EMBEDDED DATA VISUALIZATIONS CAN BRING YOUR APPLICATIONS TO LIFE

You now have the ability to include rich visualizations in your custom application with less development, which translates into quicker time to market and less cost. In this paper you will learn how adding embedded data visualizations to your custom application can empower your users to more easily make sound and efficient business decisions.

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Data visualization is the presentation of data in a pictorial or graphical format. Embedded data visualization is including this functionality in your custom applications. By embedding data visualizations into your application, you can drill down into charts and graphs for more detail, giving your user the ability to work interactively with the data. This is invaluable because many people are visual learners; it is easier for people to interpret data from interactive visualizations than static spreadsheets or charts.

Introducing data visualizations into your offering makes your application easier to use and improves your users understanding of the application data. It improves user engagement, information processing, interactivity, and more. It enables users to recognize patterns in data and draw actionable insights that would otherwise go unnoticed. By using embedded visualizations versus developing this functionality from scratch you are able to be more agile and cost effective, ultimately reducing time to market.

The path to effective visualizations starts with a series of basic questions:
 • Who will be looking at the data?
 • What decision do you want to drive?
  – Is it strategic or tactical?

It's not enough to create a visualization just because it looks good, it needs to serve a business outcome. Say you want to see sales for the Northeast region in the fourth quarter of 2017; embedded data visualization tools allow you to hone in on business questions. From sales lags in the Northeast to sales spikes in Alabama, visual representations can be manipulated with the touch of a screen.

A question that may arise is whether to build out a custom platform for visualizations or to employ a third-party platform with visualization-embedding capabilities. Let's examine the question. Custom development does have advantages; it gives you full control to connect your data, build dashboards, and deploy your content within your application. A custom application also gives you full programmatic control of your embedded analytics, which can include preset dashboard filtering, custom interface elements, and infinite possibilities with external integrations. Yet here's the thing: a custom build often requires a significant investment of resources, which is not cheap. The alternative is to work with a third-party vendor with embedding capabilities. This will allow you to embed your visual data analytics into your applications, tapping into their existing platforms.

Pro tip: Busy people often appreciate having the visualization already embedded in the application in front of them, rather than being asked to learn a new platform. Another thing that will make you popular is if you give them information that pertains specifically to them. They don't need to see everything. This is easily accomplished through data visualization platforms available from third parties.

A Multitude of Options

Embedded analytics can be used to do many things, including interactive reporting, forecasts, and alerting within a CRM, ERP, EHR/EMR, web site, intranet, or mobile app. Users can securely review or create reports within the governed application environment without having to open another stand-alone application or portal. There are a wide variety of approaches for integrating analytics, ranging from adding hyperlinks with parameters using HTML iframes, to true analytics amalgamations with rich SDKs, APIs, or even OEM/White Label options. There has even been use of artificial intelligence and natural language generation along with embedded analytics to interpret metrics.

One thing you should avoid, even with all of these tools at your disposal, is the temptation to cater to every stakeholder in your organization; that can make your head spin. Keep your design focused on the business action you want to see and build from there.

Seamless Integration

With embedded data visualizations, there is no need to create totally new databases. The design requires minimum coding and allows you to tap into a bottomless ecosystem of existing services. The result: a seamless and agile interaction of analytics and application functionality.

Embedded data visualization tools offer tremendous flexibility. For instance, a video streaming provider could connect to a data warehouse that holds streaming user data and a SQL database with demographics info to create a visual representation of the combined data. The company could then embed the visualization into its applications.

You can also employ parallel development workstreams. You can have one team building out your application and another handling the visualization and analytics components. At some point you can begin integrating the visualizations into your application. This allows you to deliver your application, including your embedded analytics components, much faster.
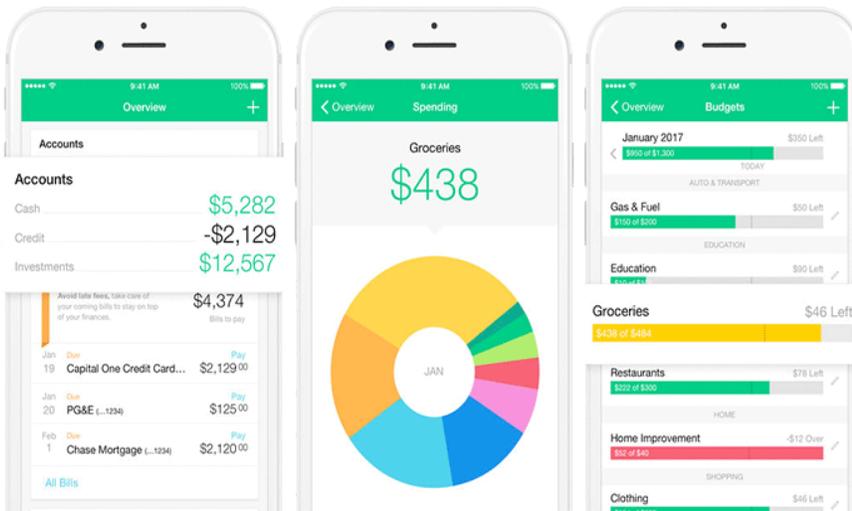
Visualizations allow companies in B2B scenarios to show internal enterprise data to external consumers in a highly controlled and branded fashion (think suppliers and partners). This is easily possible with embedded data visualization tools.
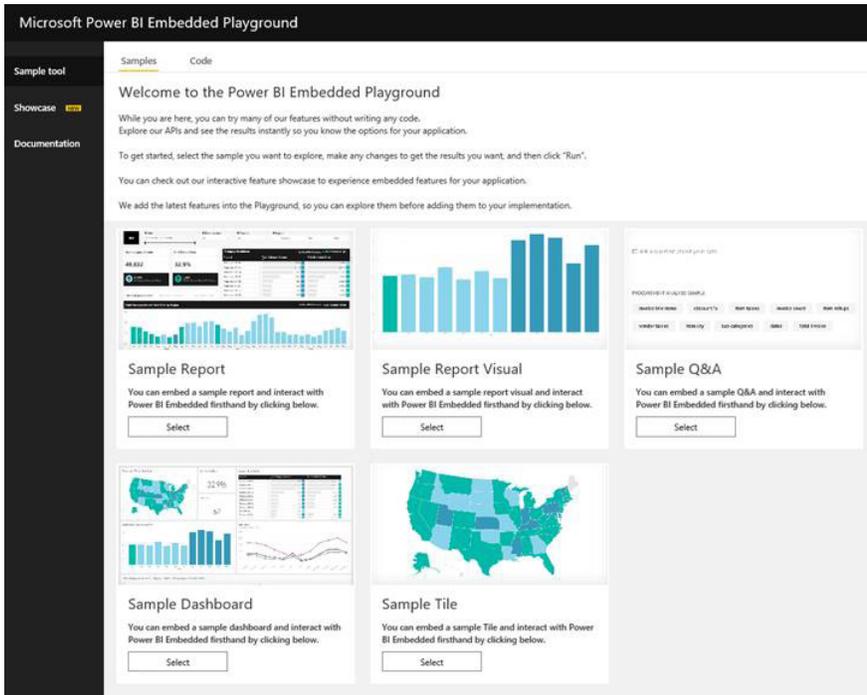
Mint Uses Visualizations Well

The budgeting app Mint is a great example of a company that makes data visualization and analytics a key part of its user experience. Mint presents a customer's income, expenses, and goals in a meaningful, clear, and efficient way. And it does so in a way that lets the user weigh the inputs. For instance, you can see an overview of your total earnings and expenses in graphs and charts, or you can drill down to more detailed information of monthly or weekly earnings and individual expenses. Mint visuals are customizable; they show what you want to know. You don't have to read through statements and analyze facts and figures. Mint's software does that for you and shows you with embedded data visuals, easily handled on desktop or mobile devices. It's an inspiring piece of software in how it handles data in an accessible way.

Mint Screenshots

If you're looking for a software package to bring your data to life, consider Microsoft's Power BI. If you use **Power BI Embedded**, you can embed reports, dashboards, or tiles into an application possibly using Power BI licenses you already own. This allows you to easily leverage the rich Microsoft BI ecosystem in your custom applications. Microsoft also offers a **Power BI Embedded Playground** which allows people to easily experiment with the capabilities of this technology.

Microsoft Power BI Embedded Playground

Looking Ahead

Using embedded data visualization tools to accelerate the addition of modern data visualizations into your applications requires a partner who understands your problems and can apply the right technology. Magenic has tremendous experience helping clients navigate enterprise solutions and discover how to integrate data visualization into their applications. **Contact Magenic** to discuss how to quickly and effectively integrated powerful data visualizations into your next project.

Magenic Principal Consultant Stevo Smocilac made a significant contribution to this paper.

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