

Essential elements of a modern analytics app



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The rise of data apps

Every day, we spend [almost seven hours online](#) as we swipe, search, buy, chat, and stream every aspect of our personal and professional lives, generating approximately [1.1 trillion megabytes of data](#) daily. Until recently however, the ability to analyze and make sense of all of this data in order to facilitate better decision making has primarily been the domain of businesses large enough to employ highly-paid data scientists. Technology and the desire for

everyone to derive insights from data have given rise to apps that now make it possible for everyone to turn these insights into action to better inform decision making and drive value. Data apps now span every industry. They include fitness apps that help you track your steps and meet your health goals, finance apps that let you track stock portfolios and make informed investment decisions, and much more.



Fitness & Health Apps



Finance Apps



Sales Apps



Logistics & Sharing Apps



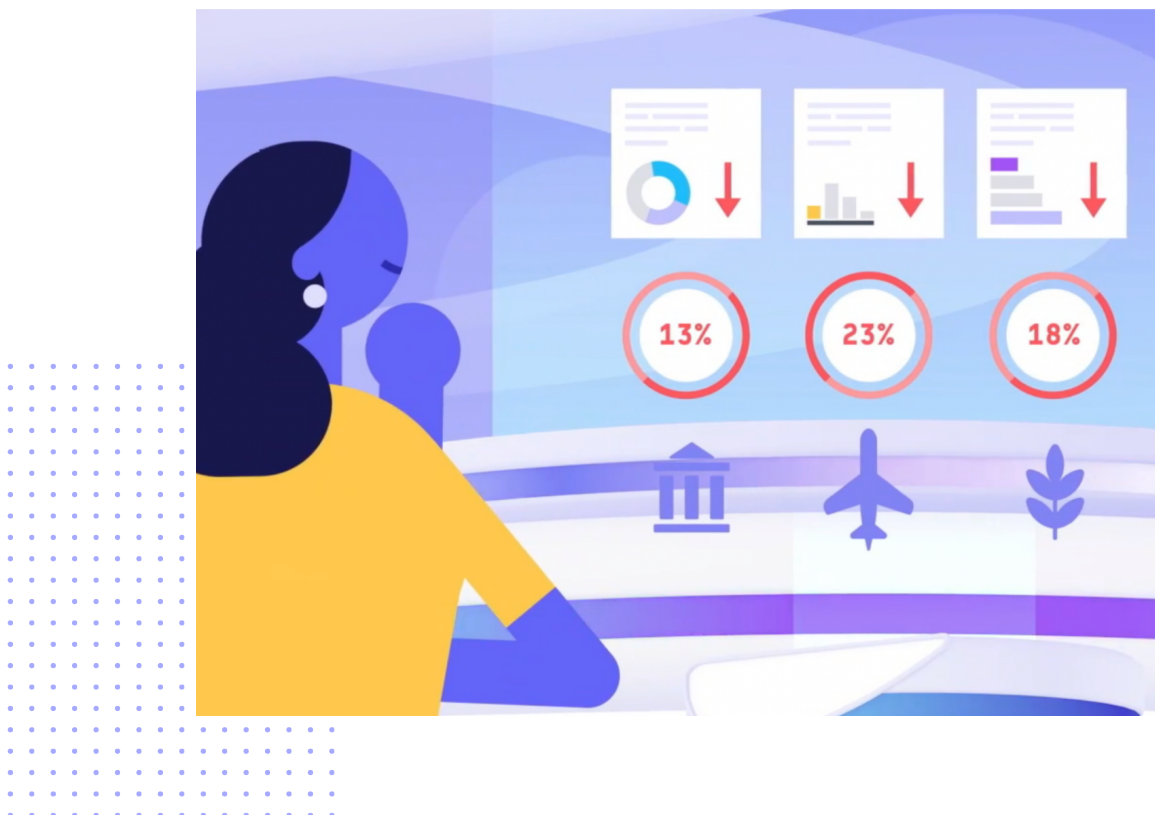
eLearning Apps

Every app must be a data app

Despite the rise of data apps, analyzing data is still hard. You need AI and machine learning models to uncover trends or perform searches, and complex integrations to connect existing business intelligence tools and make the results accessible to your users just to get started.

Traditional approaches to data UX have relied on static charts and dashboards that offer limited customization, making it difficult to understand trends data may be representing. These static dashboards simply don't cut it; they are not dynamic enough to provide the insights you need. And if you need to customize the dashboard or perform a different analysis of the data, they often require

specialized skills, esoteric keywords, and complex syntax in order to query relevant data. The problem is only going to get worse, with analysts expecting the amount of data we generate to double by 2024, according to [IDC & Statista](#). What is needed is an approach to creating data apps that democratize tools and processes for creating data apps.



What is a data app?

But what actually is a data app? Doesn't every app these days use data? While this is true, many apps use this data in a static way.

For example, you can search a list of houses for sale and filter based on static criteria like price or number of bedrooms. This app works as long as the data structure doesn't change and the user doesn't need to analyze the data in customizable ways. A data app, on the other hand, frequently sits atop a data cloud platform with the goal of breaking down silos and making data accessible and dynamic by allowing the user to create a unique experience and turn insights into actions. Using the real estate example, a data app would let you search for data using natural language, such as, "houses for sale with 4 bedrooms that have had a price reduction in the last 30 days." You could then analyze this data further, present it in visualization trends for average price per square foot, then drill into the data to find those with ocean views.

Then, when you have the experience you want, you can save this visualization just for yourself or share with other brokers in your firm.

A true data app allows you to personalize insights beyond the fixed constraints that a programmer or analyst may have initially created. A data app is the user interface to actionable information. For many apps, this is static dashboards and a one-size-fits-all approach. Modern data apps, however, consider not just a user experience designed by the app creator at the time it is published, but also a dynamic data experience for the user that can change every single time.



Blueprint for building a modern analytics app with ThoughtSpot

At Thoughtspot, we have worked with [customers around the globe](#) to help them build successful data apps and better unlock insights from data within cloud data warehouses, internal systems, and API services. During these engagements, we have identified a

number of common best practices. This blueprint for a modern data app helps businesses of all sizes unlock your data and empower every member of the organization to gain the insights they need.

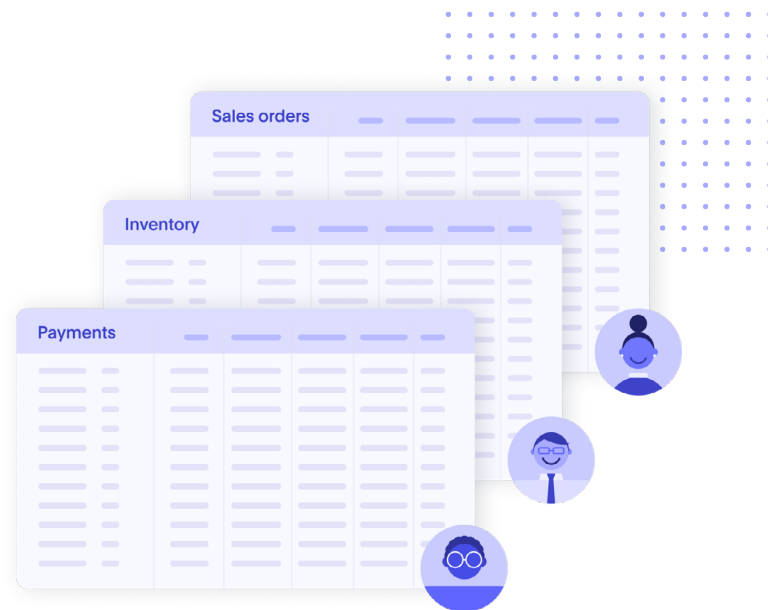
Data Governance

Think of your app as an extension of your business

Before you begin creating the end user experience, start by mapping your existing data sources and systems of information. List these inputs out in a rough sketch and start drawing lines to connect them together to form a series of worksheets of how you want to interact with the data: sales, orders, homes for sale, etc. Don't worry about organizing the data too much yet. This will come later. For now, the key is to think of your data app as sitting atop all of these data sources like cloud data warehouses or existing systems, but with a more modern user interface, thereby eliminating the need for users to jump between systems in order to get answers to their questions. In addition, by identifying systems of record early, you can ensure that data governance and security needs are discussed early in the development lifecycle. Successful data apps are an extension of your business, not another [shadow IT](#) project.

Now that you've mapped the data you think you will need, ask yourself: Where does this data exist and how often do you need to update it in your app? Data integration can be complicated and often requires some specialized knowledge to make it all work.

Thankfully, there are many modern data and BI tools available today which make connecting with data easier. By mapping out your data early, you have a sort of roadmap that will set you in the right direction for success.



Unlocking data

Innovate atop existing data tools

Most organizations have some form of data cloud or data warehouse which do a great job of collecting data and providing tools for data experts to work with. For your data app to be successful, you need to unlock this data for everyone, gather information for their specific needs, and break down organizational silos that limit access to the right data at the right time. To do this, you'll want to extend your existing systems with modern tools, effectively creating a **data innovation layer**. A data innovation layer will allow you to take the data map you created, visually connect systems, specify update frequency, and start modeling the worksheets into entities which make sense to your business.

By leveraging a modern self-service analytics platform, you no longer have to worry about covering every data scenario you can think of before your app ships.

Think beyond the initial user experience of an app, and consider the data experience.

Taking the data experience into account will allow you to constantly iterate by adding more data sources, create new worksheets to collect data for different users in your organization, and even allow individuals to create their own views of how they want their data.

WORKSHEET

Marketing Operations

Edit Worksheet

ColumnsJoinsData samplesDependentsSearch AssistCustom actions

| COLUMN NAME | DATA TYPE | COLUMN TYPE | ADDITIVE | AGGREGATION | HIDDEN | SYNONYMS | SUGGEST VALUES IN SEARCH |
|-----------------------|-----------|-------------|--------------------------------------|-------------|--------------------------|---------------|--------------------------------------|
| Date | DATE_TIME | ATTRIBUTE | <input type="radio"/> NO | NONE | <input type="radio"/> NO | Click to edit | <input checked="" type="radio"/> YES |
| Page | VARCHAR | ATTRIBUTE | <input type="radio"/> NO | NONE | <input type="radio"/> NO | Click to edit | <input checked="" type="radio"/> YES |
| Campaign | VARCHAR | ATTRIBUTE | <input type="radio"/> NO | NONE | <input type="radio"/> NO | Click to edit | <input checked="" type="radio"/> YES |
| Visitor id | VARCHAR | ATTRIBUTE | <input type="radio"/> NO | NONE | <input type="radio"/> NO | Click to edit | <input checked="" type="radio"/> YES |
| Unique visitors | INT64 | MEASURE | <input checked="" type="radio"/> YES | SUM | <input type="radio"/> NO | Click to edit | <input type="radio"/> NO |
| Page views | INT64 | MEASURE | <input checked="" type="radio"/> YES | SUM | <input type="radio"/> NO | Click to edit | <input type="radio"/> NO |
| Page views per ses... | DOUBLE | MEASURE | <input checked="" type="radio"/> YES | SUM | <input type="radio"/> NO | Click to edit | <input type="radio"/> NO |
| Bounces (Hard) | INT64 | MEASURE | <input checked="" type="radio"/> YES | AVERAGE | <input type="radio"/> NO | Click to edit | <input checked="" type="radio"/> YES |
| Bounces (Soft) | INT64 | MEASURE | <input checked="" type="radio"/> YES | AVERAGE | <input type="radio"/> NO | Click to edit | <input checked="" type="radio"/> YES |

Live data

Think of data as a living source, not a static one

According to [CIO Dive](#), most businesses fail to meet their IT backlog, with 90 percent of leaders suggesting that failure to modernize their processes will negatively impact their revenue over the next five years. One strategy for modernization is to stop thinking of data as a static source of information tied to a static app. This doesn't mean data in an app doesn't get updated from existing systems and becomes outdated — data integration techniques have long since solved data consistency concerns. The problem with static data is implementation within an app. Similar to pre-defined search filters discussed above, static data in apps may take the form of one-size-fits all dashboards that provide a single view of the data.

Great data apps treat data as a live source of information. You must be able to use natural language to search for relevant data and leverage an AI model which dynamically optimizes with your app. And you need the ability to constantly evolve your data model.

Data apps should be able to react to changes in the data and perform actions on your behalf based on a set of rules or criteria.

Static data apps implement actions by having a database administrator as a trigger and written-in complicated procedural languages like PLSQL. This approach, just like traditional dashboards, is too static for a modern data app. Triggers are tied to the schema created, not the evolving data model of a data app. By enabling users to create actions on their own views of data, you drive productivity across the organization without adding to any IT backlogs.

Data visualization

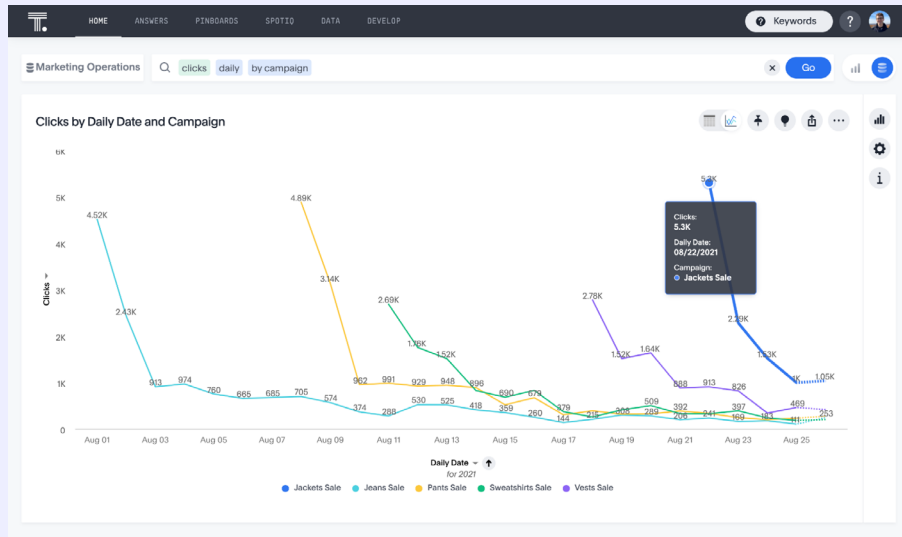
Create visualizations of your data instantly

A [3M Meeting Network](#) study suggests that visuals can improve learning by up to 400 percent. It is no wonder many data apps utilize visualizations such as charts and graphs to help us analyze data and identify trends. Whether you are presenting a chart for sales by region, e-learning progress, financial portfolio performance, or something else, visuals allow users to comprehend information faster than text alone. The difference between a visualization in a data app and a chart in a traditional app is the ability to interact with that visualization in real time. Consider a chart for tracking your daily trail run. In a data app, you can filter by length or duration, change splits between miles or times, or perhaps drill down deeper into segments with hills.

Once you have the visualization you need, you must be able to save it to your profile and potentially add it to a pinboard - ThoughtSpot's term for a live, interactive dashboard - of related items. In the same running example, you may also create a pinboard that contains visualizations for splits, hills, long runs, and much more. The end result is an app experience tailored to your individual needs, all built atop the same data. And of course, since this is a data app, you can customize everything again and again as your needs change. According to [Forbes](#), waiting for IT or an app developer to release a new version can take weeks or months, with an estimated one in six projects encountering schedule overruns of 70 percent! The result for end users is lower productivity, lost opportunities, and

failed goals. Perhaps you were tracking your runs to train for a marathon. Your initial pinboards may contain visualizations more focused on distance rather than time. As you get closer to race day, times and splits

become more important. By the time a new version of the app is published by the creator, race day may have come and gone. Dynamic visualizations help you achieve your goals by better understanding data.

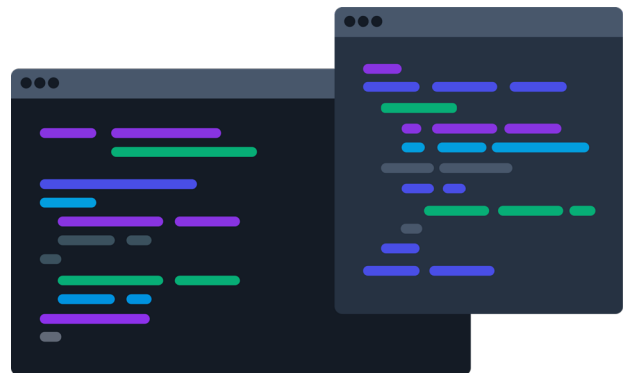


Democratizing data apps

Empower all creators

Until recently, data analysis required specialized resources to build and train complex data models—putting AI out of reach for many businesses. As technologies such as machine learning have become more accessible via dedicated BI platforms, the barrier for everyone to become a data scientist has been lowered. However, providing tools for AI and machine learning alone won't sufficiently help app users and businesses derive insights from their data. To achieve this, we need tools and platforms that empower all creators to become self-service data experts: like developers who may interact with your data via modern, flexible APIs to build any experience they can imagine, or visual tools for analysts and users that allow them to

create views, search using natural language, and explore pinboards through ad hoc drilling down on information to



derive deeper insights. When you consider that there are an estimated [26.9 million developers worldwide](#), and approximately [525 million college educated professionals](#), it is critical for every organization to provide the right tools for everyone.

By democratizing data app creation, you are reducing IT backlog and avoiding typical shadow IT pitfalls where

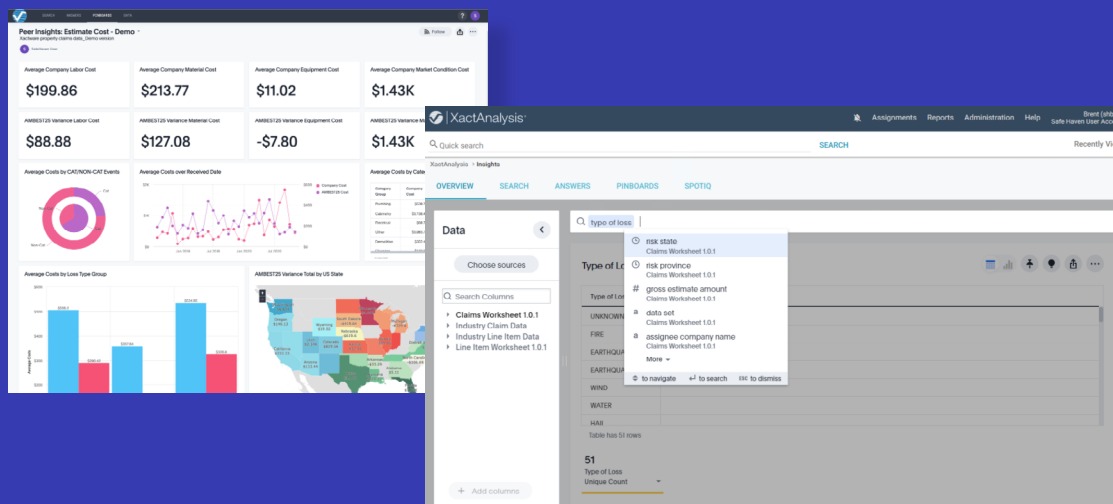
users use applications they are already familiar with, like spreadsheets, to analyze data. This greatly reduces time-to-market while providing competitive advantages and data security. Successful organizations adopt data app platforms which support a spectrum of development approaches for all creators without sacrificing data governance, scale, or creativity.

Data everywhere

Integrate data into every app

Companies are constantly searching for ways to improve productivity by making it easier for every employee to leverage existing data repositories or BI tools. When looking to build your data app strategy, consider how easy it is to integrate your data innovation layer into existing apps with a few lines of code.

Modern data app platforms should provide developer SDKs to streamline embedding your data analytics into any app and support metadata like pinboards, visuals, and worksheets, so that IT teams can manage your app via existing DevOps and continuous integration toolchains.



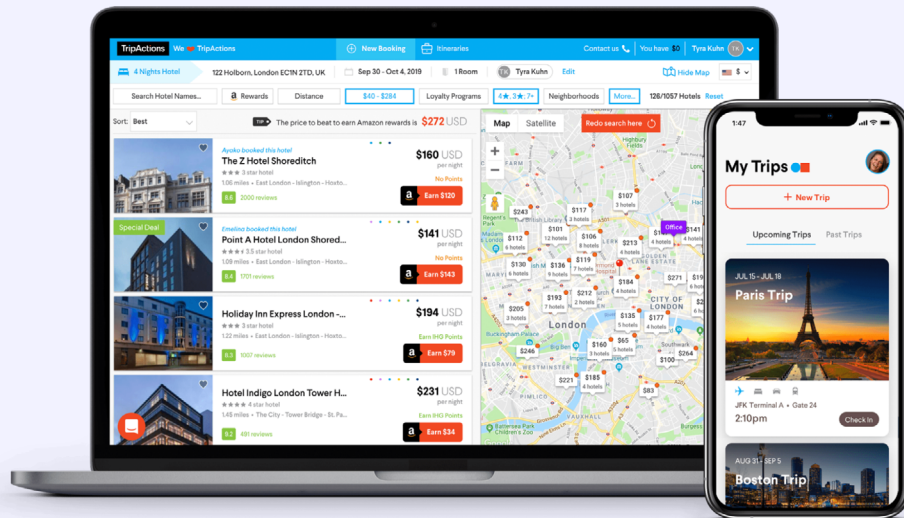
Verisk XactAnalysis leverages ThoughtSpot Everywhere's embedded self-service analytics platform to empower customers with answers while monetizing data for their business. [Learn more](#)

Monetizing data

Leverage data as a new revenue stream

Consider for a moment how much data many organizations collect and generate about their customers. Very often, this data goes unused beyond traditional sales activities. By unlocking data, you can approach data as a new revenue stream for your business. According to [Gartner](#), with 35 percent of businesses looking to buy or sell data via a formal online data marketplace by 2022 (up 10 percent from

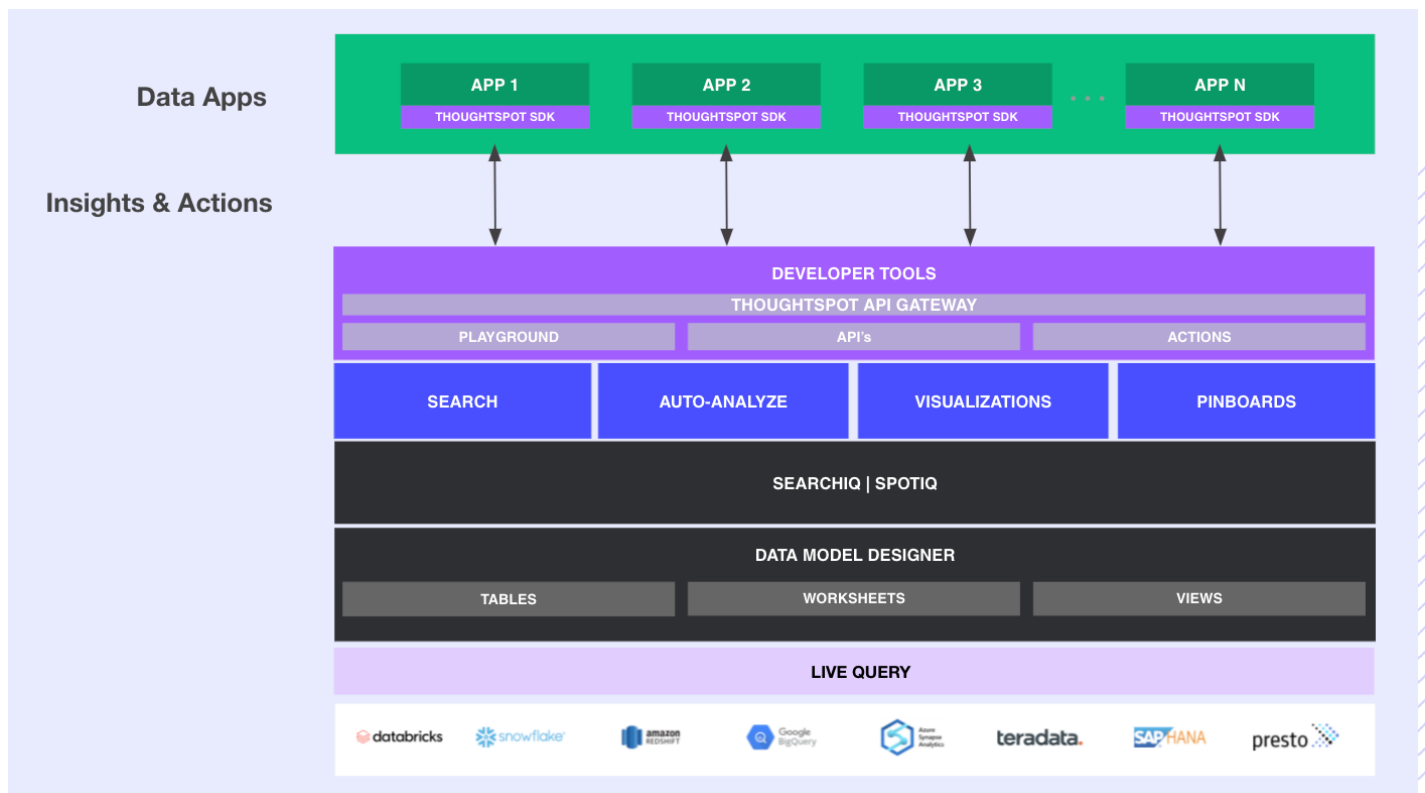
2020), these new revenue streams offer profitable options for businesses who can unlock their data. For example, suppose your business is selling flights online. Throughout this process, you will be gathering significant amounts of data related to travel destinations. By creating a premium service around this data and offering it to B2B customers, you would be able to offer insights to hotels, tour operators, venues, and other local providers.



Better analytics apps with ThoughtSpot

To take advantage of these essential elements, you need the right technology to help you build and iterate on your data app. ThoughtSpot provides a low-code, developer-friendly solution for building interactive data apps and experiences. Whether you're a [sales executive](#) who needs to create a dynamic dashboard that visualizes sales trends for their teams, an [analyst](#) who

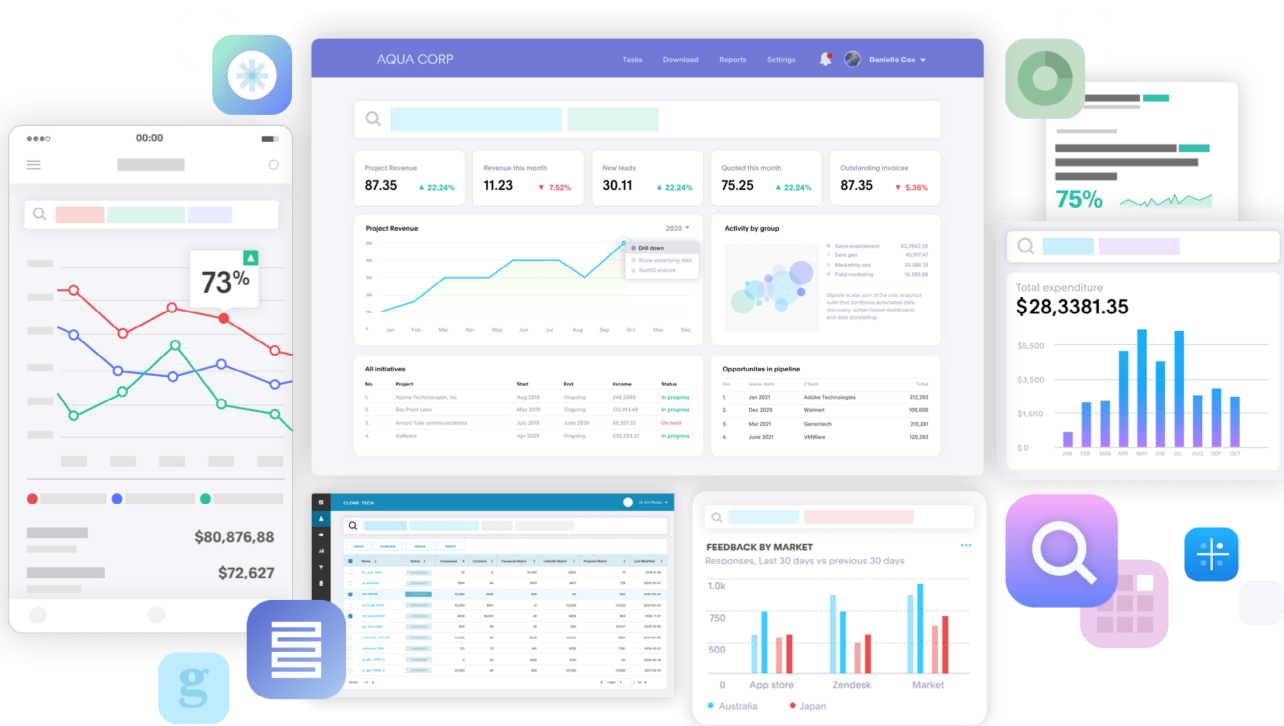
needs to unlock data from existing BI tools, or a [developer](#) who is building bespoke apps using JavaScript and REST APIs integrated with existing DevOps toolchains and data clouds, ThoughtSpot can help. With ThoughtSpot, you can give your users self-service access to insights, and build with confidence and speed on a trusted, scalable, and flexible developer-centric platform.



Summary

As the rate of data generated globally continues to grow exponentially, making sense of this data and finding value within it becomes increasingly important. How a business derives insights and information will make the difference between success or failure. Data apps empower you to turn insights into action for every user. ThoughtSpot was designed to empower everyone to build engaging and interactive data apps on an

open developer-centric platform with flexible APIs. And, with [ThoughtSpot Everywhere](#), you can now embed live search and dynamic visualizations into any of your existing apps with a few lines of JavaScript code. By taking a data experience-first approach to apps, you can eliminate the pitfalls of static apps. Getting started is easy. Sign up now for a [free trial](#) and build your first data app today.





About ThoughtSpot

At ThoughtSpot, we believe the world will be a better place when it's more fact-driven. That's why we're building the most innovative analytics platform in history. With search and AI-driven analytics, everyone can ask questions, get insights, and make better decisions.

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