Embedded BI: to Buy or to Build?

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In a 2010 interview, Google co-founder Eric Schmidt famously stated that "every two days now we create as much information as we did from the dawn of civilization up until 2003"[1].

Embedded BI: to buy or to build?

In the five years since Schmidt's proclamation, the rate at which we produce and collect information has only increased in scale and speed. Smartphones and mobile devices have proliferated; Cloud computing means even more data can be stored and accessed faster than ever before; the Internet of Things means an even greater number of devices record and monitor activity. For example, the majority of today's smartphones track the user's activity, the number of minutes they have been active, the number of calories they have burnt and the locations they have been.

However, while companies and their customers collect huge amounts of data, many are unclear about just what to do with all the information they have collected. All too often, this data is simply stored away, never to be used again to make practical, helpful decisions. A new generation of software vendors like Salesforce, Zen Desk, and Workday are integrating analytics offerings deeply into their existing products and even creating entire offerings around their clients' data to deliver additional value and increase the usefulness of their applications. Software vendors are finding innovative ways to use this data in their applications and products. As a result end users and customers are able to interact with it in ways few thought possible even a few short years ago.

In this whitepaper, we explore how companies are empowering customers with embedded Business Intelligence (BI). Those early adopter firms who are exploring the possibility of embedding BI are faced with the question of whether or not to build their own specialized BI tools for customer applications, or whether they should buy third party BI tools to embed. We provide an analysis of the advantages of each option in terms of customer satisfaction and ROI.

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[1]TechCrunch. MG Siegler. 2010. Eric Schmidt: every 2 days we create as much information as we did up to 2003. Available online: http://techcrunch.com/2010/08/04/schmidt-data/

Embedded Business Intelligence: Big Data in action

Embedded Business Intelligence is one of the first 'real world' manifestations of Big Data. Primarily used by organizations to understand their own data, markets and customers, BI is used to make better decisions and improve efficiency. Typically, BI exposes the data an organization collects in an easy to understand manner, so that anyone can use it to make better decisions. Instead of representing data in enormous, hard to read databases, it is represented as dashboards that individuals can make sense of and manipulate even from a mobile screen, embedded within an application.

Many companies collect information on the individuals who use their products and services for the purposes of marketing and profiling. However, companies are now beginning to understand the potential in providing this data back to customers. When customers are able to access their own data they are empowered through having a better understanding of their own data and are able to make better choices.

Until recently, consumers have only had the possibility of using the Big Data they produce in a limited number of situations. Most often, this has been in online retail stores, where customers can see, for instance, recommendations of products based on their previous purchases. More recently, we've seen a range of health and fitness applications which record activity and represent this data as charts and dashboards embedded in mobile apps. However, the potential of embedding BI in customer apps and websites is far larger and companies are just starting to see the potential.

What does embedded BI look like in the real world?

One of the most common uses of embedded BI in customer applications today is in health and fitness applications. Many companies now offer exercise bands which track the user's journeys, heart rate and activity. This information is fed to the user's mobile device. On the mobile device, a series of embedded BI dashboards and charts represent their recent activity, heart rate and routes. Importantly, instant access to this data helps the user make better decisions – be that to walk around the office more, take a longer route on their way to work or reduce the number of calories they consume.

While embedded BI tools should be easy to use, 'under the hood' they can be extremely complex. Companies collect enormous quantities of data and making sense of it all requires a solid understanding of the information collected, what is and isn't relevant and how it should be represented. Knowing how to mesh different data sources together to gain insights is far from simple.

To buy or build? An analysis of the BI solutions available

There are two major options when it comes to embedding BI in customer facing applications and websites. Either companies build the visual analytics themselves in-house or they buy an 'off the shelf' BI solution and integrate it into their offering. Why might you choose one solution over the other?

	Reasons for	Reasons against
Build Your Own	Companies tend to build their own BI solutions if they feel no 'off the shelf' tool can correspond with the particular needs of their customers.	Besides the cost and complexity of building a custom analytics solution, if you are a SaaS provider focused on HR, is analytics really the best focus for your development team? Even if you choose an open source options like D3.js, you still need significant resources to support and build your solution.
Off the Shelf	'Off the shelf' BI tools offer all the benefits of a ready-made, specially designed application.	Companies that have high visualization requirements may believe 'off the shelf' tools aren't flexible or extendible enough to do exactly what they need. It could also be that your project is so simple that it would not require a BI tool.

In order to help you reach a decision about which approach is most suitable for your customers' requirements, we have developed a comparison of the outcomes for different companies taking these two different approaches to embedding BI. We explore the impact of building a custom made embedded BI solution versus using an 'off the shelf' tool (using ReportPlus, Infragistics' BI solution as an example).

Comparison: to buy or build?

For this comparison we have developed a case study of two different energy companies, TripleA and LEKtrics. Both firms are national energy providers and use various energy sources to provide electricity to homes across the country. In today's energy market, there is a great deal of competition amongst providers to offer the best deals to consumers. Both firms realize that providing consumers with a break-down of their energy costs and real-time consumption will give them a far greater sense of control over the energy they use.

To achieve this, both firms decide to develop mobile apps which give customers access to this BI. Both firms' mobile apps offer more than just dashboards – they are also spaces for individuals to pay their bills, contact their energy provider and review their accounts. Both companies want to embed a very similar BI solution within their respective customer apps. They envision a dashboard which shows the customer real time energy usage and cost, as well as historical energy use.

These dashboards will mean customers are able to make better choices about how they use energy. They can then save money by turning off certain electrical devices around their homes and, in real time, see how this is saving them money.

Until this point TripleA and LEKtrics have taken a fairly similar approach. However, TripleA decides to make their embedded BI tool in-house. The reason? They just weren't convinced any other tool could support all the complex data visualizations requirements. LEKtrics, by contrast, decided to embed visualizations using ReportPlus from Infragistics.

TripleA's experience

TripleA found the process of building the application complex and time consuming. The firm's development team spent a considerable amount of time working out how to make their different databases communicate (various Excel spreadsheets containing customers' bills combined with data from energy usage monitors) and then represent this as an in-app dashboard that would update in real time. None of the team had prior experience with building any sort of BI tool, so the requirements gathering, development and testing stages were relatively lengthy.

Once it was complete, the tool was very impressive. Customers really appreciated the fact that they could measure their energy use minute by minute, hour by hour. It meant they noticed that certain devices around the home were 'on' and consuming energy, even when no-one was using them – allowing them to turn them off and save money.

Once the bugs had been ironed out, TripleA was happy with the tool. They received positive feedback from customers. Once customers saw the power and benefits of managing their own data in real time, they soon began asking for similar dashboards showing other real time data. For example, some environmentally conscious customers wanted a visualization which would show the actual sources of their electricity – they wanted to see if it was produced with coal, gas, renewables or nuclear. Keen to please customers, TripleA then went on to spend another six months building this new dashboard.

TripleA's Return on Investment

Building this embedded BI tool was a relatively expensive and lengthy process. It took the development team almost six months to build the first tool - at least in part because none of them had experience of building this kind of application before. Nonetheless, the tool could not be faulted for achieving its specific goals and meant customers got a personalized experience and were able to save money.

LEKtrics' experience

LEKtrics opted for ReportPlus because of the diversity of use cases an 'off the shelf' tool can be extended to. ReportPlus was available for use from day one and came at a fraction of the cost of building a BI widget into their customers' existing applications. ReportPlus' interface is also fully customizable, meaning it fit right in with the existing UI of LEKtrics' mobile app and customer website.

Like TripleA, LEKtrics' customers were extremely happy with the new app. It empowered them and gave them real time access to their energy usage. Just like TripleA, customers were soon asking for more dashboards and more control over their data. LEKtrics' development team were happy to oblige and used ReportPlus to develop a free 'store' of dashboards and real-time data tools for all their customers.

The environmentally conscious customers were very quickly able to monitor the source of energy they were consuming with one of these widgets. Other customers were aware that energy companies charge more for electricity usage at peak times. They asked LEKtrics to provide a widget that would show electricity usage and costs across the grid in real time. The development team were able to build this in just a few days. This allowed customers to use high power electrical goods at times when energy was cheapest – for instance they set their clothes wash to begin early in the morning when costs were lower.

LEKtrics' Return on Investment

Having introduced ReportPlus across their operations, LEKtrics experienced both immediate and long term ROI. They were able to attract new customers fast by promising them far greater control over their energy consumption. Crucially, the fact that they were able to provide widgets which customized to customers' specific needs and deploy these in no time at all made theirs a very attractive and personalized proposition.

LEKtrics didn't have to reduce their actual prices, but they soon gained a reputation for helping customers spend less. And although they weren't the only company who had embedded BI, ReportPlus meant they could develop many more tools and widgets to correspond with their customers' needs and deploy these far quicker than the competition – and at a fraction of the cost.

Viable alternatives

As this comparison has demonstrated, the choice of either buying or building an embedded BI tool can have a positive impact on how a company works. Yet as this comparison has also shown, building your own specialized BI tool offers little or no more value than buying in a readymade, expertly designed platform. By contrast, using 'out of the box' BI tools such as ReportPlus offers so many more options.

The above comparison between TripleA and LEKtrics can, of course, be replicated in many other industries too – whatever the needs of a company, the pros and cons of each solution remain the same. A 'home made' BI tool will help customers gain insights in one area of their dealings with you very well, yet 'an off the shelf' tool opens up a whole range of possible insights faster and at a comparatively lower cost.

Why embed ReportPlus?

True to Infragistics' history of being a developer-focused company, ReportPlus was built to be extensible, customizable and easy to integrate into your application. Developers have total control.

- Build once and easily embed within web applications, desktop applications, and iOS applications giving your customers the same experience across devices.

- Supports data from popular sources, including Microsoft's SQL, Excel, SharePoint, Salesforce, RESTful Web Services and more

- Accelerate time to market with minimal development effort

- Reasonable business model that scales with your business

Analytics is a growing need for your users, and with ReportPlus you can quickly add value to your application by embedding stunning data visualizations with very little development effort and a pricing that scales with your business. ReportPlus is a business intelligence and analytics tool that can be easily embedded into your iOS, web, and desktop applications with just a few lines of code. It is a fully interactive data visualization tool that can quickly be integrated into your product to accelerate your time to market.

Bottom-line is, by buying an embeddable BI tool, such as ReportPlus, you can quickly build a data visualization once and quickly embed it across virtually any device. This will help you get to market faster while delighting your users and adding tremendous value to your internal or external applications and your data.

Embedded Business Intelligence should align with requirements

The quantity of data now available to users and consumers has never been seen before. As the hype around Big Data subsides firms are now finding concrete methods of giving customers access to this data so they can make better decisions.

Today's users increasingly expect access to this information in a transparent manner – both when buying a product from your website and when using your services. One of the most direct ways of providing them this data is as embedded BI on your external facing website and within apps. Two major options are available to firms when providing customers with this information. Either they build their own custom made interactive BI dashboards and graphs or they embed a third party tool like ReportPlus from Infragistics.

By comparing the pros and cons of both approaches, this paper argues that 'home made' BI tools are relatively restrictive and offer no more than what 'off the shelf' tools are capable of. By contrast, 'off the shelf' tools are flexible, adaptable and have an almost unlimited potential for rapid deployment in apps. The potential they offer for empowering your customers is enormous.

About Infragistics

Infragistics is a worldwide leader in providing tools and solutions to accelerate application design and development, insights and collaboration for any organization. Infragistics enterprise-ready UX and UI toolkits are used by over 1 million developers to rapidly prototype and build high-performing applications for the Cloud, Web, Windows, iOS and Android devices. Infragistics Enterprise Mobility solutions ReportPlus and SharePlus, gives business users the latest advancements in self-service business intelligence and collaboration software. Additionally, Infragistics offers expert UX Services and award-winning support.

Now that you've read our whitepaper, try ReportPlus today!

ReportPlus.com

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+1(800) 231-8588 (US)
+44(0) 800 298 9055 (EMEA)
+81 (3) 54748034 (Japan)
+61 (3) 9982 4545 (APAC)

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