EMBEDDED ANALYTICS EVALUATION GUIDE

Purpose of this guide

This guide provides general information on the embedded analytics market.

It describes key features to understand if you are in the market for an embedded analytics solution.

It is designed to help you select the best embedded analytics provider for your needs.

Who is this guide for?

This guide will help anyone evaluating embedded analytics solutions to make an informed buying decision.

The technical information provided is structured to be useful to technical and business evaluators.

No prior knowledge of analytics is assumed.

Vendor-neutral information

Bold BI by Syncfusion is an embedded analytics platform. It is one of several on the market.

This guide is not about Bold BI.

You have our word that not one line of information in this guide will be biased in any way.

What is embedded analytics?

Analytics is the analysis of data using computational power to determine patterns that can be reviewed and acted on.

Market leading stand-alone analytics packages include Microsoft Power BI and Tableau by Salesforce.

A complete analytics platform that can be embedded inside another software application is referred to as embedded analytics.

Key difference with stand-alone analytics

Stand-alone analytics requires the use of an application such as Power BI or Tableau.

With embedded analytics, your customers can use your product itself to perform the same analysis.

Can stand-alone analytics packages also be embedded?

While most analytics systems can be embedded inside another application, systems designed for embedding make this easier.

We will explore some of these aspects as well as general attributes of embedded analytics in this guide.

Is embedded analytics a fit for your needs?

Embedded analytics is by no means a silver bullet.

It is suited for some use cases and not suited for others.

Next, we'll examine sample use cases to help you choose between stand-alone and embedded analytics.

USE CASE:

SaaS vendor.

If you are a SaaS vendor wishing to include analytics in your product:

Advantages

- Embedded analytics becomes a seamless part of your product.
- Your customers do not have to use another solution for analytics.
- Pricing is usually more predictable and cost-effective when compared to stand-alone analytics.

USE CASE:

Software vendor who distributes software to users.

If you are a software vendor looking to embed analytics and distribute to your customers:

Advantages

- Embedded analytics becomes a seamless part of your product.
- Stand-alone analytics may not be an option since redistribution with your application is usually impossible or cost-prohibitive.
- Embedded pricing is usually more predictable and cost-effective when compared to stand-alone analytics.

USE CASE:

Deploying analytics to many users as part of internal software.

If you are looking to deploy analytics in internal software to many users:

Advantages

- Embedded analytics becomes a seamless part of your intranet/internal products.
- Users do not have to use another solution for analytics.
- Pricing is usually more predictable and cost-effective when compared to stand-alone analytics. This is a huge advantage when deploying to 100+ users.

USE CASE:

Deploying analytics to a small number of users as part of internal software.

If you are looking to deploy analytics as part of internal software to a small number of users.

Advantages

- None to mention.

Disadvantages

- You will have extra software development work to integrate into your intranet/internal software.
- Pricing of stand-alone analytics will be cheaper when dealing with a small number of users (typically less than 50 total users).

USE CASE:

Extremely advanced analytics to be used by a small team of dedicated analysts.

If you are looking for extremely advanced analytics to be used by a small team of dedicated analysts.

Advantages

- None to mention.

Disadvantages

- Stand-alone analytics software offers more cutting-edge features.
- There is not an embedded analytics product on the market that can match Tableau or Power BI feature for feature.

Key features to look for in an embedded analytics product

API Designed for Embedding

API coverage is very important for seamless embedding. The UI should appear truly integrated.

This is an area where a solution designed for embedding will do better than one that is primarily designed for stand-alone use.

Points to consider for API:

- Can portions of the interface be embedded?
  For example, just widgets.
- Can options that are not relevant be disabled or enabled based on context?
- Can data sources be preconfigured?

More Considerations for API

Are events triggered when the user navigates through the analytics interface?

Proper event support in the API may be vital to have a seamless user experience with relevant content and options displayed in your application.

Provision of a Visual Designer

- Visual designers allow for the interactive creation of analytics UIs.
- Not all embedded analytics products provide visual designers.
- Some products require writing code to create analytics interfaces.
- The provision of designers is an important feature and one that you should test.

Considerations for a Visual Designer

- Can the visual designer be embedded without having to simply invoke the main application?
- In some instances, a visual designer may be provided, but it may not be embeddable inside your application.
- Can the designer UI be customized?
- Embedding the designer in place allows for a more seamless experience for the user.

Control Embedding vs. Iframe

Iframes allow any website to be hosted within your web application and can be used for embedding analytics.

Advantages of Iframes:

- Coding knowledge is not required.
- They support anonymous embedding for public dashboards.

Disadvantages of Iframes:

- Iframe use is not seamless. The content will appear as an island.
- There are numerous security issues to be considered.
- They perform slower compared to control embedding.

Control Embedding vs. Iframe

Control embedding allows full control over the data displayed in the application.

JavaScript embedding is a type of control embedding we recommend.

Advantages of control embedding:

- Faster performance since it is a part of the application, not on an island.
- More security control by implementing your own authorization server.
- Customization of appearance, style, etc.
- User interaction with filters and events.

Disadvantages of control embedding:

- Requires coding knowledge.

Data Access Models

There are two primary modes of data access:

- Direct query.
- Query through custom storage structures (typically a proprietary cube).

Data Access: Direct Query

- Direct-query solutions can directly query many common data sources including mainstream SQL data stores.
- They typically offer an intermediate data store for querying web APIs and files.
- The primary advantage is that there is very little preparatory work in most instances. Many data sources work.
- The primary disadvantage is that certain direct queries can be slow and require caching to be useful. This is often only observed with edge cases. Test with your use cases.

Data Access: Custom Storage

- With this model, the embedded analytics solution requires that most data be moved into a custom storage system (typically a cube).
- The main advantage is that such a system can be faster, especially if properly optimized for aggregated queries.
- The main disadvantage is that this puts more burden on you to move data and to maintain synchronization with the primary data stores.
- Another concern is how the data store scales when there is a lot of data to be stored. Proprietary data stores simply do not scale as well as data stores.

Data Preparation

- Data preparation is the process of preparing, combining, and organizing your data prior to pulling it into your application.
- This is often the most time-consuming part of analytics, but it is an important part and should not be avoided (based on your specific needs).
- Some products offer built-in support for data preparation tasks such as cleanup, transformation, formula fields, visual joins, and more. This can save a lot of time and effort over the lifetime of the product.

Authentication

Single sign-on (SSO) security allows users to sign in with one set of credentials for multiple applications.

- Authentication performed against the containing application will seamlessly work.
- Most solutions designed for embedding will seamlessly support this.
- The ease of integration may vary. This is a feature you must test during evaluation.

Beware of embedding solutions that simply turn off security and display embedded analytics information. Such “workarounds” can cause major security issues.

Multitenancy

The benefits of having different domains or URLs for multiple projects, divisions, or companies.

- Multitenancy is the hosting of isolated groups within the same server environment.
- The server can be a single server or scalable deployment such as Kubernetes/Azure App Service.
- No need to manage multiple instances.
- You have the benefit of complete silos between different tenants without adding extra complexity.
- Tenants, or sites, can be added and removed with an API or interactively.
- Depending on your needs and clients, this may or may not be important.

Responsive Behavior

- A UI that is responsive adapts the content to the screen size that is being used.
- Responsiveness is usually very important for embedded analytics. With embedding, the content may not have control over how much of the screen is allotted to it. It must make the most of the allotted size.
- Responsiveness can make or break your user experience.

Theming

- An embedded-analytics UI should be able to take on the appearance of the UI of the embedding application.
- Ease of customization should be reviewed.
- Typically, it should only involve the customization of a small number of CSS files.

Provisioning

Provisioning is the creation and management of resources related to your embedded analytics deployment. As an example, the addition of new tenants in a multitenant environment.

- Other typical tasks include management of data sources, dashboards, users, groups, backups, and more.
- Look for provisioning tasks to be available through an API. This will make such tasks easier to manage and will allow for them to be a part of your deployment pipeline.

Export Options

- Most solutions support exporting to file formats such as Microsoft Excel, Microsoft Word, and Adobe PDF.
- Evaluate the completeness of each export mode.
- For example, some export systems may not create searchable PDF files. They export as images into a PDF/Word file. In this case, you lose the ability of the data to be rendered effectively at different resolutions, to search for content, etc.

Client-side Code

- Modern embedded analytics platforms are rendered on the client side using standards-compliant HTML/CSS and JavaScript. This allows them to be deployed and maintained on a wide variety of devices.
- Older products may still incorporate plug-ins such as Adobe Flash and Microsoft Silverlight for part of their UI (such as the management UI) and should be avoided.
- Products with plug-ins are difficult to deploy and maintain.

White-Labeling

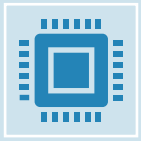
- The embedded solution should appear completely as your own.
- No vendor branding should appear anywhere, including in the configuration and management UI.
- This allows for a seamless experience for your end users.

Deployment

What to consider when reviewing deployment options for the embedded analytics solution.

Does the solution support scalable deployment, such as with Kubernetes or Azure App Service?

If the solution primarily runs on a single machine, you may have to work on a scaling strategy yourself.



Does the solution support deployment on your deployment OS of choice?

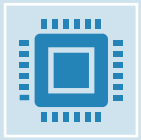
Is Docker deployment supported? This may be an important consideration for your environment.

Deployment

What to consider when reviewing deployment options for the embedded analytics solution.

Cloud neutrality allows you to deploy in a truly cloud-neutral manner.

Practically no changes are required to deploy on any public cloud. Kubernetes support, for instance, allows easy deployment anywhere.



This may or may not be important for you if you are a SaaS vendor since you control the deployment environment.

If you distribute your software, you cannot control where your customers deploy your software, and cloud neutrality is likely very important.

Deployment

Hosted solution

You may prefer that the embedded analytics vendor hosts the analytics server.

Not all vendors offer a hosted solution. This is something to check.

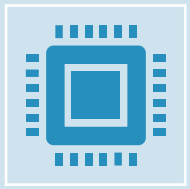
Also, pricing for hosting by the vendor may vary. Please verify before you decide on a solution.

If multitenancy is important, make sure to obtain pricing with multitenancy enabled. This may be completely different than a single-tenant system.

Deployment

Is distribution allowed?

Does the vendor allow distribution of the complete analytics solution with your product?



This is not important if you are building a SaaS application that you host and control yourself.

If you ship software to customers, you need to confirm if redistribution rights are included.

Machine Learning/AI

- Machine learning allows for the use of data to create models that can be used for classification, prediction, and more.
- As an example, you can use available data to build a model to predict customer churn. It may be the case that customers who take certain actions, such as requesting a discount or submitting more than five support tickets in a quarter, are more likely to churn.
- The model can then be used to calculate the churn probability for any customer.

Machine Learning/AI

Embedded analytics systems often support some form of model integration.

It is rare that they support model building, as other environments such as Python and R are better suited for this.

Be sure to test any claims of machine learning integration.

Machine Learning is a “buzz word,” and many systems may claim to support deployment while only offering minimal integration unsuitable for production use.

Globalization

- Globalized software is designed for global use and can run anywhere.
- It can be easily adapted for specific environments (localized) with attributes—such as language, date information, currency, and more—being tuned for a specific location.
- This is a must-have feature unless you are deploying to a specific region of the world.

Reporting

- Analytics interfaces do not usually offer support for detailed reporting.
- Dedicated reporting systems exist for this purpose. They make it easy to create print-ready reports.
- Analytics systems often work together with reporting systems.
- It is often the case that you need reporting to be deployed when deploying analytics.

Reporting

- It is common to have a use case where individual parts of the analytics UI link to a detailed report deployed on a reporting system.
- Check if the vendor offers a reporting system or recommends specific reporting systems.
- Consider the cost of such reporting systems when evaluating embedded analytics.

Pricing: What's the best fit?

Pricing models may be per-user, per-server/core, data-stored, or flat-fee pricing.

You should evaluate based on your intended deployment size:

- Per-user pricing: If you start with five users and pay $100 per month, the starting price is attractive. If you however intend to deploy to 10K+ users in the long term, your cost will increase over time.
- Flat-fee pricing: You can lock in a price for a specified scope (such as an application) and know what costs to expect upon full deployment.

Products designed for embedding typically offer pricing that is not tied to the number of users.

Licensing

Two primary modes of licensing: perpetual and subscription

1. One-time fee or perpetual license

- With a one-time fee model, you get perpetual rights. You can pay for updates if you desire. In general, updates are usually necessary to keep up with security bug fixes.
- Perpetual licenses are not widely available.
- Note: Perpetual licensing may still require you to license additional users, servers, etc. to stay compliant with the terms of the service or agreement.

2. Subscription-based License

- With a subscription model, you pay each year.
- Most options on the market are subscription-based.

When comparing perpetual licensing with subscription licensing, take your product lifecycle into account.

What does each option cost in the long term?

Vendor Support

- Evaluate the support experience during your evaluation. Submit specific questions and look for clear answers.
- Clarify what is included with support and what is available for an additional cost. For example, does the vendor include help with dashboard creation?
- Evaluate the interface used for obtaining support. Embedding analytics involves a lot of interaction with the vendor, and you should look for the experience to be traceable and pleasant.
- Review the vendor’s support SLA.

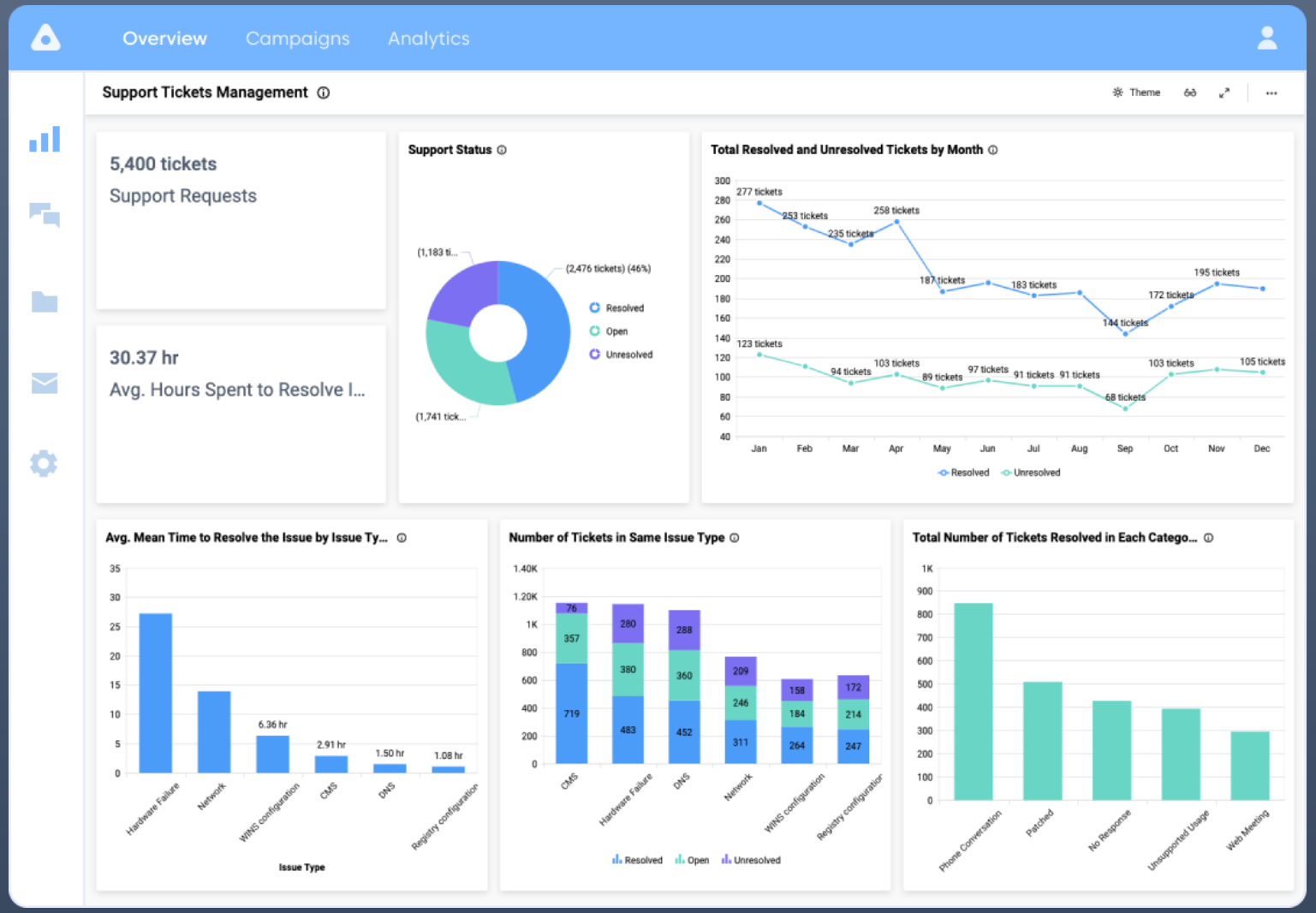
Vendor Support

- SOC 2, HIPAA, and GDPR are some of the standards that vendors help to comply with.
- Depending on the deployment model (whether you host or the vendor hosts), compliance responsibilities may be different.
- Most vendors offer a shared-responsibility compliance model.
- You should review your specific needs and your deployment scenario.

Bold BI Embedded Analytics Platform

boldbi.com

Bold BI
By Syncfusion



Bold Reports Embedded Reporting Platform

boldreports.com

Bold Reports
By Syncfusion

About Syncfusion

- Syncfusion licenses software frameworks and tools.
- Real-world tested for 20+ years.
- Trusted by over a million developers.
- Over 400 of the Fortune 500 license from us.
- We are used on trading floors, submarines, and much more.
- Solid reputation for delivering software that works and supporting it well.
- We develop and own our IP end-to-end.
- 1,200+ employees; 800+ focused on product development.

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If we can be a resource in any way, you can find us at www.boldbi.com.