP since not all projects bill hourly. It is quite normal for firms to have contracts that are based on a fixed fee or some other form of a stipulated sum (i.e. a percentage of the cost of construction). In situations like this, projects that are subject to this form of contract should look at their earned value (EV).

In order to understand WIP and EV, solutions like BQE CORE allow project managers to enter in a value that represents the level of completion they believe the project has achieved and can be used during invoicing.

# Write Up / Down

This KPI is the total write-up (increase) or write-down (decrease) on your billable time entries. By tracking it, you'll better understand if you need to bill the client more (or less) than the actual billable amount in order to manage your project's budget. Knowing the overall write-up or write-down is also an illustration of a project manager's ability to manage the scope of the project.

When billing a client, a billing manager can recognize the company was more efficient than normal because of investment in new technology and staff training. Conversely, a billing manager can recognize that employees were less efficient because of some issues. Alternatively, the decision maker can look at the service delivered and decide its value is greater for the client than the calculated bill amount.

Whatever the reason, you can adjust the Net Bill amount of the invoices by writing up or writing down the value of time entries. Solutions like BQE CORE will allow you to write up or down on billable time entries.

This metric also demonstrates one of the issues with billing hourly. Too often firms write down billable hours for hourly projects. Perhaps they felt the time wasn't productive, or a client wouldn't pay the higher amount based on actual time worked. Hourly fees are unpredictable and too often get written down, cutting into profits.



# Realization Rate

This is one of the best metrics to track as it identifies the efficiency of your team. Realization rate measures the percentage of your potential revenue that is converted into actual revenue.

For example, if one of your employees has a billing rate of \$100/hour and works on a project for 120 hours, their potential revenue is \$12,000. If you invoiced for \$10,000 then your Realization Rate on that project is 83%. On the other hand, if you have a fixed price contract for \$100,000 and that same employee completed the project in 900 hours, that billable time is worth a potential of \$90,000 and the resulting realization rate is 111%. Meaning you earned more than if you were billing purely hourly. This is the ultimate goal and the reason why hourly billing limits revenue and profit potential

**Realization  
Rate =**

**Actual Project Revenue**  
**Potential Project Revenue X 100**

Potential Project Revenue should be calculated by taking total hours logged on the project and multiplying them by the hourly rates for each person.



# Budget Analysis

Your budget analysis is a breakdown of your services and expenses in terms of what's been used and your total constraints. This will provide you with a clearer picture of whether your project is over-budget or approaching budget.

To analyze your budget we calculate the Cost Variance, using the formula below:

$$\text{Cost Variance} = \text{Earned Value} - \text{Spent Amount}$$

If the cost variance is negative, the project is over budget.

Comparatively, a positive cost variance indicates the project is under budget or close to the budget.



# Billing Breakdown

Your billing breakdown is an indicator of your client's performance. It is more than a single metric, but together you can get a good sense of your client's performance on a project. Start by tracking what percentage and dollar value of your bills have been paid. You'll also want to look at your accounts receivable to see if payments are coming in late, and if they are, how much is still outstanding. Understanding your payment period is very helpful to manage firm cash flow.

$$\% \text{ Paid} = \text{Value of Invoices Paid} / \text{Value of Invoices Sent}$$

To find the remaining revenue on a project, often referred to as Work In Hand, use the following formula:

$$\text{Work in Hand} = \text{Contract Amount} - \text{Billed Amount}$$

When generating invoices, it is helpful to know what the remaining work in hand is, so you can project future revenue and cash flow for the business.

Once you have an invoice format in place, it should be easier to issue billing statements for projects. For BQE CORE users, it is easy to generate invoices and use default or customized templates for faster billing.

# Billability Analysis

A billability analysis does just what it sounds like: it assesses a project's billability and productivity. This KPI provides a breakdown of your services and expenses in terms of what's billable, billed, unbilled, and non-billable. When you compare billable versus billed, you'll have a much better understanding of what's already been earned, and what's still in your pipeline.

A related metric is realization rate, where it measures the total billed hours worked out of all available billable hours for a resource.

$$\text{Realization Rate} = \frac{\text{Total Billed Hours}}{\text{Total Billable Hours}}$$

A large gap between utilization and realization rates means that your resources are spending too much time on non-billable tasks. Tracking realization rate by client shows you which of your clients are profitable and which ones lead to out-of-scope work (i.e. lead to over utilization/realization).

# Margins

Knowing your margins helps analyze the profit or loss on a project. To do this effectively, track billable or billed services revenue and the corresponding expenses (cost of goods sold), plus their profit/loss margins. This will help you determine if you're charging enough for the work that your firm is actually doing.

To calculate profit margin, follow the formula below:

$$\text{Project Profit Margin} = \frac{\text{Project Revenue} - \text{Project Cost}}{\text{Project Revenue}} \times 100$$

$$\text{Firm Profit Margin} = \frac{\text{Net Revenue} - \text{Net Expenses}}{\text{Net Revenue}} \times 100$$

Most professional service firms have operating profit margins from 15-30%. It is probably best to set goals on the higher end of that range on a per project basis. Typically you should calculate these metrics using EBIDTA (Earnings Before Interest, Taxes, Depreciation, and Amortization)

When you know your expenses and revenue, software like BQE CORE will automatically calculate margins for you.

# Conclusion

Tracking key performance indicators isn't just about numbers—it's about clarity. It's about knowing where your firm stands today, what's driving (or draining) profitability, and how to grow without guesswork. The 10 KPIs outlined in this guide are more than metrics; they're tools to help you lead with confidence, make data-informed decisions, and build a stronger, more resilient business.

When you track the right KPIs consistently, you move from reacting to problems to anticipating them. You uncover the story behind your revenue, your projects, your team, and your time. And in an increasingly competitive landscape, that insight gives you an undeniable edge.

But data alone doesn't drive change. How you use it does. Make KPIs part of your regular reviews. Share them with your leadership team. Let them guide conversations about staffing, pricing, project health, and profitability. Empower your project managers with the tools and training to understand these numbers and act on them.

The best firms aren't just great at design. They're great at managing their business. KPIs are your blueprint for doing both.

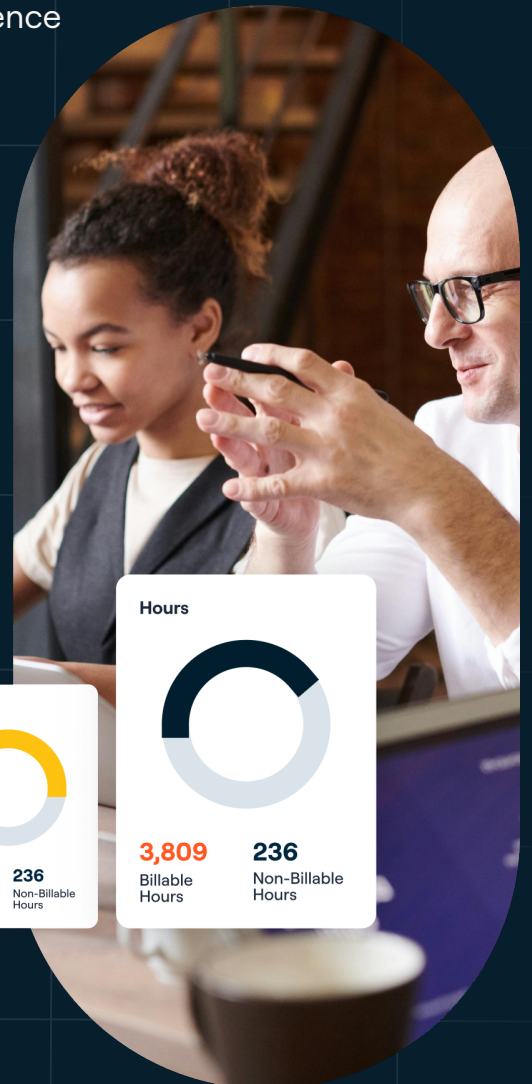
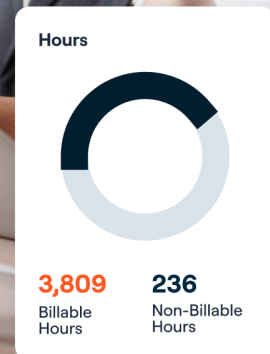
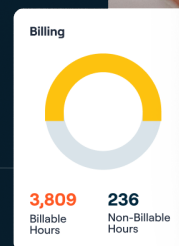
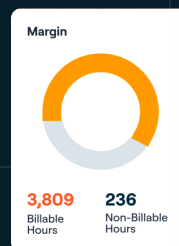
Start tracking. Start refining. Start building a smarter engineering practice. One decision, one project, one KPI at a time.

# BQE CORE

If you're serious about improving efficiency and profitability, you need access to technology that makes the process of tracking key KPIs straightforward. BQE CORE is an integrated accounting and project management platform that's backed by a company with over 30 years of experience serving the AE industry with countless users worldwide. It was designed and built for architecture and engineering firms by an engineer and an architect, so all built-in features are designed to address the specific pain points many firms typically face.

Your business processes can be streamlined with BQE CORE, while simultaneously providing groundbreaking insights that will help grow your firm. All of this from the convenience of a desktop computer, laptop, or mobile device. BQE CORE makes it easier than ever to collaborate with both your team and clients.

**Running your business should be exciting not chaotic. That's why we developed CORE. To help firm owners get back to the work they love.**



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