CLOUDBRIGADE 🚔 GENIUS LEVEL INTELLIGENCE

Productivity and Financial Health Analytics

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When you fly by the seat of your pants, you get a lot of gravel in your pockets.

Operating and scaling a professional services company is incredibly challenging. Every element of the business is in constant motion, and cash seems to fly out the door faster than it comes in. In addition, managing the queue of projects, scheduling employees, monitoring sales, and business development are all essential for your organization's growth.



As there is no one-size-fits-all platform to operate our unique businesses, we all use a collection of management tools that work best for our use cases. Each of these tools provide some type of analytics, usually a combination of reports and dashboards. The problem is that each of these tools report on one facet of your operations, whether that's accounting, sales, project management, time tracking, or attendance.

Given the fast pace our businesses move, it's a daunting, if not impossible task to keep on top of the overall operational health of the organization. Let's face it, as good as each tool may be, we simply don't have time to sift through a dozen browser tabs of dashboards and reports, much less attempt to mentally map that data into something meaningful. You simply reach a point where you are flying by the seat of your pants and you can't scale.

In 2017, we added Business Intelligence (BI) to our professional services lineup. While we had plenty of experience with the technical building blocks in the cloud although we hadn't had the luxury of aggregating our data sources to get better analytics on the business. We had been using an increasing number of SaaS software solutions since 2010, and let me tell you, we were like kids in a candy store, brimming with ideas around what we could now do with this data. There were two areas of the business that were the greatest concern of ours, employee productivity, and the financial health of the company. In the years prior to using BI, we were aggregating data exports from our accounting system, our employee attendance records, and our time tracking and invoicing system. To be frank, it was a pain in the ass and it was done very sporadically. None-the-less it was very enlightening to discover why our revenue generation was very sporadic at that time.

As a small organization, things tend to be a little less formal and it takes time to build up the proper management processes as well as systems to monitor and enforce policies. Not to say our employees were doing anything bad, we're just aware that clock is always running and at some level every minute is an opportunity to bleed money.

As you probably know, your annual revenue per employee is a function of :

((Annual Working Hours - PTO/Holidays) * % Billable Hours) * Average Hourly Rate

As an example :

((2080 Hours - 21 Days Off) * 75% Billable Hours) * \$150 = \$215,100 or \$17,925/mo

Your numbers are probably similar, and likely variable based on a number of factors. As you also know, maintaining a consistent flow of new business coming in, and keeping your team busy and operating at peak capacity is a constant battle. When you hit those seasonal lull periods, your employees are billing less hours. While you can generate monthly billable hour reports from your time tracking software, this alone does not provide details such as true labor cost per hour of revenue, average billable rate per employee, percentage of billable vs. paid hours, percentage of tracked time, and other factors.



Our first project was centered around this area of the business, and the result was an employee productivity dashboard we released to all of our employees. This serves as a feedback loop to each member of our team, giving them access to their own performance metrics and allvowing them to proactively work toward reaching their monthly goals. Without this information, they simply don't know their individual contribution to the company until after the fact. At that point it's too late to course correct when necessary.



There are three areas we focus on in our productivity dashboard. The first is Time Tracking. We all use time tracking tools in order to bill our customers for the work we do. While most of us don't want to be the one to "crack the whip" on the team, accurate time tracking is the life blood of the business.

Let's face it, time tracking sucks. None of us like to track our time, and the reality is we're not really good at it. We look at the delta between the number of hours an employee is paid, what percentage of that time is tracked, and what percentage of those hours are marked "billable" to a customer.

In addition, our time tracking software has the ability to determine if the employee actively ran a timer while they were working on a task, or if they created a time entry after the fact. Why is this important? Because the latter time entries are never 100% accurate, and we want to bill our customers as accurately as possible for our work.



The second area in the dashboard is Percentage of Hours Available. If your employees aren't working the total number of hours available per day (for whatever reason) they will not achieve their monthly revenue goals. While employees legitimately need to take time off, you need to keep apprised to unexpected bleed. If you have an employee who is leaving 15 minutes early every day, that equates to 40-60 hours of potential lost revenue, or \$6000-\$10000 @ \$150/hr. Not a small number is it?

The third area of focus is Revenue Generation. This is represented as the total billable amount for the month (billable hours * hourly rate per project), and as "realized revenue" which is the total amount billed to the customer. The latter is the more accurate number which reflects any discounts or other adjustments made on the customers invoice, and thus the real amount of revenue the employee generated. This can be used as the basis for a profit sharing program.

From all of this information we can derive additional metrics, and even create proxies such as an overall profitability metric. As each employee is paid a different rate, and their output will vary based on experience and ability. The profitability score can be used to track an employee's growth and output over time, giving a data driven approach to employee compensation.

2.12 profitability metric

53% of 3.97 expected profitability.

With a good handle on our professional services team, let's take a look at the company as a whole. Regardless of whether you use cash or accrual reporting in your accounting system, your day to day reality is really a hybrid. Accrual reporting may show profitability, but if your receivables are high you can't meet your financial obligations. Conversely, while your income and expense report looks good, it doesn't tell you how much cash is in the bank, how much debt load you are carrying, or if the numbers are going in the right direction. Lastly while your past financial situation might be OK, what about your current cash and revenue situation, and your future outlook?

85% of business leaders are saying big data will dramatically change the way they do business.

Let's face it, accounting software leaves a lot to be desired. Whether your software was originally developed before the dot com, or is part of a new breed of SaaS applications, they simply don't have access to a complete set of your company's data. As such, we all have reports we wish we could run and can't. Therefore we are back to manually compiling data in spreadsheets (most likely paying an employee to do this tedious and error prone work) and simply don't have access to the real time data we need to make proactive decisions.

What was missing was a rolling view of the company financial health including operations and sales metrics, and in a single pane of glass format. We needed to know at a glance in easy to understand terms when and where a problem existed, allowing us to make real-time data driven decisions. From this need we developed the Past-Present-Future dashboard. Let's dive in.



In the present "Working Capital" view, we needed to see a real-time snapshot of cash, receivables, and payables. On the Liabilities side we include estimated upcoming payroll (our biggest expense) combined with current payables to date from the accounting system. On the Asset side we display current cash, and receivables from multiple systems. So long as our working capital assets are more than our liabilities, we're in good shape. If receivables are too high, it's time to increase collection activities.



In the present "operations" view, we needed to know the team's capacity, the open project pipeline, our total burn rate, labor cost, and billable revenue.

Team Capacity is based on available working hours, less holidays and scheduled time off from our HR application. Project Pipeline is the sum of project budgets in the queue ready for techs to work on. In good times, the team capacity is always less than the project pipeline. A consistently large delta means it's time to hire.

Burn Rate includes the cumulative monthly expenses as they are posted to the accounting system. Labor Cost consist of all employee worked hours times their fully loaded rate (includes benefits, PTO, etc). Billable Amount is the sum of billable hours times the project rates. As the billable rate is different per project or customer, it's important to take this into account in order to generate accurate revenue projections.



Now let's look at the past. In our rolling view we cover three months in the past, we felt this was far enough at a glance to track our progress. Although historical income and expense reporting is available in the accounting system, it was easy to include and it's a great basic financial health indicator. Needless to say income that is greater than expenses is where we want to be.



PAST

Equally important is a sense of our bank account balances and debt. These end of month snapshots let us know if we are building or burning reserves, maintaining a reasonable buffer in our checking account, and lowering our debt.



Now on to the future. Like the past, we look three months forward as a reasonable indicator of future business and operations. The Project Workload and Finance view takes all data sources into account. We pull sales pipelines in from the CRM, recurring revenue from active subscriptions, team capacity from the HR system, and projected burn rate based on historical data. What we want to see here is an ascending graph, particularly a healthy total pipeline value. Also important is any significant dip in team capacity due to vacations and holidays.



Project Workload and Finance

Individual sales pipelines can be broken out by business unit, project type, etc.



Sales Pipeline

As you can see, we are able to aggregate a lot of data from multiple systems into an easy to read dashboard, and that's really the whole point of modern BI systems. So you are probably wondering what is involved in building this all out?

As you probably know, all of your Software as a Service (SaaS) platforms offer some kind of API (Application Programming Interface) which is used to give you access to your underlying data. The API can be used with a multitude of integrations with other products. A simple example of an API integration is how you integrate your video conferencing solution to your calendar.

In the Big Data world, we use a special data acquisition tool commonly referred to as ETL (or ELT) which stands for Export, Transform, and Load. These tools offer integrations for the more popular SaaS applications, and "export" the data out of the application.

Next the ETL tool "transforms" the data into a usable format. As an example, depending on the amount of data, the ETL tool has to make multiple requests to get the data in its entirety, as well as manage how to continuously retrieve only the new data (stuff that was added or changed since the last export). There are a number of

other considerations in the transformation stage, and in the interest of brevity we won't cover those here.



Lastly the ETL tool "loads" the data into a Data Warehouse, which is simply a specialized database that holds massive amounts of data. Popular Data Warehouses include RedShift from AWS, Big Query from Google, and Snowflake which provides a very unique pricing model. All of these Data Warehouses are "cloud native" and provide pay-as-you-go pricing.

As for the ETL tool itself, there are a number of products available in the market, and the licensing models vary greatly. We have used several in the past, and we found the best ETL tool was Matillion. Our assessment was made on a number of factors including ease of use, pricing model, customer support, and above all the ability to integrate with any API service even if there is no pre-existing integration.

Once your data is loaded into the data warehouse, you can then use a BI platform to analyze your data across all relevant systems just as we did in our dashboards above. Of course there are many BI tools on the market today, they range from simple dashboard builders, to "SQL runners", and to full on BI platforms. While we work with a number of these BI tools, we have found Looker to be the best-in-class solution for building comprehensive BI analytics and dashboards.

Looker is truly a leader in this latest wave of Big Data tools, and all of the above dashboards were built on the Looker platform. In addition to providing a very flexible system for building dashboards, the platform democratizes data, making it available to all of the stakeholders in a business across departments and business units. In addition to dashboards, we are able to drill-down into the underlying data, and perform advanced sorting and filtering within the application without the assistance of technical staff.









CLOUD BRIGADE

Want to connect?

Cloud Brigade has a team of technical staff to help you on your BI journey. Whether you just need a helping hand through a portion of a project, or want to leverage our team to build out an entire BI solution, we are here for you. Feel free to reach out to us to discuss your pain points with us in a free informal conversation.

Contact Us

www.cloudbrigade.com