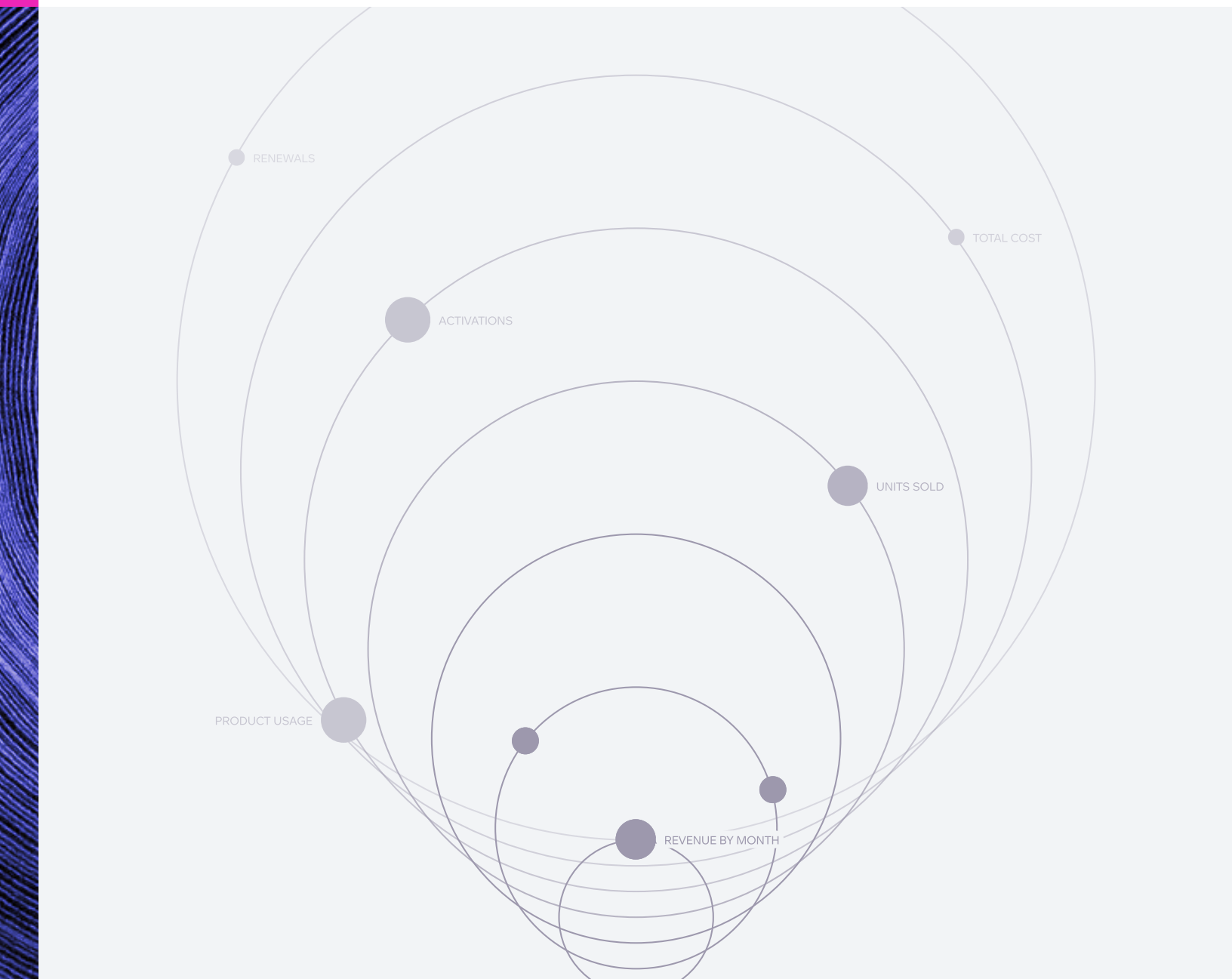
GoodData

Starter Guide

Embedded Analytics in Your Software Product



Embedded Analytics - What is it? And why is it needed?

Embedded analytics, put simply, is a data analytics software integrated into another business software solution, where two individual elements are brought together as one. Often, so seamlessly integrated, that the non-technical user is unaware of the fact that they are working with two pieces of software.

More than just dashboards

The data analytics part of the equation is not only about having static dashboards and reports embedded into another business application or portal, however.

In particular, it's about integrating and managing all the pieces of the puzzle that enable data visualization to be accurate, interactive and attractive, and smoothly orchestrated, all from one central location. Pieces that include:

- connection to various data sources,
- updates and changes deployed to thousands of separated user groups and their respective end users,
- a backward-compatible self-service analytics interface for end users,
- and global data privacy and security, to mention a few.

In other words, embedded analytics is meant to be an end-to-end solution for hundreds, or even tens of thousands, of separated user groups and their end users, with various use cases: which data they need to ingest and visualize, which metrics they need to have available or create themselves, and so on.

It's this complexity that gives rise to embedded analytics often being referred to as a solution or platform, as opposed to a piece of software or a tool.

The main hurdle for embedded analytics is how to roll out, manage, and control all the above-mentioned pieces of the puzzle from one central place - seamlessly, easily, transparently, cost-efficiently, securely, and without errors. Very few can
do this.

The popularity of embedded analytics can be seen within its application in many large organizations, due to its ability to be customized to fit their widely varying needs. Software development companies are another key example of using embedded analytics, in this instance integrated into SaaS (Software as a Service) applications.

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Build or buy?

Product and solution teams face the question, during the development of their SaaS/software product, of; which avenue to go down?

A. Develop an in-house analytics platform embedded into their product or,
B. Purchase an embedded analytics solution from a specialized data analytics provider

The answer is usually Option B. Why?

After calculating the time (several months, if not years) and cost (a lot) that in-house development and maintenance requires, product and solution teams swiftly realize that employing the expertise of a specialist data analytics company makes much more sense.

Then the question becomes; which one? A decision that, ultimately, will affect your software product's profitability, development, and long-term success.

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An intricate decision to make

And it's this, the evaluation process, that can be the hardest part to tackle.

With the world of data analytics solutions made up of a complexity of different options, only the most seasoned solution experts know which questions to answer and what to look for. They are the ones who can ensure that the embedded analytics solution you choose is able to keep pace with all the other pieces of the puzzle, in terms of speed, capacity, profitability, and customer satisfaction.

So, with the above in mind, read on to learn which aspects you should be investigating, in your pursuit to finding the right embedded analytics platform for your product.

1. Easy scalability to 100s, or even tens of thousands, of customers

A quick note: dependent on your use case, "customers" could be other organizations (entities) – your client companies with their own end customers or internal teams – or direct, individual consumers (people).

One of the most important yet overlooked evaluation criteria, when choosing an embedded analytics platform, for a software product, is scalability.

During evaluation, the majority of product and solution teams focus on rich visualization options, data source integration, analytics interface customizations, and the cost of initial deployment, overlooking the most important factor affecting their product's long-term profitability and success. And it's easy to see why.

Many embedded analytics vendors promote faster, more accessible, visualization-rich data analytics, but only a select few address data and analytics availability from the perspective of centrally-managed scaling and change management.

Your ability to scale and control shapes your organization

An embedded analytics platform that scales effectively can scale in 3 dimensions: data volume, price, and the number of analytics users, without sacrificing the speed of new deployments or overall performance.

Oftentimes, the mistake product and solution teams make is to look at the present and not the future. While the infrastructure appears to be sufficient for their needs when rolling out their new software product, it quickly becomes clear that it isn't scaling alongside the growing customer base.

Consequently, the analytics platform begins to hold everything else back.

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Often, this realization leads to the product teams asking the developers to attempt to refit the existing embedded analytics platform, trying to make it fit to the organization's changing needs.

The result? An expensive, time-consuming process that often leads to unforeseen crashes and complications.

And after several rounds of adjustments, it soon becomes apparent that the only way forward is to find an easily scalable embedded analytics platform. With all the work carried out to date, usually ending up in a very expensive bin.

Evaluating with future numbers in mind

So, to avoid this all too familiar scenario, consider the following:

- **Scalability to new customers:** Rolling out your product with the analytics solution to a new customer with their own data (needless to say: private data) should be an automated process for which the infrastructure of the analytics platform is ready.
- **Change management and release tools:** When releasing a new version of your product, you need to protect the adjustments that your customers and end users have made in self-service mode without overwriting them, while still keeping the analytics solution consistent. Not having the support of such tools will result in you having to manually check each and every customer to ensure that new updates didn't break their individual environment.
- **Integration into your product development processes:** When you release a new version of your product regularly, ensure that new versions of analytics can be released at the same time with the same setup, such as using different development environments, QA, and production. Make sure that you can manage analytics as an integral part of your product, not as two separate systems.

- **Automated provisioning:** Ensure that adding new customers, changing users' access, or refreshing the data is fully automated.
- **Guaranteed service level agreement** that will provide the same quality of service no matter if it's to 10s or 10000s of customers.

2. Profitability and the ability to predict future costs

Scalability and profitability go hand in hand.

Much like any forecasting, it's not so much about initial deployment costs, but about building ROI and sustainably building profits in line with your customer base.

With every new customer comes new data sources to integrate, more data queries to process and more data volume used up. On top of that, every customer (organization) will have differing numbers of end users, every one of which needing access to your embedded analytics solution.

It is, therefore, paramount that each new customer is accounted for in terms of your profit margins.

The weight of a pricing model

With this in mind, avoid embedded analytics solutions charged per data query or per individual user, as predicting how each customer will use your product, and thus how much resource they will use up, can be very hard to predict.

For example:

Imagine an analytics pricing table that indicates - $10/user/month. It looks enticing, cost-efficient, and straightforward.

Though you need to think of the whole environment and performance. The above-mentioned pricing offer might include the dataset volume of 1GB only. After launching the analytics solution in your organization, you will soon find out that 1GB is simply too low. It becomes your new financial and performance bottleneck. For which you need to either start sacrificing the data volume your organization ingests, and the number of analytics end users, or build a direct query solution that requires a new infrastructure, which is also very expensive.

And now imagine that you have hundreds or thousands of end users who you want to provide with analytics. The more end users you have, or the more analytics customers you acquire over time, the more your analytics costs will become out of your control with this pricing strategy.

One step further, let's say that the above-mentioned analytics solution is a traditional analytics platform, meaning that; it doesn't look like your own product, it lacks your branding, and it's not embedded into your application or web portal. Eventually, you find that you would like to change this and switch to branded, embedded analytics. Such a switch might result in a monthly fee of $5000 per month, or even higher.

While, with a dedicated embedded analytics solution, possessing an appropriate multi-tenant architecture* and transparent pricing strategy in place, you will achieve significantly lower, and far more predictable, costs, right off.

***Explanation note:** Multi-tenant analytics architecture fully automates the separation and control of multiple user groups coming from different teams, locations, or companies. So with one analytics platform, you can easily service anybody: your internal teams, external partners, or client companies.

It makes sense then, that the most profit-friendly solutions are those which charge per customer (organization), regardless of the number of final users or data traffic that customer needs. The result? You only pay for the features or services (data modeling, custom branding) your organization needs.

Considering this will keep your long-term profit margin in check.

3. Efficient deployment in a matter of weeks

The third point closely tied to scalability is quick deployment, both the initial rollout as well as any further that will likely follow in the near or distant future.

Not all software companies that need an embedded analytics solution for their software product will have a dedicated team of data engineers. A team with the skill and capacity to quickly deploy and integrate an entire solution in line with the release of their product as well as any future updates.

And it's important at this point to differentiate between the requirements of rolling out analytics to a few internal departments and those of scaling to hundreds or thousands of independent customers with their own needs and expectations. It goes without saying, the stakes are that bit higher.

A good fit for your scrum calendar

As such, when evaluating various embedded analytics platforms be sure that the platform is able to roll out to hundreds of customers within a timeline suitable to your software product's needs. It's likely that only a few embedded analytics platforms will fit the bill.

And this is also a good time to ask about additional support and services the embedded analytics vendor can provide you with, like data modeling or data processing. So that you have the assurance that if something goes wrong, you've got experts on hand to get you back on track.

4. Airtight data security for every customer

When scaling analytics to multiple customers, it is of great importance that you not only assure them of, but also deliver on, their data being completely private, secure, and separated from each of the other customers that use your software product.

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The consequence of any data leak from one customer's environment into that of another's could be huge, with the potential to significantly affect your product and your company's reputation.

A well-thought-out infrastructure and the tightest security standards

To address this important issue during your evaluation focus on these points:

- **Architecture:** the data analytics infrastructure that secures the physical data isolation of one customer from another. It must be impossible for users to get access to data for which they have no access rights - be it the data of another organization or the data of another user/team within the same organization.
- **Certifications:** compliance with global and local data privacy and security regulations, such as; GDPR, HIPAA, ISO, and others.

5. Self-service visualization and backward compatibility

Starting with static reports and dashboards for every customer or end user is commonplace.

On the other hand, end users usually have a different idea of what data their reports should include or how they should be visually presented, sending customization requests, one by one, to the software provider - you.

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As a consequence, the software product provider's teams quickly become overwhelmed by a deluge of customization requests, that are often too difficult to handle in a fluent and coherent fashion.

Moreover, the risk of mistakes and crashes increases as dashboards, visualizations, and metrics get duplicated, with new request queries getting lost among other issues. For the software provider's team, it subsequently becomes difficult to know what will happen - or go wrong - when a new change deployment is pushed through - especially if the embedded analytics solution isn't equipped with tools for effective scaling.

With each new deployment, the software provider's team, therefore, often winds up with a large number of broken reports and their individual customizations.

Empowering non-technical users to do more

The solution to this common problem is taking away your non-technical users' dependency on your, or any other, analytics teams, enabling non-technical users to easily create new visualizations, dashboards, and metrics, and adjust the preset ones (by you) by themselves.

In order to achieve this, you need to find a solution that not only includes a self-service analytics interface, but one possessing the infrastructure and tooling to ensure that your change deployments won't affect the visualizations and dashboards created or adjusted by the end users themselves. Thus, easily keeping the data, metrics, visualizations consistent across the whole solution.

6. Customization and branding - Anything, flexibly.

Embedded analytics needs to be integrated into a software product so tightly that end users can't tell the difference between the two - where one starts or one ends.

As such, the analytics platform and all its reports and dashboards must be able to match the branding of the software product, from logo to colors. If desired for a particular use case, a customer's branding(= organizations) might be used as well.

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And this should just be the start. Software companies need to customize different parts of an embedded analytics platform to the specific needs of their product and/or various customers.

Tailoring the platform to the needs of both you and your customers

Your new embedded analytics platform should be able to:

- customize data pipelines, metrics, dashboards, and visualizations for each and every customer (e.g. other companies or separate groups of users)
- offer various options of embedding with a different depth of the integration of your product with the analytics platform: iFrames; front-end tooling; or just branding without embedding.
- give you the tooling to use the analytics engine for all the data ingestion, transformation, and processing, while designing an interface for your end users that doesn't resemble traditional analytics at all - if that is the desired design of your software product.

7. Control of your customers and their usage

It's easy to manage and analyze a handful of end users. But with 100s of customers and their own 10s, 100s, or even 1000s of end users, it might quickly throw your management off their game.

Gaining a firm grasp of what's happening in your software product on a daily, or at least weekly, basis, is key in ensuring the happiness of your customers, the development plans for your product, and your profitability in the long run.

Staying on top of everything

Be sure to consider these points when looking into a promising embedded analytics platform:

- Automated user access control, including revoking access
- Provision of particular dashboards, based on user status
- Overview of users' behavior and actions within the platform
- Comparison between different customers and their users

8. A single embedded analytics platform

When time is tight, a stitched solution, built up from what you already have, might seem like the best way forward. Unfortunately, it's not.

While traditional business intelligence and analytics platforms are able to deliver dashboards to multiple customers, each of those dashboards would need to be separately defined, managed, and maintained, with custom reports individually created, and privacy ensured.

Scaling this solution in the long term would prove resource and cost-heavy, defeating the point of employing it.

Moreover, after all the effort of trying to manipulate all the individual tools to work as desired, there are no assurances that each will comply with the rest.

Like with many things, a short-term fix simply won't work in the long term, and will likely see you going back to the beginning to start over.

Did this guide not dig deep enough into the details?? It didn't! Read the advanced tech guide.

Continue to our **more technical** "Go-to Guide to Launching Branded & Embedded Analytics" where you will find more details and deeper explanations about the technical options and aspects you should be looking into when launching embedded analytics solutions. We highly recommend it

No time to read it all? Yet, need more information? Alternative: Talk to us.

If you are onto something and the shortlist of our advantages raises your curiosity, as an alternative to extensive reading, we highly recommend requesting a demo call (via our website) and letting our experts take you on a guided tour of the GoodData platform, while giving you further embedded analytics guidance. It's commitment-free.

Why the world's top companies choose GoodData

At GoodData, we believe that traditional data tools are no longer enough. Our Data as a Service (DaaS) infrastructure is the future of analytics: real-time, open, secure, and scalable. GoodData's leading cloud-native analytics platform gives our customers the flexibility to build and scale any of their data use cases; from self-service and embeddable analytics to machine learning and IoT — while maintaining the performance, cost-efficiency, and easy change management of such a central and integrated solution.

We have teams and data centers in the USA, Europe, and Asia. Among our customers are leading multi-brand e-commerce platforms, software companies (SaaS), and global financial and payment institutions.

The GoodData Advantage

Business

1. One platform for all: internal teams, client companies, external partners
2. Self-service analytics for all business managers
3. Your own branding
4. Predictable pricing to suit your business, no pay-per-user
5. The highest data privacy and security certifications

Technical

1. Automated scaling to different departments and companies
2. Embedded dashboards in your application or software product
3. Streamlined multi-tenant change management
4. Abundant data-source options
5. Fully hosted or deployed as a container in your private or public cloud (on premises)