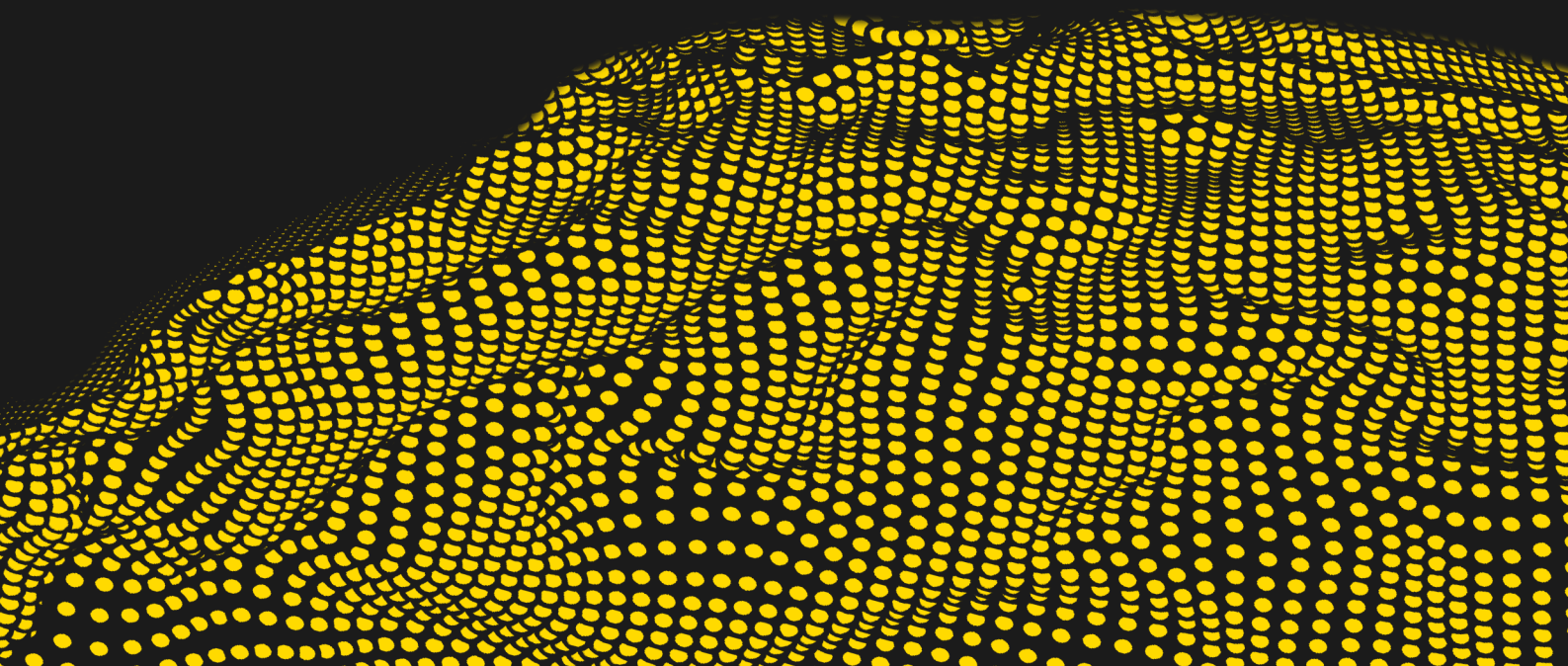


GUIDE TO DATA DEMOCRATIZATION

Enable data-driven decision-making and tame the explosion in business data by creating a framework of data democratization



Guide to Data Democratization

A comprehensive resource to help you get started on your data democratization journey, brought to you by ManageEngine

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Analytics Plus

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Section 1

Democratizing data analytics in your organization

The need for data analytics and business insights

Today's work environment demands agility and adaptability to keep pace with the ever-increasing speed of business operations. Knowledge workers are required to respond and adapt to changing market circumstances, aligning to an organization-wide focus on creating an agile culture.

"An agile organizational culture puts people at the center, which engages and empowers everyone in the organization. They can Then create value quickly, collaboratively, and effectively."

- McKinsey & Company

An essential facet to developing a responsive workplace is the ability to react to new information and data generated across the organization. With the explosion of data in recent times, it's safe to say that we are at the dawn of a data economy, making it imperative for organizations to harness vital insights from the generated data. Businesses realize that data and insights derived from this data are key drivers of value in this data economy, and can mean the difference between success or failure. Today, many brands have successfully leveraged data analytics to complement human experience in increasing the speed of decision-making, enhancing operational efficiency, and improving customer experience.

Data can be an extremely underutilized tool, and a company's capability to access the right data, at the right time, and then look at it through the right lens, can make or break a bottom line."

- Dan DiFilippo, PwC

What is data democratization?

Data democratization, or data accessibility, is the concept and process of making governed business data available enterprise-wide to both technical and non-technical users. It requires organizations to empower individuals across the organization to access, manipulate, visualize, and derive insights from their specific business data and generally available business data. To do this successfully, businesses need to remove bottlenecks to data access and provide an easy way for employees to understand and manipulate the data.

Traditional data analysis requires business stakeholders to wait on IT or other third parties to process and share the necessary data in the desired format, which can be extremely time-consuming and unproductive, causing executives to make decisions based on stale data. One of the primary aims of data democratization is to eliminate the friction associated with traditional analysis.

A second, more human side to data democratization is the qualitative aspect of data analysis, which is considered both a science as well as an art. Incredible insights can be generated in the process of data analysis, rather than by just viewing the end result (a chart or a report). Knowledge workers who can access and manipulate their business data themselves can generate unique insights that might otherwise be missed out had the data analysis been delegated or outsourced to an external entity.

Data democratization incentivizes businesses to think more about their data, like how it's to be stored, shared, managed, and consumed. It breaks up data silos spread across the organization, and even aids privacy teams in developing data governance and privacy frameworks while ensuring adequate access to business data across the organizational hierarchy.

R&D in pharmaceuticals is one of the world's most expensive processes, costing approximately [\\$2.6B to get a drug through all stages of development and testing into the market](#). Boehringer Ingelheim, a pharmaceutical company headquartered in Germany, has created a data democratization process through which metadata across various stages of clinical trials gets distributed on a shared framework. The shared knowledge pool aids researchers with up-to-date insights into research data points, ensuring a seamless exchange of information across all R&D stages.

By ensuring this faster spread and availability of information and data, the company has accelerated its drug pipeline, bringing essential drugs to the market faster and at a cheaper cost while also being compliant with various data security and privacy policies.

What's holding up data democratization?

Despite the benefits of creating a data culture, over [72 percent of technology and business executives state](#) that they haven't been able to create the kind of data culture to sustain and promote data democratization. Let's dive into the factors holding back this adoption, and discover some of the factors you might encounter in your data democratization journey.

- **"What's wrong with the old method?"**

Many businesses, especially larger organizations, struggle with pushing forward a data-driven business transformation strategy. Primary causes are cultural challenges and resistance to move away from traditional data analysis methods and adopt newer ways of gaining business insights. [95 percent of executives cite cultural challenges \(people and processes\) as significant barriers to data democratization](#). Let's explore a few of the drawbacks with the current ad-hoc data analysis model:

- ▶ Ad-hoc reporting causes data teams to be overloaded with tasks in the pipeline, forcing them to focus on the specific task rather than on innovative analysis.
- ▶ There is a tool mismatch between technical data teams and non-technical business requesters that may not succinctly translate the data teams' findings to the requester.
- ▶ The data team's priorities may be different from those of the business users, causing exhaustive friction and politics, further delaying the data required to make critical decisions.
- ▶ Since various teams send requests to the data team, there may be the creation of further data silos that exist not only within the particular business unit, but also business silos that get created between just the requester and the data analyzer.
- ▶ Some employees may become frustrated with having to wait on others for the data analysis, and instead pass the data through non-authorized data analysis programs that might be against the companies data governance policies; this would ultimately make confidential business data exposed and at-risk.

- **The fallacy of data analysis as a specialized skill**

With the rise of advanced analytics and visual analytics, the notion of requiring in-depth training or specialized skills to perform data analysis becomes redundant. A successful data democratization framework doesn't require any coding or advanced math skills, as most of the heavy lifting gets delegated to the data analytics tool. Data skills today are focused on understanding the insights derived and how they affect the problem at hand. In many ways, data analysis has become as vital a skill as communication or presentation skills, owing to the abundance of data available with each business unit and the ease of data analysis aided by the evolving technology at hand.

- **Lack of data security and privacy policies**

Implementing a successful data democratization framework involves creating or updating the company's data security and data governance policies. Many companies shy away from educating their employees or creating a detailed privacy policy framework due to the extensive cost and time required. But with the advent of the General Data Protection Regulation (GDPR) and other similar privacy frameworks across the globe, there has never been a better time for businesses to take a serious look into their data governance policies and start educating their workforce. To create the agile workforce that executives crave, there can be no more nitpicking user access to data; instead, they should be empowering their users with the tools, knowledge, and policies that will help them self-govern their activities while using policy enforcement technologies to keep an eye on their compliance and activities.

- **Concerns about misrepresentation and duplication**

Thinking about data as an asset is very much in contrast to the traditional notion of data being a by-product. Companies that have been successful in harvesting their data and applying it alongside human emotions and habits now make up ["seven of the top ten companies in the world by market capitalization."](#) However, companies today still worry about the non-standardized representation of data by non-technical users. The two biggest worries that plague decision-makers are that of misrepresentation and duplication. Misrepresentation is when non-technical users make incorrect assumptions and deductions of the data at hand, causing the generation of inaccurate insights. The other concern is duplication, where users who have access to the same information end up duplicating efforts in creating the same set of visualizations and reports. Both of these concerns are valid and are addressed later in this e-book.

The role of IT in data democratization

Traditionally, IT teams were tasked to maintain, update, track, and deploy internal applications and business services. But with Web 2.0 and the boom of software as a service (SaaS) applications, IT teams have evolved to handle the data and services of customer-facing applications used by millions of users globally. With this shift in responsibility, IT teams have become the de facto gatekeepers of data and access in an organization. It's ubiquitous for CTOs to dictate data governance policies, and business users have to reach out to already burdened IT teams for access to either raw data or, at times, even processes insights in the forms of reports and dashboards.

With the new take on data accessibility, IT teams take on the role of facilitators to successfully deploy a data democratization framework. In this new role, they are in charge of maintaining a single source of truth, acquiring the right tools for data analysis, and creating a secure data distribution process that aligns with the data governance policies and compliance mandates undertaken by the organization as a whole.

Section 2

Introducing the era of data democratization

Data has become the lifeblood of many organizations. The traditional method of limiting data access to only executives and data specialists is still prevalent across businesses globally, irrespective of company size or structure, but there's been a recent spike in organizations transitioning to an agile workplace. Companies want to decentralize control and decision-making to create an interactive approach to the business, ensuring that individuals across the organizational hierarchy can make better decisions without delay and constant managerial guidance.

One of the ways that businesses are enabling this is by empowering more users in the organization with readily actionable data, provided with a no-barrier approach. Though a revolutionary change, it has created its own challenges for IT teams and managers alike.

If you're a business owner or top-level executive and are excited to get started on this journey towards enabling broader access to data within your organization, have you thought about how your users will use and interpret the data? Most executives who think about individual-level data usage also tend to fear the misuse of data or the incorrect interpretation of data that could cause bad decisions and possibly expensive mistakes. After much thought on this issue, they suddenly find themselves back at square one, having to route their queries back to the IT or data teams. With the data teams already flooded with work, and with a limited ability to scale, business users are left hanging and possibly making decisions blindly without access to data. So, now what are you going to do?

Let's look at an example of playing a video game. A video game usually starts with a pretty straightforward set of missions or levels, allowing new players to acclimate to the game and the controls. Slowly the difficulty increases as the player completes more tasks and climbs more levels. Only after a while, once the

player is wholly acclimated and has sufficient experience under their belt, they move onto the hardest of levels. This gradual slope in the world of gaming is generally non-existent in the world of business analytics. Business data is typically available only in two formats—one type of data and insights for novice non-technical users (such as a static dashboard made by IT) and another for advanced data scientists (such as raw system logs), and there's a vast gap between these two.

One of the first steps towards achieving data democratization is filling this gap. To fill this gap, you need to take advantage of self-service analytics coupled with a governed data policy. Instead of limiting your users to raw or summarized data, you need to provide them with the right tools and train them to rise to the harder levels of data analytics.

The following are a few steps that can help fill the gap:

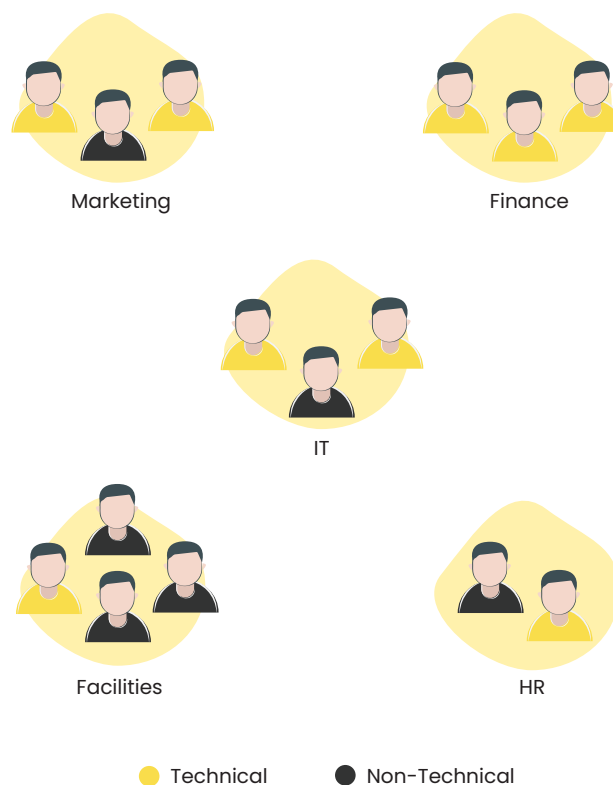
1. Create a single source of truth, controlled by a single team

Creating a single source of truth will ensure that data is federated, and only selective data is forked to other business users. The primary data store is kept intact, and only a selected administrator or executive has the authority to make any changes to the central data store. Creating this single source of truth is challenging; it's advisable to start small and grow incrementally, pooling in different data sources over a more extended period.

2. Choose a democratization model

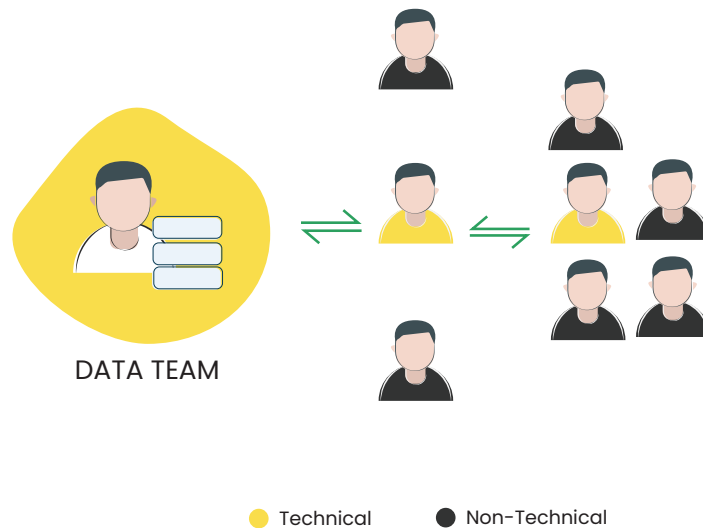
Data democratization is a very flexible and exciting approach that allows you to tailor the framework to your unique organization setup and organizational needs. Below are a few of the approaches that will give you an idea of the variety and possibilities of approaches, though you'll have to evaluate for yourself which plan best fits your needs.

- **Liberal model**



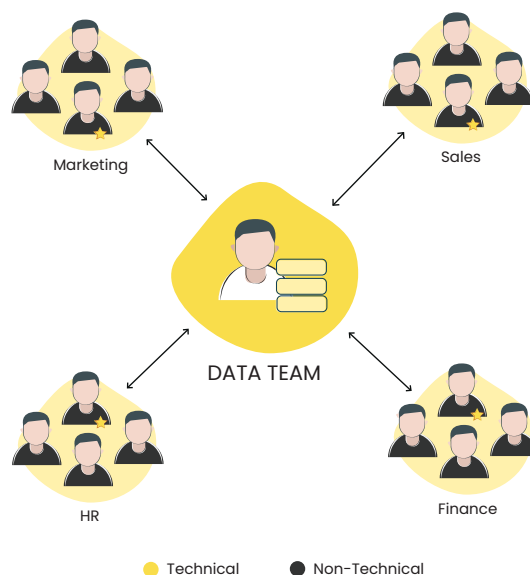
The liberal model is the one that comes closest to the concept of true data democratization. In the liberal model, each individual in the organization has complete access to all non-personal company information, irrespective of their role, seniority, or skill set. Each of them is given adequate training on adhering to data policies to ensure the security of the data. They are also trained on how the data is structured and how the data analytics tools are to be used to give them an adequate platform to jump-start their analytics journey.

- **Conservative model**



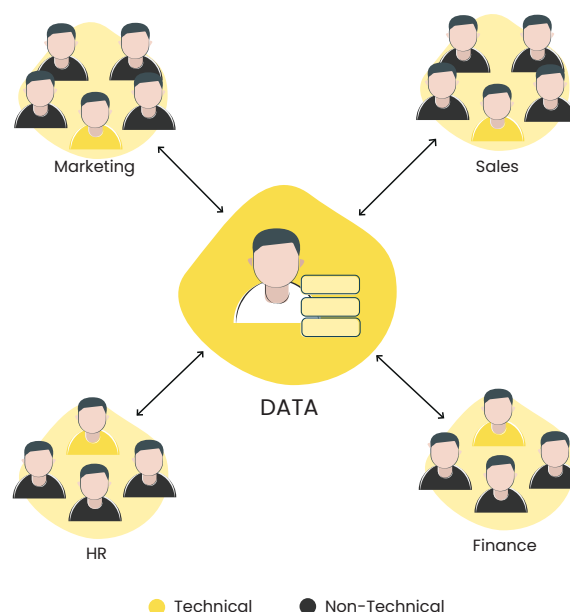
The conservative model is an ad-hoc-focused model in which individual users in the lower or mid-senior levels of the organization never get access to the organization's entire data lake. Segmented raw data is provided on a per-request basis, and generally requires at least one level of approval before either the data or IT team provides gated access. This model is usually adopted by organizations with access to extremely critical customer data, such as law firms and financial organizations.

- **POC model**



The POC model is one in which at least one individual is appointed as the point of contact (POC) from each major team in the organization for all communications with regard to access and analysis of data, and they are the only individual that interacts with the central data team. They are responsible for ensuring secure access to data to the rest of the team members, as well as ensuring users are correctly using the data. The POC is an existing member of the team and doesn't necessarily have any pre-existing data science knowledge; instead, they are generally given specialized training to take up the responsibilities of their role. Note that everyone else on the team still has access to the various data analytics tools, but will require the POC to give them access to the raw data to generate any insights or manipulate any data. The POC acts as a guide to ensure that individuals on the team understand the data and avoid the problem of misrepresentation discussed earlier.

- **Hybrid model**



The hybrid model is very similar to the POC model, but with a crucial distinction. While the POC model chooses an existing individual as a point of

contact who may not necessarily be a data specialist, the POC in the hybrid model is a skilled member of the data team and acts as a liaison within the individual teams. This ensures that data governance policies are followed, aid is given during the process of creating and analyzing data, and there is no duplication of work across the organization. This model is adopted by organizations in which data analysis forms a core component of their business model, and having a broad usage of data becomes essential across the organization.

3. Acquire, set up, and distribute a self-service analytics tool

Self-service analytics tools allow users to create reports and get business insights in just a few clicks without needing any help or additional training. Investing in a self-service solution is probably the best decision you'll make to enable data democratization. Moreover, a good self-service tool will also help you enforce various data governance policies and even greater collaboration within the organization via the ability to share and create conversations around reports and dashboards. Self-service analytics will form the first step in bridging the gap and act as a stepping stone, allowing users to get some hands-on experience with data analytics.

4. Create role or team-based interactive dashboards

To create contextual personalizations on the insights that can be derived by business users, empower them to create interactive dashboards based on their role or team by giving them access to processed data sets. These firsthand experiences will help acclimate them to their data environment, and help them understand how various factors impact one another. Theoretical knowledge might be useful in initial training, but doesn't come close to practical experience in creating lasting knowledge.

5. Share forked access to specific, anonymized data

New users are bound to make mistakes. To negate untoward incidents or data loss, ensure you only share duplicated data sets with users, creating a sandboxed environment to prevent users from manipulating or making changes to the primary data store. Sharing forked access allows freedom for users to explore and manipulate the data without fear and apprehension, providing leeway to learn more from their data.

6. Collaborate, communicate, and share

Businesses that want to create a data-driven culture need to do three things well:

- Collaborate around data and insights

Create a centralized forum where interesting insights and edge cases are openly discussed while giving users access to these insights, either globally or limited by their business function. These open forums of information exchange will inform users of the various methods that are being actively employed by their peers and expose them to different data manipulation ideologies. A few things to note while creating this centralized forum:

- ▶ Ensure the posts are moderated for quality of content posted, and also the quality of discussion.
- ▶ Everyone is going to have a different take on the data. Allow users (with sufficient access) to post their own take on the data as forked entries. The entire point of data democratization is to guide discussions around data, rather than by individualistic views and egos.
- ▶ Ensure the raw data set is anonymized and, to a great extent, inaccessible for exporting outside the centralized environment.

- Communicate findings and methodologies

Different data sets generated by various business units require a level of specific knowledge to understand them, along with unique tools to manipulate their data. For example, marketing data can't be interpreted and manipulated the same way as financial data or development data. Therefore it's essential to focus on the methodology applied, based on data type and business function, to create the level of specific knowledge required to generate business insights within that particular department or function. Central data teams should communicate methodologies and findings routinely to generate awareness of their data practices and the organization-specific data approach.

- Share responsibility

Once you have set up the required tools and imparted a sufficient level of training, the next step involves providing the required access to raw data to various roles. Teams should at least have access to the data sets relevant to their functions to build a data-fluent organization. Irrespective of the type of data democratization model you've chosen, the responsibility of proper management of data lies with each individual who has access to the data. Therefore the liability of data governance and education lies as much with the top management as with the rest of the organization in a data-fluent structure.

7. Leverage AI and NLP

Modern self-service analytics has evolved the traditional notion of descriptive analytics by employing technologies to make analytics more accessible to non-technical audiences. The goal of any analytics exercise in business is to derive actionable insights or answers to questions and problems that knowledge workers face. By using self-service analytics tools that employ artificial

intelligence (AI) and natural language processing (NLP) within your data democratization framework, you can create an absolute level of accessibility by eliminating the need to understand data sets or create reports and dashboards manually. Artificial intelligence automatically analyzes your data set and provides you insights either out of the box or based on specific parameters or questions input by the user. On the other hand, natural language processing treats your analytics platform as a smart personal assistant. You can ask the tool a question in simple natural language, either via voice or by typing out your query. The system analyzes your question and returns relevant insights to help you answer your question and make decisions in the shortest amount of time.

8. BONUS: Ensure trust in data and insights

Employing a self-service analytics tool is easy, but establishing a data-driven culture is extremely hard. As the level of decision-making becomes more and more dependent on data-driven analytics and insights, the trust placed on the data being collected and distributed becomes all the more salient. The trust in the data and the insights derived from this data require a top-down approach, with C-suite executives and decision-makers pushing for autonomous decision-making based on the insights generated. Remember that it's tough to gain back trust in data once it's broken.

The following are a few pointers to help you build trust in your business data:

- Follow governed and standardized processes of data collection and storage.
- Ensure the quality of data collection by aggregating the data stored across various data silos to ensure a clear and synoptic view of your business.

- Presume imperfections in the data, and make clear the uncertainty of the probable nature of your data. Spread awareness that data insights are not absolute, but indicative.
- Use personal judgment while dealing with data. Common sense rises over all the chaos.

Section 3

Analytics Plus

ManageEngine Analytics Plus is a one-of-a-kind advanced analytics tool that brings together the power of self-service analytics and powerful industry-standard functionality, making it the perfect analytics tool for technical and non-technical users alike. Analytics Plus is the result of over ten years of research and development. It focuses on a privacy-first, universal access self-service analytics model that helps IT and data teams drive a data culture within their organization. Built around the tenants of data democratization, Analytics Plus forms an essential foundation for any data democratization framework.

Besides being a self-service analytics tool, Analytics Plus also acts as a centralized data store and collaboration center, allowing you to bring together data across business silos, irrespective of the format or application in which the data is stored. Creating conversations around data has never been easier with the powerful sharing, commenting, and exporting options that come out of the box with Analytics Plus.

Read on to explore the powerful and essential features Analytics Plus offers to help you gain more control over your data and aid you in your journey towards data democratization.

Essential features that aid data democratization

Intuitive and easy-to-use interface

ManageEngine Analytics Plus offers an intuitive drag-and-drop interface with which users can build reports and interactive dashboards with ease. With multiple visualization formats and styles, Analytics Plus accurately depicts and represents data in meaningful ways. The visualization formats range from simple bar charts and scatter plots to geographical maps and heatmaps.

The UI is functional and straightforward, making it easier for new users to quickly acclimate to the interface and focus more on the data and insights in front of them, rather than on figuring out how to get things done.

Powerful multi-source data import

Import data from multiple sources, applications, and in multiple formats directly into Analytics Plus. The following are a few data and file formats that you can import into Analytics Plus. For a complete list, visit the Analytics Plus website or download the application.

- **File formats:** Excel, CSV, HTML, JSON, XML, Text, and more
- **Cloud storage:** Zoho Docs, Google Drive, Dropbox, OneDrive, Box, and more
- **Web feeds, RSS, and APIs**
- **SQL and NoSQL Databases:** PostgreSQL, MySQL, MongoDB, Hadoop, and more
- **Cloud databases:** Amazon Web Services (AWS), Oracle, IBM, Microsoft Access, Azure, Sysbase, and more
- **Business applications:** Out-of-the-box integrations with a huge list of IT and business applications

Apart from just pulling in data, users can synchronize data automatically to eliminate manual importing tasks. Finally, users also have the powerful ability to blend data from multiple sources and databases to break data silos and create a comprehensive, centralized single source of truth.

Federated data sharing and access controls

Analytics Plus is a privacy-first self-service analytics software, where administrators have complete control over what data is shared, viewed, and accessible across the organization. In line with the GDPR and other privacy regulations, Analytics Plus now offers advanced options to limit data exposure and anonymize personally-

identifiable information (PII). [Click here](#) to view more GDPR-specific features of Analytics Plus. With fine-grained access controls, administrators can give sectional access to forked data sets, clearly defining and controlling who can view, explore, and share specific data, reports, and dashboards. This is done via granular options such as read-only, read-write, report authoring, drill-down, export, and others. Access controls are fairly vast and granular, so feel free to reach out to our technical specialists for a personalized walk through.

Artificial intelligence and natural language processing

Analytics Plus comes ready with AI and NLP capabilities to ensure a true self-service analytics experience. Use Zia, our AI-assistant, to ask your data-specific questions in natural language, either by typing them out or using your voice, and watch as you get instant insights in the form of reports and key performance indicators (KPIs). Auto-analyze any data set imported into Analytics Plus to generate automatic reports and dashboards with a single click, eliminating the need for you to create them manually.

Interactive dashboards

Combine multiple reports, widgets, and KPIs into a single dashboard using a drag-and-drop dashboard builder. Create dashboard-level filters that narrow down the data in the individual reports to show only the data relevant to the specific dashboard view. Change the visualization style or use various drill-down features to dig deeper and explore your data visually, right on the interactive dashboard.

Advanced formulas and forecasting

The powerful built-in formula engine gives users access to an extensive library of mathematical and statistical functions that empower technical and non-technical users to derive maximum benefit and insights from their raw data.

Going beyond the realm of descriptive analytics, get access to predictive analytics features with a user-friendly forecasting engine that will help users create forecasting models based on historical data to predict future metrics accurately.

Collaboration and sharing

Collaborate with peers with the contextual commenting option in Analytics Plus to create conversations around data. Export reports and dashboards, or annotate and share specific reports to make Analytics Plus the collaboration center in your data-driven organization. Control shared data by mandating password protection or restricting data export at a granular level.

Free download and consultation

ManageEngine Analytics Plus is available for a free 30-day all access trial, giving you ample time to try out all features and ensure that the tools fits into your data democratization framework. Head over to [this link to download the free trial](#). Schedule a free guided demo with one of our technical experts by [clicking here](#).

About the author

Rachit Arora is an evangelist and solution expert at ManageEngine. He helps businesses and IT teams understand the true value of their data and aids them in crafting stories and conversations around their data insights.

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