How to Calculate the Total Cost of Business Intelligence

Overview:

If you're looking for a concrete way to calculate the total cost of ownership of a business intelligence and analytics solution, you've come to the right place. This guide helps you understand the costs surrounding a BI solution that go beyond the licensing - from additional technical infrastructure, to implementation and maintenance. You'll see why it's important for businesses to figure in the value a BI solution gives by calculating the cost of new analytics.

Going Beyond the Price of a License

It's what everyone is wondering: how much is BI going to cost me? The total cost of ownership (TCO) of a business intelligence and analytics solution is a hotly debated topic. Behind this loaded question is also the common misconception that the license cost of a BI solution will give you a basic idea of the solution's TCO.

Yet, people who mistakenly calculate the TCO through license pricing are unpleasantly surprised by a much higher cost of ownership immediately upon purchase - due to the cost of supporting technical infrastructure required, additional manpower needed to implement and manage the BI project, and added costs such as customer support and training.

So how can you accurately calculate TCO of business intelligence? Since we have already established that upfront costs is just one, small aspect of a bigger equation,

Businesses are now taking a newer, more clever approach to measuring the cost of a BI solution - one that incorporates the full value potential - and that is by calculating the cost of new analytics.

That is, businesses are taking into account how much and how often their teams will benefit from new reports and analytics.

What is the cost of new analytics for my team? This is precisely how you need to approach your value assessment of a BI platform because the cost of new analytics essentially calculates how quickly your team can churn out (and benefit from) new analytics and reports, which actually measures how much value for how much investment you are getting from your BI tool.

By incorporating the notion of speed, you must try to quantify how agile a BI tool is, which depends on quickness of operations. Read on to learn exactly how you can do that.

A New Consideration: The Cost of New Analytics

The equation looks something like this: Add all costs of owning BI - licensing, additional technology, manpower, cost of training, operation, and implementation - and divide that by the number of new reports you are able to create. You'll get the speed you can deliver new analytics and reports.

Capturing that information in a single metric will give you a notion of the cost of your new analytics. Let's dive into why this is an important figure and a step by step guide to how you can arrive at the total cost of ownership:

Supporting Technology and Effort

How powerful and easy-to-use the BI tool directly impacts the cost of it and here is why: depending on the amount of of data you have and the number of data sources you need to mash up, if the BI solution you are looking at is not powerful enough or intuitive enough, you are looking at additional costs in:

- **Technical Infrastructure** - Think additional databases or data warehouses to ensure performance and capability of the BI tool - a cost that increases with data size, users, and usage.

- **Additional Manpower** - Think: Does this BI tool require more or less effort? Will you need to hire additional IT staff or data engineers to man it, or is it intuitive, powerful, and easy enough to use that your manpower can handle the BI project independently?

The Cost of New Analytics

There is a new question that BI can answer, but what kind of changes will be required to the BI solution in order to quickly get this answer? Depending on where you start, this could mean integrating two additional data sources (sales performance data from Salesforce.com, HR data), transforming the data to a consistent structure, building relationships between fields, defining the logic and scope of the metric, and finally building the visualization itself, all of which may be managed by a technical expert.

If the process to create new analytics takes weeks or months, it's entirely possible the CEO is distracted by another important question and the VP has already decided to halt hiring from a lack of clarity of how it would affect the bottom line. If you can quickly get the answer, and at a low cost, BI has just added that much more value to your company.

Why Time to Insight Matters Most

BI platforms vary wildly in the time it takes you to submit a new data query, generate results, and present them in a format that makes sense - for example, an easy-to-process dashboard showing progress on your KPIs.

Once you factor in the turnaround time for a data analysis project, though, and divide your number by the maximum amount of data projects you can process in a year, this could quickly start to look very different.

That's because if you are looking for true value of BI, as in data-driven teams, insights for decisions in an actionable timeframe - BI tools aren't best measured by TCO per annum, but by the cost of running each individual analysis.

How to Calculate the Total Cost of BI

Step One:
Figure Out Your Total Annual Outlay

Of course, before you get that far, you do need to work out your TCO in the first place.

While there are a whole bunch of factors at play, the most important ones are typically:

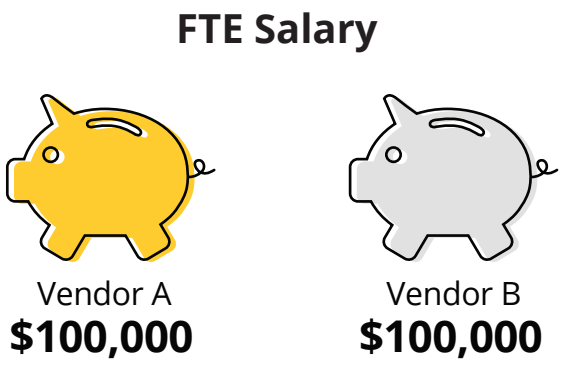
1. How much you need to pay the employees who deploy and manage the solution.
2. How many employees you need working on the BI solution (implementation, deployment, maintenance) and for what share of their total workday.
3. How much you need to spend on additional data warehousing, if the BI platform demands it to accommodate your data.
4. How much you need to spend on external ETL (Extract-Transform-Load) costs, if the BI platform cannot quickly prepare data for analysis.
5. How many people are using BI and will have ongoing questions (which a good BI solution's customer support team can answer quickly, so employees can be more efficient).

Let's take a look at each of these in more detail.

Full Time Equivalent (FTE) Salary

Okay, let's start with the easiest one. What would be the yearly salary for a full time IT engineer or BI specialist responsible for handling the technology and making sure you can generate the insights you need? Let's be conservative and say: $100,000.

This number will presumably be the same for whichever solution you select, for example:



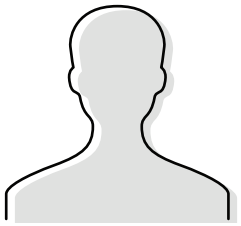
Number of FTE Using It

The next consideration is how many people you will need to employ / assign to the project to get what you need out of the BI solution.

This does vary from platform to platform, because a system that demands a high level of technical expertise to use it (here, Vendor A) means you also need a big enough IT team to handle all requests from business users, while a product that is largely self-service (Vendor B) requires fewer IT personnel looking after the back-end.

Number of FTE Required

Vendor A
5

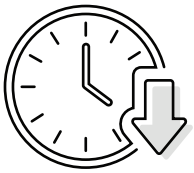


Vendor B
2

Share of Time Spent Using It

It's unlikely that managing your BI platform will take up 100% of any one employee's time, but with a very heavy tool it can happen. For the sake of argument, let's say that BI activities will take up roughly half of the relevant IT team's time in both cases.

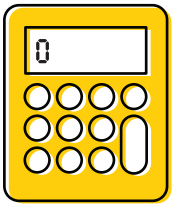
Vendor A
50%



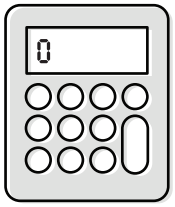
Vendor B
50%

To recap, in this TCO comparison, you've now worked out that Vendor A requires five FTE on a salary of $100,000 to spend 50% of their time on BI-related activities, while Vendor B requires two FTE on $100,000 per year to dedicate 50% of their time, too. This brings your total staffing costs for the year to:

IT staffing costs:



Vendor A
5 x $100,000 x 50%
= $250,000



Vendor A
2 x $100,000 x 50%
= $100,000

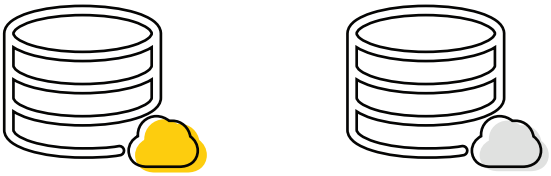
External Data Warehouse Costs

Most BI tools do not provide a comprehensive solution for storing your data, or a means of accessing any item of information in a vast, sprawling data store without a) enormous hardware requirements or b) grinding to a halt. This means you often need to spend on data warehousing and/or data marts, too.

Even where the vendor has figured out a smart way to handle data (for example, Sisense's Elasticube uses a combination of Columnar Database technology and In-Memory Database DM technology so that you only load data relating to your query, and use memory instead of disk space to store this while in use), you may prefer to integrate this with an existing data warehouse you have or even add additional to make room for your 10 year plan of data. Again, some companies use Sisense as a standalone product. Others use Sisense to compliment a data warehouse.

For our example, we're assuming that Vendor A does not have a solution in place that would bypass use of a data warehouse, whereas Vendor B has an Elasticube-like innovation that provides a solid technical infrastructure, so while you may still want to incorporate some data warehousing into the mix, it will be far from extensive and save you money.

Cost of external data warehousing per year



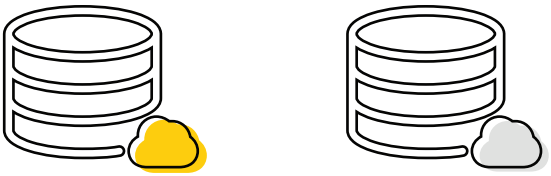
Vendor A
$25,000

Vendor B
$5,000

External ETL Costs

Likewise, if you're relying heavily on extensive data warehousing, you're also likely to run up substantial costs on an external tool that performs the ETL functions that prepare and harmonize data for analysis.

Cost of External ETL per year

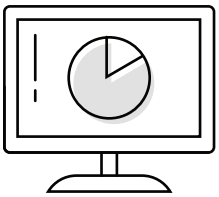


Vendor A
$25,000

Vendor B
$5,000

Total Annual TCO

Using this method, your total annual TCO for the two vendors would be:



	Vendor A	Vendor B
IT Staffing Costs	**$250,000**	**$100,000**
External Data Warehousing	**$25,000**	**$5,000**
External ETL	**$25,000**	**$5,000**
Total Annual TCO	**$300,000**	**$110,000**

(P.S.. This doesn't include your license, deployment or other up-front costs).

Step 2:
Divide by Time it Takes to Perform New Analytics

From this comparison, it looks like using Vendor A racks up a yearly bill that's nearly three times that of Vendor B.

But what if I now told you that, because Vendor B offers a vastly more self-service solution, you **can process a new query and produce a new set of analytics in two days - while Vendor A means waiting two weeks?**

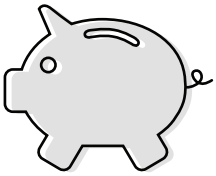
Once you take this into account, the gap between the two vendors widens substantially.

A two-week rate of new analytics means that you can process an absolute maximum of 26 new analytics projects per year. A rate of two days means you can produce a maximum of 182.

Divide the TCO by the maximum rate of new analytics, you get this:

Minimum Cost of New Analytics

Vendor A
$13,462



Vendor B
$714

Wow. Now that's a big difference.

TCO Summary: Implicit Cost of New Analytics

Average	Vendor A	Vendor B
FTE Salary (per year)	$100,000	$100,000
Number of FTE Associated	5	2
Share of time Spent	50%	50%
Subtotal	$250,000	$100,000
Rate of New Analytics	**2 Weeks (26 per year)**	**2 days (182 per year)**
Cost of New Analytics	$9,615	$550

Yes, your yearly TCO for Vendor A was already three times that of Vendor B, but when it comes to working out how much you are really spending on each analytics project, **you're actually paying about 18 times as much for the service.**

The Bottom Line

Change Will Happen Often - Consider Its Cost

Now, if you're thinking, "Is a low cost of new analytics so critical?", take a step back and look at a snapshot of a day in the life of a typical business: Business conditions change - usually quite quickly. This results in new business questions being asked, which in turn makes BI an iterative process. Because it takes time, effort, and expertise to make changes in BI, there is cost associated with it - time, manpower, data. Though currently you may only be thinking about the explicit costs of BI, you should factor the "cost of change" into your evaluation.

In order to truly enable a smart, data-driven company you need that "cost of change" to be as low as possible.

For example, let's take a scenario where a VP Sales is deciding whether to hire more salespeople. She/he needs to give the CEO an indication of how much more salespeople will grow revenue by end of year. To do so, she needs to check how long it takes sales reps to ramp up to full quota attainment.

To Get a Perfect World, Speed Is the Key

Imagine if in your organization you can reduce the cost of churning out new analytics to your team members, imagine what you will be able to achieve - the amounts of people from different departments capable of making data-driven decisions.

Today, incorporating the notion of speed, like how quickly your team can churn out new analytics, how agile they are, depends on quickness of operations. If you just look at TCO you are not incorporating the full value potential.

Figuring out how much value you'll get out of your chosen technology is always going to be tricky, and there are, of course, many other factors at play than straightforward economics.

Take Aways

You need to know that the platform fits your needs. You need to know that it's easy to use and scalable enough to grow with you. You need to know that the vendor's support team will always be on hand to help you get the most out of the system.

These are the primary factors that will dictate how much you're really paying to generate each business-critical insight. While you can get a sense of how well a vendor ticks the boxes from talking through the product's capabilities, it makes more sense to try it out for yourself.

Before you commit, always insist on testing the BI platform with a free trial or proof of concept, using your own data. That way, you'll know whether it's a genuinely self-service solution, you'll have a good idea of how fast you can turn around results, and you can use this alongside your TCO calculations to get a reliable, accurate picture of how much value the technology will really bring to your business.