

|

# THE 10 KPIS

---

# YOUR ENGINEERING FIRM

---

NEEDS TO BE  
TRACKING

|





# 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. Therefore, 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 (or team, clients, and so on) are performing. Because each engineering firm has different goals and ways of working, your vital KPIs will vary from project to project.

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 success. Here are 10 project performance KPIs that when tracked properly, will transform the way your business operates, and subsequently how profitable each project is.

# 1 Utilization

---

Whether you're billing hourly or on a fixed fee, you should keep track of your utilization. For hourly projects, poor utilization will result in lost profit 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:

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

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. A utilization rate above 100% can imply a lot of out-of-scope work and poor planning.

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

## 2 Profitability

---

Profitability is a comparison of your actual costs versus what's been billed (and the resulting profit). A common misconception is that profitability can only be measured post-project. This couldn't be farther from the truth, however. 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, once everything is said and done, profitability is the ultimate gauge of what you should and shouldn't do as your firm moves forward. 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:

$$\text{Project Utilization} = \text{Project Revenue} - \text{Total Costs}$$

The higher the number, the more profitable your project is. If your profits are low, you could be spending too much internally.

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.

# 3 Earned Value

---

Earned value maps out the project plan, actual work, and value of completed work. This will help you determine how a project is going. 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.

# 4

## 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 and as revenue on your income statement. Plus, it not only tells project managers how far along work is, but it also help lenders more thoroughly assess risk if your firm ever needs a line of credit or loan.

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

Some 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 the 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 will be used during invoicing.

## 5

## 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.



# Contract Analysis

---

Contract analysis provides additional insight into what's remaining in the contract by offering a comparison between the contracted amount, what's been spent, and what's remaining.

Project changes are guaranteed to occur throughout the project lifecycle once the work begins. Project changes need to be managed carefully and all changes need to be communicated to the appropriate parties. All data and information regarding changes to contract deadlines, budgets, expenditures, etc., must be fully tracked and shared with the teams involved. This will help you understand whether your project will exceed the contract amount, and before you ever reach that point.

Solutions like BQE CORE can give you a quick view on how you are tracking with contracts.





# 7

## Budget Analysis

Similar to contract 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 calculate Cost Variance, follow 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.

You can easily see a breakdown of the budget and expenses with a solution like BQE CORE.



# 8

## Billing Breakdown

---

Your billing breakdown is a true indicator of your client's performance. To use it, track 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.

To find current outstanding balance due, use the following formula:

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

When generating invoices, there are additional calculations when creating your progress invoice. Another formula to consider is the total project balance outstanding, which is the total amount that remains unpaid for the project, including the balance of the current invoice.

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 overutilization/realization).

# 10 Margins

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

To calculate profit margin, follow the formula below:

$$\text{Gross Profit Margin} = \frac{\text{Project Cost (before Tax)}}{\text{Project Revenue}} \times 100$$
$$\text{Net Profit Margin} = \frac{\text{Project Revenue} - \text{Expenses, Tax, Other Expenses}}{\text{Total Billable Hours}} \times 100$$

Most professional service firms have operating profit margins from 25- 40%", which means 25 to 40 cents of every dollar earned goes to the bottom line.

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

# Conclusion

---

Effectively tracking these 10 KPIs will provide you with valuable insights into your projects. You'll foresee problems before they happen, and have access to data that can help steer your firm's future direction in terms of which projects to take on, what your business's strong suits are, and even which clients to work with again. This will increase your firm's efficiency and profitability, and enable your team to do the absolute best work possible.

If calculating and tracking these metrics seems too overwhelming, or you're struggling to stay on top of them, it might be time to consider investing in project accounting software. A platform like BQE CORE centralizes all of your business's project, billing, time and expense, and accounting information, and offers all of the KPIs listed here (and many more) in a real-time, easy-to-understand format.



# BQE CORE

---

If you're serious about improving efficiency and profitability, you need access to technology that makes the process of tracking key KPI's straightforward. BQE CORE is an integrated accounting and project management platform that's backed by a company with over 20 years of experience and countless end users worldwide. It was orchestrated for engineering firms by an engineer and an architect, so all built-in features are designed to address the pain points many engineering firms – and perhaps even yours – typically face.

BQE CORE can streamline your business processes, while simultaneously providing groundbreaking insights that will help grow your firm, all 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.  
That's why we're here, and most important,  
that's why we developed CORE.**

TO LEARN MORE, VISIT US

[BQE.COM/CORE](https://www.bqe.com/core)