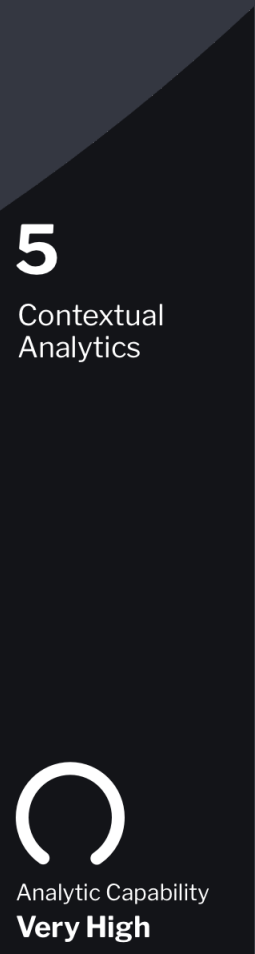# The Embedded Analytics Maturity Curve

Understanding your software product's analytic maturity level

1

No Capability

Analytic Capability
None

2

Data Exports

Analytic Capability
Very Low

3

Basic Reporting

Analytic Capability
Low

4

Standalone Dashboard and Reporting Module

Analytic Capability
Medium - High

5

Contextual Analytics

Analytic Capability
Very High
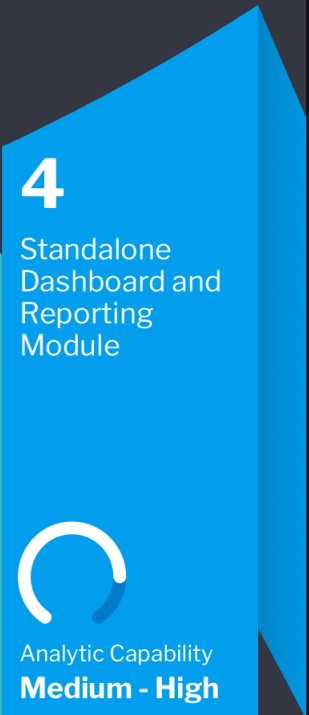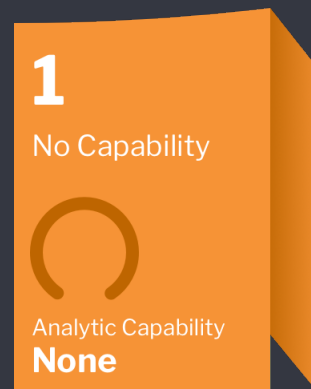
In the era of digital, there is increasing pressure on product owners to improve the analytic capability of their software and accelerate toward embedded or white-labelled solutions. But before any new feature can be added effectively, data and analytics readiness must be assessed.

As a product manager, you face many decisions when launching a new product, such as:

1. Can analytics be adopted earlier to guide decision-making instead of retro-fitted later?

2. How does the current data structure affect your users' insights potential?

3. What decisions should be made as you determine what the Minimum Viable Product is?

To maximize the value of your data assets in the long-term, it is critical to identify and address the areas where you may need to improve your existing software's analytical capability before an embedded analytics solution can be adopted. The Embedded Analytics Maturity Curve, a strategic assessment framework for product managers and software owners, helps you plan your implementation.

In this whitepaper, we explain what exactly the Embedded Analytics Maturity Curve is and how you can use it as a roadmap to formulate your analytical development, adoption and long-term strategy. It will take you through defined phases of the overall product journey to help you understand the requirements to action the most effective and efficient introduction of embedded analytics into your software product possible, whether it is existing software or a new product.
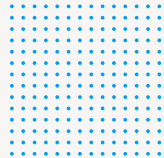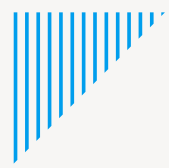
What is the Embedded Analytics Maturity Curve?

The Embedded Analytics Maturity Curve highlights the value of business intelligence (BI) and analytics to your users and the concentration of required development effort through five key stages, acting as an easy-to-reference, visualized roadmap of your current and target capability.

The curve aims to assist in understanding where specific opportunities lie with analytics in your product by outlining what your overall analytical capability, data value (how well curated and prepared it is for analysis) and future options look like at each level of maturity.

By following this structured progress model, you can better determine and learn:

- **What the next exciting new stage can bring to your product's analytical experience**
- **How to get to the next stage of analytics maturity to deliver more value**
- **Why it's considered a leap in analytic capability**

1

No Capability:

Analytic Capability
None

2

Data Exports:

Analytic capability is a simple CSV download or API access

Analytic Capability
Very Low

3

Basic Reporting:

Users can create a basic limited set of parameter-driven reports or dashboards within the product.

Analytic Capability
Low

4

Standalone Dashboard and Reporting Module:

Users have access and can perform self-service reporting and analysis on their data.

Removes burden from developers.

Analytic Capability
Medium - High

5

Contextual Analytics:

Embed sophisticated automated analysis and in-context reports and dashboards directly into a software application's workflows.

Effort for both the end user and developer is reduced.

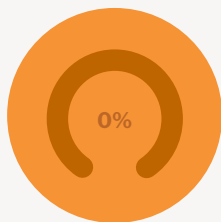Analytic Capability
Very High

Embedded Analytics Maturity:
Stage 1 - No Capability

For certain software vendors, analytics in general is not always a priority feature at launch.

If you are a vendor focused on building the initial Minimum Viable Product (MVP) for your new software and getting it market-ready, you are in the first stage of the analytics maturity curve. That means your software does not offer dashboards, reporting or any method to analyze data, and it is purely transactional in its focus.

Typically, you may have chosen to ship your product with little-to-no analytic capability, with the full intention of pursuing and implementing some form of analytics capability in the future.

However, the obvious limitations of this low maturity stage mean you may face severe constraints when you do attempt to introduce analytics features in the future. The necessity of assessing and understanding your users' requirements first is thus at its most important here.

0%

No Capability

Signs You're In Stage 1 Analytics Maturity

- Built, launched and focused your software around core expertise
- Getting product market fit is the primary objective
- No in-product reporting capabilities or analytic value

Future Scenario

Your options for adopting and improving your users' analytics are fully open. With no data capability and analytics not yet a core focus for your development team, it can be an uphill battle to introduce analytics later when starting from Stage 1. However, software vendors with low maturity can quickly learn from the success of more mature organizations to rapidly speed up the modernization of their embedded analytics capabilities - and take their time to implement them.

Why should you consider moving?

- Clients are increasing demanding access to their data
- You're losing to competitors who provide reporting or a data access API
- Access to data and insights is featuring in lost deals

When are you ready to move?

- You have a basic understanding of the information needs of your customers
- You have some internal skill set and expertise around the data collected in your platform
- Your data structure is stable
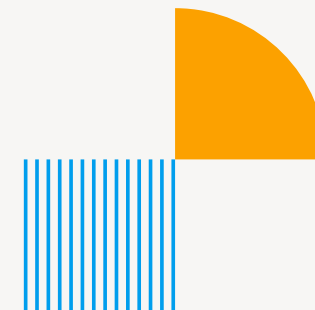
Embedded Analytics Maturity: Stage 2 - Data Exports

When customers demand the ability to analyze data stored in the software, they have recognized the need for report building and data consumption to guide their decision-making. If you cater to this demand by providing data export tools such as CSV downloads or API access, you're in the second stage. This means your users can access some of the data they require, but can only analyze it in an external solution

The limitations of Stage 2 relate to the disparate nature of the analytic experience. Users need to build all their analysis from scratch and manage the data pipeline outside of your software, placing the burden of time and expertise on customers. The data users export is also raw, which may not present an accurate picture for insights.

For example, a user may export a CSV from your software and analyze the data with a third-party BI tool, without guidance on how or where to start with their analysis. If they need more context to that data, they also have to switch back and forth between your app and their chosen tool to get it, creating a disjointed experience overall.

Data Exports

How To Tell You're In Stage 2 Analytics Maturity

- Basic data export options are provided to users
- No in-product reporting capabilities
- Analytic value provided for users is outside of software

What Your Data Structure Looks Like In Stage 2   Data Value = None

Individual/transactional data: The lowest level of data captured and stored from operational systems, most analysts may refer to this type of data to eyeball an actual behaviour of an event or individual. No real value can be extracted for decision-making, as it does not depict a view of the whole population data. It is purely the collection of data stored in a transactional system, used to derive analytical data marts to extract more value later in the analytics lifecycle. For example: The time, place, price, discount, and payment methods used in a point-of-sale (PoS) transaction.

What User Data Insights Looks Like In Stage 2   Analytical Capability = Low

Disconnected: As data is expected to be exported into an external tool by the user for any form of analysis, their decision-making and reporting is a segregated experience from the main product, and the quality of their insights is entirely dependent on the user's knowledge and usage of a third-party solution.

Future Scenario

Stage 2 presents a significant migration challenge for software vendors who want to mature their product's analytical experience and provide its own reporting solution, as you will have to offer comparable functionality to the various, disparate reporting tools used by your customers. Creating such features in-house, unless armed with developers with analytics experience, is considerably difficult, so it is recommended to explore white-labelled, established alternatives.

Why should you consider moving?

- Clients are integrating data into their own reporting solutions but are struggling to build meaningful reports
- You want to charge for access to data, but a data export does not provide enough value add to justify the charge

When are you ready to move?

- You have access to resources who understand your data model and can define and build basic reporting
- You have a clear set of basic reporting requirements from your user base that is common across many clients
- You have an underlying data structure that can accommodate reporting workloads without impacting performance

Embedded Analytics Maturity: Stage 3 - Basic Reporting

The majority of customers come to Yellowfin at Stage 3 of the maturity lifecycle. This stage is typically marked by the introduction of an in-house developed analytical solution or basic operational reporting capabilities, where users can build basic parameter-driven reports within an application. However, the set of dashboards and reports options are usually limited, and users cannot create their own custom analysis.

The challenge faced in this stage is that users' need for better insights and new reporting capabilities to drive decision-making is growing very fast, often faster than what developers can accommodate. This drives up requests for new reports and can bog development down in report creation, as developers are no longer fully focused on building the core product.

Basic Reporting

How To Tell You're In Stage 3 Analytics Maturity

- **Basic report builder with no custom analysis possible**
- **Requests for more sophisticated reporting is increasing**
- **Developers required to handle report creation requests**

What Your Data Structure Looks Like In Stage 3
Data Value = Medium

Aggregate data: Also known as summarized data, this is data collected from various sources and used in different areas of the business to show the now, and may help inform decisions. Aggregate data is acquired by combining raw data to give the user a high-level view, with extracts provided in different formats, like CSV or through APIs, in which joins/merges of the individual data tables are completed by connecting unique identifiers. Combining these relevant data tables for static analysis can start to provide some exploration of your data, such as finding trends and patterns of processes and assessing current measures for strategic planning. For example: Analyzing inventory data to find the summary statistics for SKUs in stock by region.

What User Data Insights Looks Like In Stage 3
Analytical Capability = Low to Medium

Varying: Summary reporting on categories are defined and some insights are obtained by exploration of the data, but improvements can be made. Anomalies and quality of data can be determined to evaluate what data wrangling is required to meet requirements for more accurate, sophisticated decision-making and reporting. Example: Inventory and sales data marts can be used in combination to view static reports to determine potential forecasts of how many sales are made in a region/what stock levels need to be replenished overtime for seasonal periods.

Future Scenario

The need to migrate customers from legacy (home-grown BI) to newer solutions (embedded analytics) provides a valuable opportunity to create an improved experience for all customers simultaneously with a uniform migration experience. Assuming more functionality is being added, it provides you a pathway to meet current functionality at current cost and then upsell your users new and improved features, increasing the average deal size per customer.

Why should you consider moving?

- Your clients are requesting more sophisticated insights
- Your clients want to give access to senior management and tabular reports don't cut it
- Competitors are innovating with data and leading with that in their sales and marketing

When are you ready to move?

- You are able to define and measure KPIs in your data that are common across clients
- You can define views of your data that can be combined into executive or operational dashboards
- You understand what your competitors are offering and how you can either remove a point of differentiation or create differentiation

Embedded Analytics Maturity:
Stage 4 - Standalone Dashboard and Reporting Module

Stage 4 is the <u>embedding of real-time reports, dashboards and data visualizations, into your software</u>. It now offers self-service reporting features and enables users to create their own bespoke analytic content, using pre-defined, secure data sets.

Because customers can use dashboards and reports as standalone modules, they have better access to data, and your developers are freed from having to create bespoke reports. BI is also more feature-rich and user-friendly, providing higher analytic value for your users, and only a medium workload for both users and devs.

However, embedded analytics does not readily guide your users toward optimal use of your software. Because your users' workflows and decisions are still made without inline support of data, they may need to switch context (look outside of the application) to discover insights, potentially breaking their focus and workflow.

Standalone Dashboard and Reporting Module

How To Tell You're In Stage 4 Analytics Maturity

- Analytics is embedded directly into your software experience
- Your users can build and analyze bespoke reports while in your app
- Significantly less report requests for developers to handle

What Your Data Structure Looks Like In Stage 4 **Data Value =** High to optimized

Analytical data marts: Data marts are condensed and focused versions of data warehouses that reflect the specifications of each business unit within an organization, such as sales data. They provide users access to the exact and specific type of data for business reporting purposes. Each data mart is dedicated to a specific business function or region and it is common for multiple to be used in order to serve the needs of each individual unit (different data marts can be used to obtain specific information for various departments). Because data is refreshed periodically - i.e. daily, analytical data marts also support data science modelling.

What User Data Insights Looks Like In Stage 4 **Analytical Capability =** High

The what, where, why: More accurate and sophisticated decisions can be made on data patterns and trends now the software offers users a level of intuitive, seamless analytical tools to do so efficiently and effectively. The value of data assets overall is increased, and users have better access to find answers or address the 'why' faster, both at self-service level and for the implementation of standard operational reports needed for compliance and/or regulations.

Future Scenario

If the current product does not support stage 5, you will have a choice to either continue providing this solution and lagging in the market, or do a full rip and replace for when your users' needs change or if your competitors enter the market with a stage 5 solution. Any investments and content created in the current version will have to be migrated into the second. Alternatively, you may consider running with two solutions - one for self-service, another for contextual analytics.

Why should you consider moving?

- Having a competitive edge in your analytics offering is essential to your strategy
- You may have churned customers to competitors looking for greater analytics sophistication
- You see key advantages for your users in enabling analytics at the point of consumption

When are you ready to move?

- Your data model is highly mature and performant
- You have mature data and analytics capability or partners who provide that skill set
- You have UX expertise that can help design and combine analytics into your core application workflows

Embedded Analytics Maturity: Stage 5 - Contextual Analytics

[Contextual analytics](#) takes embedded analytics several steps further by integrating analytic components, such as charts, tables, dashboards, alerts and visualizations, directly into the user interface and core transaction flow of a software application, through the inclusion of blended analytics and bi-directional workflows.

If you are a vendor in Stage 5, your users are now provided the most relevant data and insights at the exact point in time they're needed to assist in their next action, which is when they use your application. Their analytics guides them to make the best decision possible, with much of their workload pre-defined, automated and seamless; users may not realize they are using analytics altogether.

Contextual analytics is the best offering for future-proofing and providing highly-differentiated analytic experiences to your users today. It brings about exciting new experiences and workflows that combine insights and actions within your application, optimizes the use of your core software and significantly increases the business benefits everyone derives from using it

Contextual Analytics

How To Tell You're In Stage 5 Analytics Maturity

- **Analytical components integrated directly into your software's transaction flow and UI**

- **Your software users engage with dashboards, reports, alerts, and other BI tools as part of their core workflow**

- **Your users are guided by analytics toward actionable insights for their decision-making**

What Your Data Structure Looks Like In Stage 5

Data Value = Very high

Dynamic analytical data marts (real time / streaming): The software allows users to have access to the specific type of data they need to view for business reporting purposes and data is typically updated in real-time or as quickly as can be needed to ensure "edge analytics". Analytical data marts can allow for smarter and more focused decisions as data is more trusted, and it also includes support for data science models with real-time scoring.

What User Data Insights Looks Like In Stage 5

Analytical Capability = Advanced

The what, where, why and how: More accurate and sophisticated decisions can start to be made on data patterns and trends. The value of data assets is significantly increased with greater access to drill down and drill through the data to find reliable answers or address the why faster, at a self-service level or implementation of standard reports required for compliance and/or regulations. With the analytics itself guiding users toward relevant changes or trends and prompting users toward the appropriate action, insights are high-quality and increased overall.

Future Scenario

What makes the final maturity stage of analytics challenging is the level of technical expertise required to integrate a full analytics suite in a way that truly becomes part of your software's core experience. It can be time-consuming and costly to attempt this level of analytics capability in-house, which is why Yellowfin makes it easy to [leverage its full benefits in our product suite.](#)

How to improve your embedded analytics maturity level

Moving along the five stages of the embedded analytics curve is not an overnight process. However, it's a journey that can be undertaken by every team, regardless of their current capability.

Starting with an awareness and honesty with respect to your team's current data and analytics capabilities and deficits is a critical first step, and leveraging a maturity assessment like the Embedded Analytics Maturity Curve can act as a guide for being clearer about what your software can do, does not do and can currently offer to business users. It also opens up entirely new avenues of thinking about where and how to improve your software that may not be considered before.

Another kick-off-point to improving your software's analytical capability is to look to more mature organizations from similar industries for inspiration and bring their successful use cases into your own product initiatives. We recommend checking out Yellowfin's Case Study resource hub.

Achieving an exceptional analytics offering is reliant on aligning your product's data maturity and embedded maturity. You cannot try to get to Stage 5 insights while your data is in Stage 2. However, your data can be ahead of your embedded capabilities in preparation for eventual updating. Take the time to prepare it for migration; if your plans are to start with an MVP in Stage 3, ensure you do not limit your ability to migrate to Stages 4 or 5. Plan for your end goal.

Why assessing your analytical maturity is critical today

Ultimately, taking the time to examine the state of your data, people and technologies in-depth can provide valuable guidance in maturing your software's analytical capabilities, and even be a much needed wake-up call.

With the availability of modern solutions like Yellowfin that make the adoption and implementation of embedded analytics and contextual analytics as seamless and streamlined as possible, there is no better time than now to begin assessing your product's current analytical maturity, so you can start planning the introduction of new and innovative features that will transform the way your users engage with data and make better informed decisions sooner.
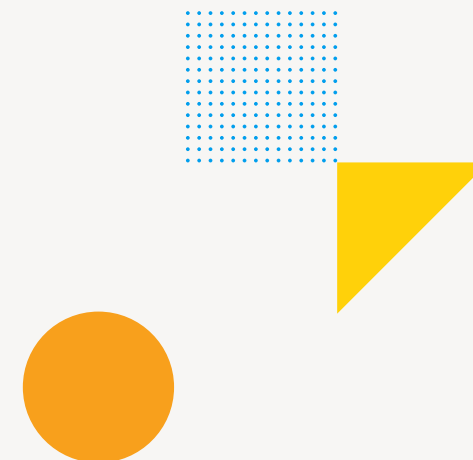
Yellowfin

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