

Business Observability with Custom Metrics: Use Cases & Best Practices

Table of contents

Executive summary

2 The need for business observability

3

Benefits of business observability

Superior collaboration and alignment

Enhanced customer experiences

Operational excellence and business growth

4

Real world use cases

CJ Olive Young Dollar Shave Club Wayfair Bazaarvoice SpringServe MercadoLibre DevSisters

5

How to achieve business observability

Define objectives Collect data Set up monitoring Perform data analysis Take action

6

Criteria for business observability solutions

- Platform
- **Data Collection**
- Monitor
- Analyze
- Action

Executive summary

Technology and business environments are evolving at a rapid pace. Technology leaders are expected to not only adapt to changes, but use them to their advantage to drive results. To do this, they need a real-time view of the metrics that matter to them so they can make data-driven decisions that optimize performance.

While each organization has their own unique set of metrics that matter, the benefits of monitoring technical and business metrics together are consistent. Organizations who evaluate technology performance with the context of business outcomes experience better collaboration and alignment, enhanced customer experiences, and operational excellence.

We've crowdsourced the knowledge and experience of Datadog's customers to demonstrate how business observability can transform your organization and how you can achieve the same results. In this eBook, we'll cover:

- The need for business observability
- Benefits of business observability
- Real-world use cases
- How to achieve business observability
- Criteria for business observability solutions

2

The need for business observability

In an increasingly digital environment, technology has an outsized impact on business outcomes. While technology teams have traditionally only been accountable for performance metrics, <u>85% of CIOs share that they're increasingly leading business and technology initia-</u> <u>tives</u>, which effectively expands the number of metrics they need to monitor, enable, and support. Even though technology organizations are still focused on the implementation and enablement of IT services, a <u>PWC study</u> reports they're now having to spend nearly equal amounts of time improving efficiencies and growing the business by fostering innovation. This marks a fundamental shift in the role of technology teams, necessitating a change in how they approach observability.

While most organizations already track business and technology metrics, they tend to be siloed and monitored by different teams, resulting in a lack of understanding about technology's influence on business outcomes. Business observability changes this by creating a centralized view of an organization's telemetry enriched with business context where they can track key business objectives. It extends traditional observability by incorporating business performance as an additional output that can be used to gauge the health of internal systems and processes.

3

Benefits of business observability



Better collaboration and alignment

A complete view of business performance creates a common understanding of success. Bringing together key metrics into a single place helps with prioritization and accountability, as teams across the organization are aware of the metrics they need to focus on. By breaking down silos, teams across the organization can also understand how their work impacts each other and the overall business, ensuring teams make decisions with full context. A single source of truth also leads to consistency, preventing misunderstandings and reducing the need to cross-check information.

Enhanced customer experiences

Technology teams traditionally understand the customer experience through the lens of SLOs and incidents. Business observability challenges this by bringing a more expansive view of the customer experience, helping technology teams gain deeper insight into the full lifecycle of customers, such as how they're behaving and why. This leads to customer-centric innovation as teams ideate strategic solutions that mix the disciplines of technology and business.



Operational excellence and business growth

Business observability can transform technology organizations from cost centers to revenue generators. Rather than tracking just performance, technology teams need to consider a new set of business metrics to optimize for. Monitoring business metrics encourages technology teams to think about the tradeoffs of their decisions as they balance multiple KPIs, turning them from tactical executors into strategic business owners. It also enables them to show senior management what their net contributions have been to company-wide initiatives. Additionally, seeing technology and business metrics alongside each other can uncover hidden insights and relationships, surfacing the levers technology teams can influence to drive efficiency and growth and enhance the user experience.

-Real world use cases

OLIVE 🕐 YOUNG

CJ Olive Young, a leading Korean health and beauty retailer with a robust physical store network, **has successfully transformed into a global lifestyle platform through a seamless integration of online and offline channels**. Its extensive reach, encompassing over 1,300 physical stores and strategically located urban fulfillment centers, has been instrumental in maximizing customer experience and driving substantial growth.

Despite its offline retail dominance, **CJ Olive Young faced challenges in correlating online business metrics with underlying technical infrastructure**. This disconnect hindered CJ Olive Young's ability to comprehensively understand its digital operations and respond effectively to potential incidents. To address this, CJ Olive Young implemented an end-to-end observability strategy using Datadog. By integrating infrastructure, backend services, and frontend customer experience data onto a unified platform, the company aimed to **foster collaboration across teams and drive data-driven decision-making.** As the initiative evolved, the integration of business metrics **provided a more holistic view of the organization**. This expanded the user base to include sales, marketing, product development, and executive teams, enabling real-time monitoring of the entire value chain.

A centralized dashboard displaying key performance indicators (KPIs) such as system health, transaction volume, product sales, and traffic sources **facilitated cross-functional collaboration**. Additionally, customized dashboards were developed to meet the specific requirements of different departments.

For example, the marketing team focused on traffic analytics, while the supply chain team monitored delivery metrics.



The effectiveness of this observability strategy was demonstrated during an incident involving a surge in product sales due to a limited-time promotion. By correlating business metrics with system performance data, the site reliability team quickly identified the root cause and prevented unnecessary troubleshoot-ing efforts. By aligning technical and business data, the company has achieved enhanced decision-making, improved incident response, and a deeper understanding of customer behavior.

WATCH THE FULL SESSION \rightarrow

Dollar Shave Club

IT leaders are responsible for very granular technical performance metrics like disk space, but also play a vital role in supporting key business performance metrics like conversion rate. If the site isn't doing well, users won't be moving through the on-site sales funnel and converting. Then, big drivers of traffic to our site like Google and Facebook will see that we aren't converting, because we report that information back to them. In addition, any ad spend will have been wasted. Then, traffic will dry up and business metrics will take a big hit. That's why site reliability and performance is a critical area to the business because any issues get significantly amplified beyond just the loss of a sale/conversion.

KEY OUTCOME:

Effective collaboration with senior stakeholders and improved site reliability through shared metrics.

READ THE FULL EBOOK \rightarrow

Wayfair

There's many, many uses. We can immediately see drops in traffic through our checkout funnel. We can identify issues with payment processors. We can understand where something is going wrong. We can understand how load time for the page actually affects conversion. We can know what people are buying. If engineers pay attention to the metrics that the business side uses to run the business, they can use them for our own purposes. Utilizing business metrics can allow engineers to easily scope and understand the impact of reported problems, and put them in the right direction to begin triage. With these metrics, we can not only know what is breaking, but also provide stakeholders a powerful platform that helps them to understand what our business is doing in real time.

KEY OUTCOME:

By combining business and infrastructure metrics, they can more quickly identify issues, shorten investigations, and generally offer a better customer experience.

WATCH THE FULL SESSION \rightarrow

Bazaarvoice

As Bazaarvoice evolved to a more decentralized IT department, they quickly realized how important it was to give each team the flexibility to monitor what was important for each specific environment. Some teams wanted dashboards that could be used to watch key performance and business metrics while other teams only wanted to evaluate metrics when they ran into an issue. The goal was to allow everyone to do what they need to for their particular use case and enable more consistency and more visibility into business intelligence metrics. This meant having a single place where teams can track performance data for all the various product teams and make comparisons in a way that was consumable for senior management and R&D.

KEY OUTCOME:

A single place for all product teams and other stakeholders to easily track and understand performance data.

READ THE FULL CASE STUDY \rightarrow

SpringServe

Real-time, granular data allows SpringServe to monitor every layer of their infrastructure and custom applications, identifying issues before they affect the business. The ability to collect and monitor metrics from across the business has increased their ability to make data-driven decisions. By tracking every stage of the ad-serving process, SpringServe is able to identify areas of the platform that are ripe for improvement, proactively reduce risk and latency, and increase the value provided to customers over time. Additionally, by collecting custom application metrics, engineers can ensure that their application is available and healthy, while executives can extrapolate revenue. Moreover, by tracking impressions, requests, and fill rates for individual parties, SpringServe's business team is able to identify their most productive partners and optimize ad delivery cadence accordingly.

KEY OUTCOME:

More time to deliver innovative products and improve customer experience with full visibility into their stack.

READ THE FULL CASE STUDY \rightarrow

MercadoLibre

MercadoLibre's payment service has complex interactions that can be difficult to troubleshoot. Additionally, with 600 applications running on 15,000 VMs, the potential for interactions between application components and underlying infrastructure is enormous. **By monitoring all the different components involved, MercadoLibre is able to improve troubleshooting accuracy** and quickly determine if it's a problem with Visa or American Express, or if it's a problem with their applications or infrastructure when payments drop. Most of MercadoLibre's development teams are now collecting and correlating custom metrics from the applications they're working on, **making it possible to find and fix problems quickly, and to truly understand the underlying causes to help avoid similar problems in the future**.

KEY OUTCOME:

Visibility into how applications from one development team affect those of other teams, helping them work better together making them more accountable.

READ THE FULL CASE STUDY \rightarrow

DevSisters

Devsisters needed visibility into custom in-game metrics in order to innovate and improve user experiences. In the gaming industry, abuse and hacking by players can have detrimental effects on a game's loyal fan base making combating abuse a top priority. To address this, Devsisters tracks custom metrics such as concurrent users and coins per user on dashboards to quickly detect any abnormal trends and investigate. When a user's number of coins spikes unexpectedly, this usually indicates that the user hacked the system for an unfair advantage. The company can now detect and revert this unlawful gaming behavior, which improves the user experience for the rest of the rule abiding community.

KEY OUTCOME:

Ability to see performance data and custom metrics in the same platform allowing them to spend less time investigating and quickly detect abnormal trends.

READ THE FULL CASE STUDY \rightarrow

5

How to achieve business observability

Define objectives

Business observability starts with defining the outcomes you want you achieve and tying those back to quantifiable metrics. Being specific about key objectives narrows focus around the most impactful ones. During this exercise, teams should determine which metrics they need to track to achieve their goals as well as which metrics they own versus support. Clear ownership over objectives and metrics will improve accountability and streamline decision-making. It can also help with data governance by holding teams and individuals responsible for the data they collect and their associated costs.

Technology teams should continue tracking the technical metrics they're currently accountable for then work to understand what objectives and KPIs are important to their cross-functional partners. Doing so will help technology teams better reflect their scope of influence and understand the downstream impacts of their work.



Infrastructure

Infrastructure objectives aim to improve business performance by ensuring high availability and reliability for end users while optimizing infrastructure spend. This is accomplished by measuring the availability, performance, and utilization of backend components through key infrastructure metrics such as CPU utilization, memory utilization, and storage.



Application

Application objectives prioritize ensuring business-critical applications are performing as expected and user experiences are optimized. These objectives can be achieved by monitoring the health and performance of applications and their underlying services and resources to identify bottlenecks and issues. Key application metrics to monitor include requests, errors, and latency.



Digital experience

Digital experience objectives focus on enhancing customer satisfaction and conversion through optimized user journeys by observing client-side performance and real user sessions. Common frontend metrics include page load time, traffic, time on site, and page views.



Business

Business objectives are generally revenue-driving and cost-cutting initiatives. As enablers of business functions, technology teams should monitor these metrics to communicate the impact of their efforts on the business's bottom line. Key business metrics to monitor include revenue, transactions, conversion rate, and number of users.

As you implement these objectives, it's important to share them across the organization to foster collaboration and remove friction or misalignment. By establishing a standard operating model for measuring success, you can drive consistency in reporting and focus on results.

Collect data

Organizations have a wealth of information available to them as long as they can properly collect it. But data collection remains a challenge, with 56% of organizations not having the right systems to capture useful data. This statistic doesn't come as a surprise considering organizations are collecting more data from a wider variety of sources than before. In fact, the complexity and scale of data collection have grown so much that one Datadog customer collects 40 terabytes of logs daily, 200 million spans per minute, and 250 metrics per minute.

METRICS	Numerical values that track performance over time.
EVENTS	A unique occurrence in a system or application.
LOGS	A loosely structured record capturing details about a system.
TRACES	The path of a request as it flows through systems.
REAL USER SESSIONS	The series of interactions a user has with an application.

To simplify data collection, vendor-backed integrations can help accelerate onboarding and minimize maintenance through out-of-the-box assets. But beyond integrations, you need the flexibility to collect data specific to your applications and business. Regardless of the source, data should be collected in a standardized format. This provides a framework for both the end users and software to follow, offering a consistent and defined way to interact with the data. One of the ways to accomplish this is by adding tags and metadata to filter, group, and correlate data without changing how it's collected.

Good data collection practices also consider granularity and retention. Generally, data should be collected as frequently as possible without rollups. Highly granular data enables more precise identification of outliers and anomalies, whereas infrequent data collection leads to lagging visibility and obscures critical insights. Additionally, long-lived data is needed to avoid losing important information. When data is stored for short periods of time, it can be difficult—at times even impossible—to perform historical analysis, identify seasonal trends, forecast accurately, and conduct audits. Increasing retention and granularity can also improve the accuracy of machine learning-based insights, such as predictions and correlations, by providing a fuller data set for algorithms to analyze and derive insights from. An optimal balance between granularity and retention will ensure your organization is equipped for all forms of analysis—whether you need to analyze the past, monitor the present, or forecast the future.

Set up monitoring

Dashboards

Once you've collected your data, it's time to put it in action. Given the amount of data being collected, you'll need to implement monitoring processes to sift through the noise and alert on what needs your attention. And with how fast the business moves, implementing monitoring needs to be done quickly and consistently. This can be achieved by using out-of-the-box offerings or setting up your own templated dashboards and monitors that can be reused for different services and initiatives.

Setting up dashboards enables organizations to track KPIs through interactive visualizations. Dashboards are so essential to monitoring that Datadog customers have built millions to track their KPIs. Dashboards can synthesize information from various business units, bringing together technical and business metrics for easy alignment and correlation. If metrics were instead monitored in different tools by different people, key insights and relationships would be overlooked and teams would have conflicting knowledge. By having a comprehensive overview of performance, teams can quickly assess health and zero-in on problematic areas that need attention. Additionally, to scale data-driven decisions across the organization and remove bottlenecks, everyone—no matter their skill level—should be able to confidently and easily explore the data.

To help you effectively design dashboards, you can follow the framework Datadog has used to build over 750+ out-of-the-box dashboards:



- 1. An about section sets context by explaining the purpose of the dashboard, sharing additional resources, and providing instructions.
- 2. An overview section provides a high-level summary of performance so it can be understood at a glance by including key metrics and summaries of alerts and monitors.
- 3. Meaningful layouts guide users through different sections of the dashboard. The size, position, and order of visualizations can be used to imply their importance, relatedness, and hierarchy.
- 4. Descriptive titles and annotations add clarity by explaining the purpose of the visualization, providing guidelines for how it should be interpreted, and acknowledging considerations that should be taken into account.
- 5. Appropriate visualization types improve comprehension. Each visualization type has its own strengths and weaknesses so selecting the correct one based on use case is essential for highlighting insights and avoiding misinterpretation.
- 6. Effective color use ensures that visualizations are accessible and interpretable. Correct usage of color palettes can add another dimension of meaning to your data.
- 7. Easy-to-read legends add clarity by mapping color encodings to their meaning and providing that information without the need for a tooltip.
- 8. Interactions encourage further exploration while maintaining consistency by enabling your users to drill down into different cuts of data in a standardized way.

Monitors

Monitors are used by over 90% of Datadog customers to send notifications when critical or anomalous events occur so teams can quickly act on opportunities and resolve issues. However, it's important to note that business metrics can be lagging indicators of performance, so teams should identify other metrics to alert on that may serve as early warning signs. To get started, you can use <u>Datadog's Recommended Monitors</u>, which come preconfigured based on the expertise of Datadog's technology partners and the experience of thousands of our customers. For your own unique monitors, you can set them up when you know the specific conditions that are worth alerting on. However, sometimes you might not know what is typical and what's concerning, especially if there were recent changes to your infrastructure, applications, or business. Defining alerts in this case could still be premature and add noise rather than value. To help with this, AI can supplement the monitors you've set up by continuously monitoring trends and patterns to dynamically alert on atypical behavior so you don't miss concerning patterns or outliers. For example, <u>Toyota Connected</u> uses a mix of user-defined and AI-assisted monitors to set up well-defined alerts while still accounting for anomalies, outliers, and seasonality that can be harder to predict.



Perform data analysis

Types of Analysis

Data analytics remains the most in-demand skill for technology teams, and for good reason: it's key in developing data-driven strategies. After collecting data, it typically needs to be modified through a variety of methods such as filters, aggregations, functions, and formulas before actionable insights can be derived from it. To facilitate this, analysis is ideally done in an intuitive user interface—without the need for a complex query language—to speed up data exploration and ensure technical and business teams alike can self-serve the information they need.



Root cause analysis tends to involve more ad hoc exploration in order to identify, triage, and resolve issues. While routine monitoring helps proactively spot warning signs of issues, incidents may still slip through. For an investigation, your teams should have metrics, logs, and traces in one place so they have full context as they triangulate the source of the issue. To accelerate root cause analysis, teams can use AI to automatically identify correlations and causal relationships.



Descriptive analysis is used to summarize performance. The main objective is to explain what happened so teams can gauge whether they're on target to meet their goals. This can be achieved through live dashboards where teams can view the performance of several KPIs in a single view and share findings with stakeholders. By setting a regular cadence for reviews, teams can better understand performance trends and drivers so they can readily identify when something requires further inspection.



Strategic analysis involves making data-driven decisions to improve performance, gain competitive advantages, and realize operational efficiencies. Teams can conduct predictive analysis to forecast how metrics are trending to prepare for potential risks and predict progress against goals, ultimately helping build business resilience. To take this a step further, teams can also conduct prescriptive analysis to identify which variables they can adjust to influence the metric they're hoping to optimize. Once complete, insights are best shared through high-level insights and recommendations, as well as the visualizations and analysis that back up the findings, to ensure analysis is both actionable and credible.

Analysis Techniques

Techniques commonly used for data analysis are:

FILTERS	Scopes for queries indicating what subset of metrics to include or exclude. Filters are particularly useful for refining analysis to specific segments of interest and removing noisy extraneous data.
AGGREGATIONS	Rollups that aggregate data points into time buckets or based on characteristics. Aggregations can summarize large volumes of data into manageable buckets that are easier to interpret and visualize by organizing data based on common attributes to help identify patterns, summarize behavior, and explore data at various altitudes.
FUNCTIONS	Functions support a wide range of use cases such as arithmetic operations and filling and excluding data. Functions can perform calculations for single queries or handle operations between multiple queries so they can be evaluated together.

These techniques transform data into a format more suitable for analysis and visualization so teams can understand performance, make comparisons, and correlate data. To further enrich analysis, data should be evaluated in the context of significant events that took place in the time frame. Doing so mixes quantitative and qualitative insights to drive a deeper understanding of the impact events had which may not be reflected in the data itself.

Take action

Automated remediation

The final step for business observability is to convert analysis into action. For routine tasks, nearly half of technology leaders are automating some business and IT processes. Through workflow automation, organizations can accelerate response times, improve consistency, and save time and effort. Workflow automation is best suited when there's a defined set of criteria for when workflows should be triggered and standard processes in place. Workflows that allow for human intervention and branching off based on logical conditions can manage more complex responses. For real-world examples, you can view <u>blueprints created by Datadog</u> that cover common change management, collaboration, DevOps, incident management, remediation, and security use cases.

Incident management

When action plans require more involvement, you'll need to put together a team with clear lines of ownership. Incidents need to first be logged and prioritized based on impact to minimize disruptions to the business. To keep responses swift and coordinated, teams should set priorities, maintain a timeline of activity, and actively communicate with stakeholders. Once the incident has been resolved, more extensive analysis can be conducted and included in a postmortem to prevent similar issues from happening in the future and improve business resilience. To see how this works in practice, Datadog details how we manage incidents in this best practices guide.

Strategic projects

For more strategic, long-term projects teams should develop a phased implementation plan defining what needs to be done, when, and by whom. Additional analysis can be used to benchmark performance and determine the prioritization of efforts based on estimated impact. Throughout implementation, teams should also continuously monitor performance so they can iterate on the plan and pivot strategies when necessary. A final report can then summarize business impact and communicate findings. At every stage of this process, data is used to guide decision-making to drive continuous improvement. 6

Criteria for business observability solutions

Criteria for business observability solutions

As you select a business observability platform, you'll need a solution that meets your current requirements and evolves with your organization's needs. The following table outlines key criteria and guiding questions you should consider as you pick a solution.

PLATFORM		
Theme	Key Questions to Ask	
Enterprise-grade	 Can the solution handle the scale you need without sacrificing performance? What service level agreements are in place? What incident response and disaster recovery procedures are in place? 	
Compliance	Does the solution comply with data residency requirements?What certifications does the tool hold?	
Ease of use	How long will onboarding take? How intuitive is the user interface?Is there extensive documentation and support services?	
Authentication and access control	 Does the solution integrate with your existing identity and access management system? Can the solution support multi-tenancy? Can you audit user activity? 	
DATA COLLECTION		
Data sources	 Does the solution integrate with the tools in your technology stack? How fast can you onboard new sources? Are you able to add custom data sources? Can you ingest data from on-prem, hybrid, and cloud environments? 	
Data types	 What types of data can be collected (e.g., metrics, logs, traces, etc.)? How easily can you relate different types of data? 	
Granularity	 How granular is the resolution of data collection? Can you configure sampling rates? Does the solution rollup data? 	
Retention	 How long is data retained for? Can you extend retention beyond the default length? Can you take a tiered approach to data retention? 	
Tagging	 Can the solution handle high cardinality efficiently? Is tagging automatic or manual? How can tags be used for multidimensional analysis? 	
Data security	 Can you implement granular access management controls? Is data encrypted at rest and in transit? Are integrations set up securely (i.e., limited permissions and encrypted credentials)? 	

MONITOR		
Theme	Key Questions to Ask	
Alerts	 What types of alerts can you set up? How customizable are alert conditions? Are there tools to reduce noisy alerts and false alarms? Are notifications integrated with your organization's tools and workflows? 	
Service level objectives	 Can you natively set up and track service level objectives? Can you track error budgets? Can you map service level objectives to teams? 	
Machine learning alerts	 What types of machine learning-powered alerts are available (e.g., outlier detection, anomaly detection, etc.)? Can you bring in your own model or adjust parameters in the provided models? How well does the model account for seasonality? 	
ANALYZE		
Theme	Key Questions to Ask	
Advanced querying	 How easy is it to query? What operations are available (e.g., filters, aggregations, functions)? Can you perform subqueries? 	
Visualization	 What visualization types are supported? How customizable are visualizations? Are visualizations interactive? How easy is it to create a visualization? Are there dashboard templates? 	
Correlation and root cause analysis	 What does the typical root cause analysis workflow look like? Can correlation and root cause analysis be automated? How are different types of telemetry correlated? 	
ACTION		
Theme	Key Questions to Ask	
Automation	 Can you integrate automations with the tools in your technology stack? Can automated workflows handle complex logic? Is it possible to keep a human in the loop? 	
Incident management	 Is there a native solution or is it integrated with the ITSM tools you use? Can you prioritize incidents based on business impact? How does the solution speed up response times? 	

The Datadog Platform Advantage

Datadog's SaaS platform provides unified, real-time observability for your entire technology stack. With a secure platform built for enterprise scale, Datadog is trusted by over 27,000 customers across a wide range of industries to help them monitor, optimize, analyze, secure, and manage their infrastructure and applications. By bringing together all your data and processes into a single platform with a unified data model, Datadog breaks down silos, ensuring everyone in the organization has the context they need to make critical business decisions. Built on top of a robust platform, we provide the tools you need for end-to-end business observability.

START YOUR FREE TRIAL TODAY



