How Data-Driven Analytics with Qlik Saved Us $2 Million (in the First Year)

by Jeff Richardson

At Bentley Systems—a developer of CAD software for architects, engineering firms, and construction firms—we try to be as data-driven and analytical as possible. We employ a significant number of people with advanced degrees, particularly in engineering and development roles. They're all analytically oriented and like every decision to be backed by solid information. About 10 years ago, we made a conscious decision to invest deeper into business intelligence (BI), and established an in-house BI team. Now, about two-thirds of our company uses analytics on a daily basis.

When we started, it was an exceptionally interesting time to be involved in analytics. We used a number of BI tools, including Cognos, SAP, and Microsoft tools. Being that we are an SAP shop for all of our enterprise software, we focused our initial analytics on SAP Business Warehouse (BW). These initial tools left a lot to be desired. In 2011, we decided to re-evaluate the market and embarked on a POC tour, quite literally engaging in a POC or evaluation with every major BI and analytics vendor in Gartner's Magic Quadrant results.

Significant Challenges, Data, and Growth

At the time, we had a number of pretty significant challenges. We had almost 700 people using our SAP BI tools, and we knew that number would continue to grow. We needed something that could support thousands of people globally, since we have about 3,500 employees. At least 1,500 of them use a BI tool every day and about 2,200 do each month.

In addition to the vast numbers of employees, we also faced logistical issues with our billing. We invoice our hundreds of thousands of software users based on how much they use. Basically, it's a consumption-based billing method. We were collecting all of this usage data and storing it in a database, but it was completely inaccessible. There was no visibility. Running a query would take two or three hours, so we had to be highly organized and plan queries and analysis well in advance. Since we ran a couple of queries per week, our system was very structured: We required our people to ask the question, then we'd put it in the queue, and run it when we had the time. It was becoming overwhelming and cumbersome.

> **Encourage data literacy by giving your team a guided, analytics journey.**

In our proof of concept with one of the contenders, Qlik, we actually ran it on top of that usage data and were able to create a production-quality dashboard in about eight hours. It could return that dataset with sub-second response times. We showed that to our CEO, and he bought Qlik immediately.

A Paradigm Shift: Starting with $2 million in Savings

We ended up doing a very early affinity analysis to conduct a market basket analysis on our software usage. Our goal was to determine which products were used together the most so we could combine certain products to streamline development. Ultimately, we combined dozens of product SKUs into singular products. This made them more efficient for our users and easier for us to develop because we no longer needed 20 or 30 different product releases—we could have 4 or 5 instead.

For example, we had 25 bridge product SKUs. There are many different things you do when you build a bridge, such as rebar analysis and structural stress analysis. We had individual SKUs for everything. We used Qlik to determine which ones were commonly used together based on this usage data. Then, we could query incredibly quickly *and* do the association models in QlikView. That helped us streamline into a smaller number of offerings.

This decreased our development cost by millions of dollars. **In the first year alone, we saved $2 million.** It also increased our sales because we were able to sell more valuable software to people who then got more value from it. We immediately saw an uptick in revenue, but the subjective feedback from our customers also told us our new offerings were much more useful.

Streamlining Staff

With Qlik, we got a centralized, single source of truth. It helped us govern data and find answers to questions. Before, it was difficult to get a straight answer on our revenue or sales numbers, for example. Qlik gave us a singular source everyone could access. It was reliably updated and easy to manage. You could see when things were updated, how they worked, and everyone got the same answers.

> **Give people the flexibility to choose their own data adventure—but with guardrails. @qlik**

Qlik has also helped us streamline our staffing. Back when we moved from SAP BW, we had about six people running that system to support 500 people. Whereas with Qlik, we have two full-time employees supporting between 1,500 and 2,000 people. The shift was amazing. **We decreased our staff by 60% and doubled the number of users we support.**

Ironically, it freed up time for my BI group to take on more operational responsibilities that have nothing to do with analytics. We began to manage data-model-applications such as our invoicing and our compensation programs. Approaching these new duties from an analytical perspective allowed us to see some new developments in those stale processes. For instance, we were able to rewrite our sales compensation to take it from a giant, outsourced application to a streamlined, database-driven application. We layer Qlik on top of it to serve the compensation statements to our salespeople.

Starting Your Guided Analytics Journey

While data literacy is a critical skill today, we understand that everyone in your company may not have the same advanced skill set. According to a recent study, only one in five executives consider themselves to be data literate, which means the up to 80% of C level decision makers self-identify as struggling with data. So if you're working on a data project, go slow, experiment, and get a lot of feedback. It's worthwhile to try to give people a guided analytics journey.

> **If you give people a terabyte of data and no support, they'll get lost in the weeds. @qlik**

If you give someone a terabyte of information, they'll get lost in the weeds. We see that often in our company. Guiding people in the right direction is very helpful. We don't give them overly structured queries and answers. Instead, we offer a variety of options, and offer our own suggestions. We tell them what other people have done, and we give them the flexibility to explore their data —but with guardrails.

We have the benefit of being located about six miles from Qlik's headquarters, where they do lots of in-person training. They also offer a number of courses you can enroll in from the very beginning: from non-technical analysis courses all the way up until highly complicated cloud administration and development.

There are also a tremendous amount of resources online such as Qlik Continuous Classroom, their self-service learning platform. They also have one of the most open communities I've ever seen—Qlik Community—which is the best place to get answers. There is always someone who will help answer your question. You can often get a response within hours.

A Culture of Community

To foster an even greater sense of community, Qlik created the Qlik Luminary Program, of which I became a member in 2014 and was selected for again in 2017. It's a program for passionate Qlik users. We are product evangelists who want to learn everything there is to know about the product and who are keen on helping fellow customers maximize their use of the product. In fact, I speak at a number of events in the Philadelphia area every year.

When we bought Qlik, our account manager introduced us to a number of other customers in our area. It was such a massive benefit because they helped us figure out what to do and what not to do with Qlik, which then allowed us to hit the ground running. Now, as other customers join the Qlik community, it's quite common to see many other customers do the same thing.

The benefits of being a data-driven organization are obvious when you look at the numbers—and understand them. It almost becomes a self-fulfilling prophecy that keeps pushing us to take the next step to full data literacy and transparency. The fact that we were able to see real-world applications and results immediately inspired us to keep driving. Now, we're experiencing

higher-quality data challenges. The good news is that even if we do experience a roadblock, we don’t walk alone. Qlik, and its community of users, are with us every step of the way.