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Best Practices in Augmented Analytics

Techniques for Driving Adoption

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About the Author

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About Eckerson Group

Eckerson Group is a global research and consulting firm that helps organizations get more value from data. Our experts think critically, write clearly, and present persuasively about data analytics. They specialize in data strategy, data architecture, self-service analytics, master data management, data governance, and data science. Organizations rely on us to demystify data and analytics and develop business-driven strategies that harness the power of data. **Learn what Eckerson Group can do for you!**

About This Report

Research for this report comes primarily from numerous briefings with software vendors. This report is sponsored by SAP, who has exclusive permission to syndicate its content.

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Executive Summary

Augmented analytics uses artificial intelligence (AI) to make business intelligence (BI) and analytics tools easier to use to generate insights not possible with earlier generations of products. However, this doesn't mean all business users will universally adopt all the new features. Analytics leaders need to understand the target audience for these features before rolling them out broadly.

To ensure widespread adoption, data leaders need to populate the tools with timely, relevant, and high-quality data. BI and analytics tools can be unfairly tarnished if business users don't trust the data. Leaders also need to provide adequate training and coaching to ensure business users get the support they need to understand and utilize the new features. Finally, BI administrators need to test the new features for scalability, performance, and ease of use.

This report shows how data and analytics leaders can increase adoption of augmented analytics capabilities. It presents an Analytics Adoption Framework that describes the major factors that contribute to widespread adoption of BI and analytics tools and features. It applies those factors to the implementation of augmented analytics, providing a guide for adoption.

Key Takeaways:

- Before rolling out any BI or analytics tool or feature, understand the target audience for those specific capabilities.
- Understand the major objections business people have to BI and analytics tools in general and augmented analytics features more specifically.
- The Analytics Adoption Framework provides a handy guide for ensuring business users will adopt a new technology
- Make sure new tools and features are well-suited to the people who are authorized to use them.
- Make plans to ensure adequate training, coaching, and workflows to ensure people have the support they need to use augmented analytics and other features effectively.

Analytics Adoption: The Perennial Conundrum

Since the early 1990s, analytics leaders and business intelligence (BI) vendors have been stymied in their quest to increase the adoption of BI and analytics tools among business users. In 2021, Gartner found that BI and analytics adoption among all employees was 30%. That is only slightly better than the 20% rate I discovered when running similar studies in the 1990s.

So what gives? It turns out that adoption of analytics capabilities is a multi-faceted problem. When faced with low adoption, analytics leaders usually double down by offering more training, while vendors redesign their graphical interfaces to make them easier to use or add new self-service features. These initiatives help but haven't yielded breakthrough results that enterprise buyers and providers of analytical technology have sought.

Common goal. Although they employ different approaches, both data leaders and vendors share the same goal: they want to empower business users to query, massage, analyze, share, and collaborate around data. They want to liberate business users from having to wait in line for the enterprise data team to address their needs. In other words, they want to empower business users with self-service analytics.

Unfortunately, for most organizations, self-service analytics has been as elusive as the Holy Grail. No matter what data leaders and vendors do, a persistent group of business users will resist all attempts at making them analytically self-sufficient. This group—which I call data consumers—typically comprise 60% of employees in most organizations—their numbers have hardly changed in decades and they present the most persistent challenge to achieving self-service nirvana.

Self-service analytics has been as elusive as the Holy Grail.

The Promise of Augmented Analytics

Today, we have a new set of analytical capabilities powered by artificial intelligence (AI) that promise to conquer the BI adoption problem and turn data consumers and others into self-service juggernauts. There is a range of AI-infused capabilities, collectively called "augmented analytics," that span everything from natural language queries to analytic assistants to AI modeling wizards. Here is a list:

- **Natural language queries (NLQ).** Often referred to as "Google for BI," NLQ generates SQL queries from text that business users type into a search box and returns a result, usually as a table or chart.
- **Assisted analytics.** When business users click on a metric in a chart or dashboard, assisted analytics functionality automatically kicks off a correlation analysis that surfaces and explains the factors driving that metric in natural language.

- **Business monitoring.** Business monitoring extends assisted analytics to run continuously on designated business metrics, intelligently alerting users to relevant changes that impact business outcomes and their root causes.
- **AI modeling wizards.** These wizards step business analysts through the process of creating an analytic model using regression, classification, or decision tree algorithms.

Collectively, these features represent a major advancement in making BI and analytics more accessible to the majority of business users. They promise to bring business users out of the dashboard desert into the modern world of ad hoc queries, iterative analysis, intelligent alerting, and data science. These augmented analytics capabilities make it easier than ever for business users to overcome their intrinsic reluctance to converse with data.

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Self-learning tools. Augmented analytics makes analytical tools easier, smarter, and more automated. It does this by watching users' interactions with data and the tool to learn what they want and need. Over time, the tools adapt to each individual, presenting tailored options that anticipate their needs. Just as Google seems to know what I want to search even before I begin typing, so too do new analytical tools customize their experience and output to individuals. This learning ability is a game changer.

Of course, you have to get business users to use the tools and features in the first place for the self-tuning benefits of AI to kick in. And that's the rub. Many business users who find Google intuitive get fearful when confronted with a NLQ search bar. "Fear of search" and "fear of correlations" are now common refrains among BI and analytics vendors.

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Although new AI features promise to simplify analysis for even the most data-resistant consumer, they still face the same obstacles as analytic tools and features of the past, present, and future. Data leaders who want to empower business users with self-service analytics need to consider all the factors that contribute to BI and analytics adoption. They should also evaluate past BI technologies that have failed to catch on with the masses (e.g., alerts, visual analysis) and those that did catch on (e.g., mobile dashboards and embedded BI).

Obstacles to Analytics Adoption

Business User Complaints

Before developing an analytics adoption strategy, it's important to know what discourages business users from using analytic tools and features. Here are common complaints from business users about their BI or analytics tool:

> "It's too hard to use."

> "I don't trust the data."

> "It's too slow."

> "I don't want to start with a blank canvas."

> "I forgot how to use the tool."

> "I don't have time to learn the tool."

> "That's not the data I want to see."

> "That's not how I want to see the data."

> "Just build me a dashboard, please."

Augmented Analytics Complaints

The current generation of analytical features spawn the same complaints but in different context:

Natural Language Query:

> "I don't know what to type."

> "I just want answers; I don't want to ask questions."

> "My search yields no results."

> "My search yields the wrong results."

> "I don't want to create something new."

> "I just want to see what John created."

Assisted Insights and Business Monitoring:

- "I don't know what a correlation factor is."
- "There are too many insights generated."
- "I forget to look at the insights."
- "I don't trust the insights; I'd rather ask Bob."
- "The insights don't help me."
- "The alerts are annoying and not relevant."

AI Modeling Wizards

- "What is a regression?"
- "When do I use a decision tree or cluster algorithm?"
- "How much data do I need to generate accurate results?"
- "How do I format the data to run the algorithm?"
- "What do I do with null values?"
- "I can't explain or defend the results it generates."
- "I don't know if I'm doing it right."

Enterprise Adoption Tactics. Veteran data and analytics leaders have heard these complaints. In response, most beef up training classes or implement data literacy programs. Many also purchase the latest analytical tool promising breakthrough capabilities. These efforts improve adoption somewhat; but most days, analytics leaders still feel like Sisyphus pushing a boulder up the mountain.

Vendor Adoption Tactics. On the other side, BI and analytics vendors periodically redesign their user interfaces and are now injecting AI into every facet of their products. They also have formed a community of interest around their products and incented participants to help each other. They also present challenges, quizzes, and other gamification techniques to turbo-charge knowledge and excitement about their products.

What Works?

All these tactics are good, but they are not enough to guarantee that more than 30% of employees will actively use and benefit from BI and analytical tools, AI or not. To obtain breakthrough adoption, it's instructive to learn why some BI capabilities have succeeded in the past and others have not. Giving users the right tool for the job is a good starting point, as we'll see in the next section.

Mobile Dashboards. For instance, mobile dashboards are a big hit with busy executives and managers. Why? They don't require executives to fetch data to obtain insights; rather, the insights find them wherever they are. And because mobile dashboards constrain the display, it forces developers to think about what is really important to executives and show only that. If executives desire, they can click a link to obtain more data. So mobile dashboards are easy, convenient, and simple, and display only relevant data with one click to desired details.

Embedded Analytics. Similarly, embedded analytics appeals to front-line workers who spend most of their day working in a single operational system. Embedding insights in context of operational processes—and perhaps even integrating them—saves front-line workers from having to toggle between an operational system and an analytical one. And they don't have to hunt for insights on a generic dashboard; the exact insights display where and when they need them. Like mobile dashboards, embedded analytics appeals to a certain class of users who want analytics to be simple, convenient, and highly tailored to their needs and work context.

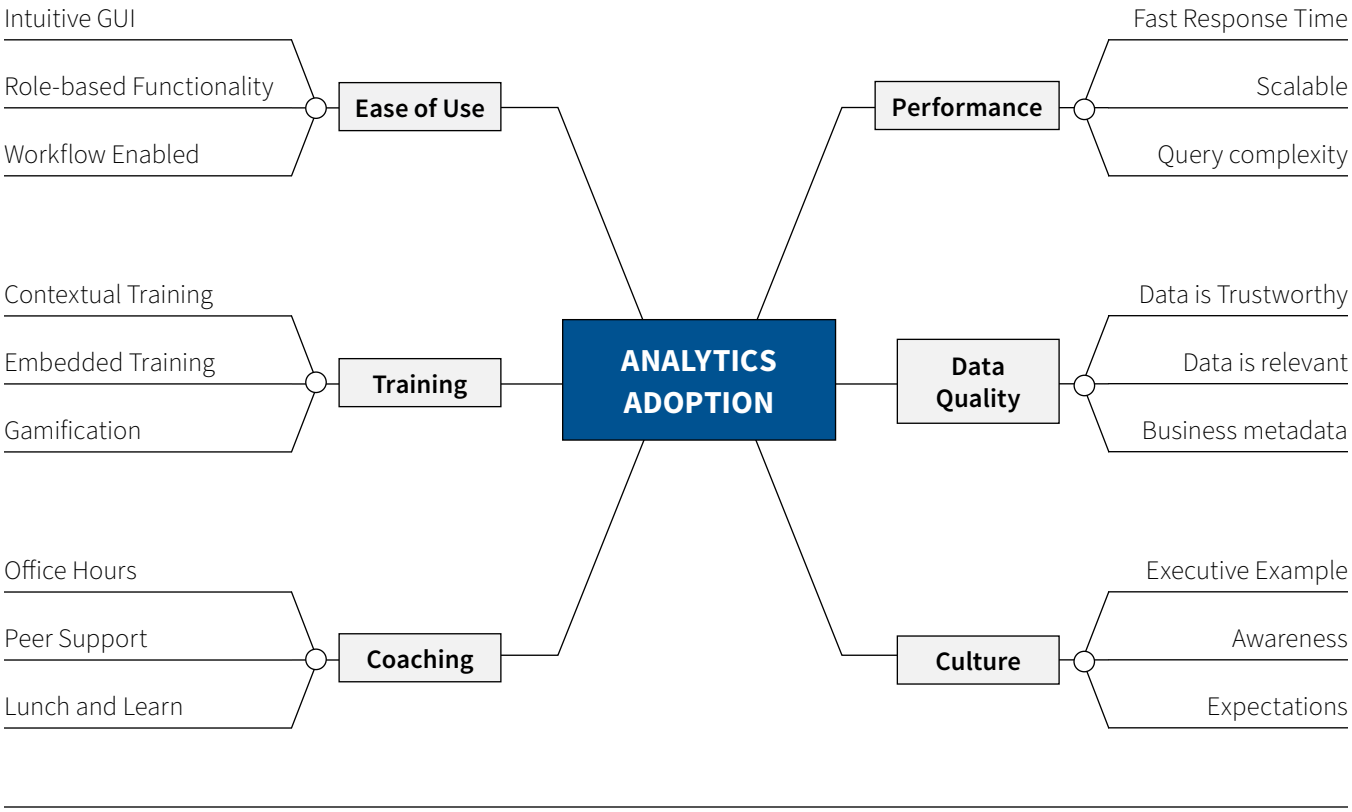
Visual Analysis. Visualization tools gained huge popularity in the 2010s, especially among data analysts eager to find a better data access and visualization tool than Excel. These visual tools enabled users to connect with data, build robust interactive visualizations, and tell compelling stories with data. The tools also empowered data analysts to create their own reports and dashboards without IT assistance, offering true self-service capabilities for the first time.

These examples demonstrate that business people will embrace and adopt BI and analytical tools under the right conditions. The next section explores the factors that data and analytics leaders must consider if they want to drive widespread adoption of analytical tools.

Analytics Adoption Strategies

The mind map in figure 1 outlines the key ingredients for the successful deployment of BI and analytics capabilities. The six key drivers of analytics adoption are ease of use, performance, training, data quality, coaching, and culture. Each category, in turn, has three contributing factors. Organizations need a strategy to address each of these 18 factors if they want to maximize adoption of BI and analytics capabilities. (See figure 1.)

Figure 1. Analytics Adoption Framework



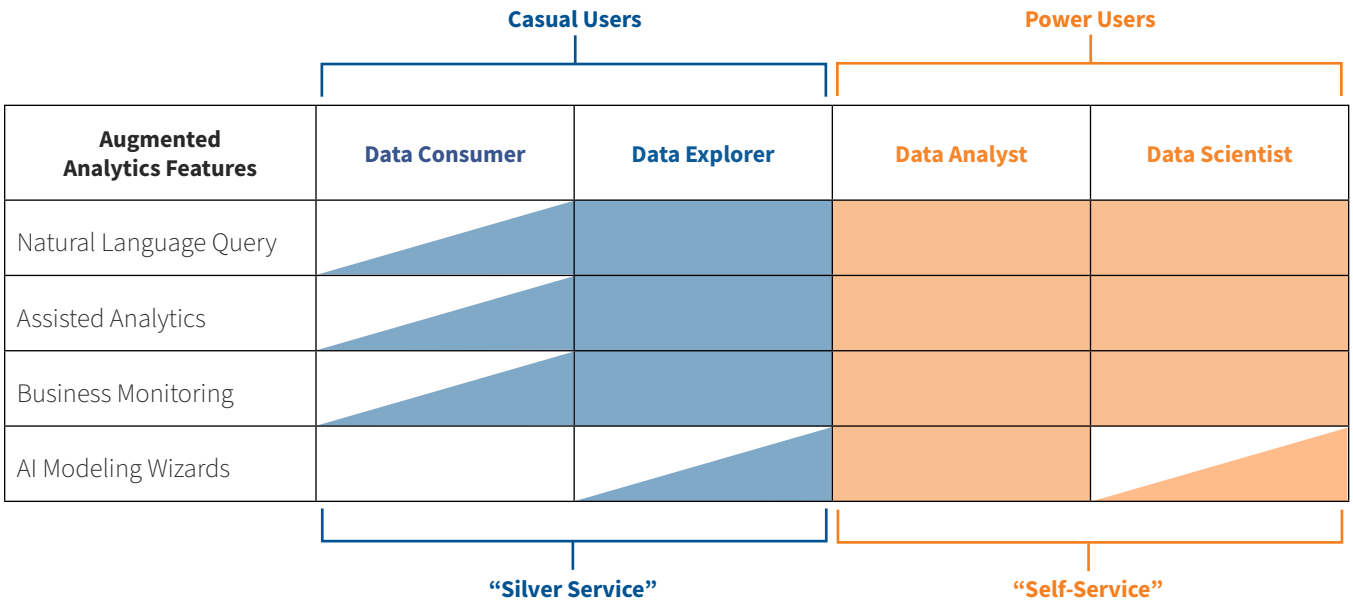
Top Priority: Customer Fit

It should be clear from the previous section that the single most significant contributing factor to analytics adoption is role-based functionality. (See Ease of Use in figure 1.) Poor fit between the tool and user is the biggest reason for poor analytics adoption. Business users won't use tools they find either too complex and overwhelming to use easily or too simplistic and inflexible to generate meaningful results.

To avoid fit problems, data leaders can classify business users into a handful of "analytics personas" based on their information needs and skills. Leaders can then assign tool licenses and access permissions based on those personas. Eckerson Group uses the following personas:

- **Data Consumer (constituting 60% of employees):** Data consumers view and interact with reports and dashboards but rarely modify them. They have little interest in performing ad hoc or free-form analysis.
- **Data Explorer (30% of employees):** Data explorers are similar to data consumers; however, occasionally they want to create their own views of data, usually by modifying existing reports, dashboards, and charts.

Figure 2. Mapping Augmented Analytics to Analytics Personas



- **Data Analyst (8% of employees):** these individuals report to department heads to answer business questions using data. They are proficient with Excel and data visualization tools and may know SQL and Python. They also have had exposure to statistics and machine learning.
- **Data Scientist (2% of employees):** Data scientists have a background in computer programming, statistics, and machine learning. They can create sophisticated predictive models using statistics, machine learning, and AI.

Plotting analytic personas against augmented analytics capabilities shows how to assign these features to business users to maximize adoption. (See figure 2.)

Augmented analytics capabilities make BI tools easier to use, although many data consumers today are still reluctant to "converse" iteratively with data no matter the medium.

Casual User Adoption

The chart in figure 2 shows how the new augmented analytics features serve all user personas. Although many data consumers are still reluctant to "converse" iteratively with data no matter the medium, we expect the new generation of tech-savvy and data-savvy individuals entering the workforce to change this fact. One exception is AI modeling wizards. Although geared primarily to power users, their no-code interface makes them accessible to data explorers who want to stretch their analytics expertise.

Augmented analytics capabilities today are a perfect fit for power users who always appreciate simpler, more efficient methods of accessing and analyzing data. They're somewhat of a stretch for casual users, although we expect adoption to grow over time. The following are reasons augmented analytics capabilities may not work for casual users, and what vendors are doing to improve usability for this casual user audience.

Casual User Challenges

Natural language query: Most casual users don't want to start with a blank canvas, nor do they want to learn keyword operators or syntax still required by most NLQ products. Also, we know that some NLQ features don't always work as promised. Some don't scale, run fast, or generate relevant answers—all instant turn-offs to casual users.

> **Vendor enhancements:** To counter this reaction, some BI vendors present users with optional wizards rather than a search bar, to avoid the blank canvas issue. Others embed NLQ into existing applications and generate context-relevant search options based on the user's actions. Others serve existing content in response to a query, rather than new content, to ensure users receive full-featured results no matter what they type. Others embed workflows so an unanswered query kicks off a request to a data analyst who fulfills it.

Assisted analytics/business monitoring: Data consumers might find the insights generated overwhelming, filled with arcane statistical language, or irrelevant, causing them to ignore or turn off the alerts. However, data explorers will find the tools an easy way to gain additional insights and track key metrics on a continuous basis without involving data analysts. They will also use the tools to help identify the root cause of an issue.

> **Vendor enhancements.** All vendors continue to tweak the placement, layout, and language used to convey assisted insights to promote adoption. Also, most are trying to accelerate the "bake in" period during which the algorithms learn the behavior of core metrics and what interests the user. One way to do that is to package the features for specific use cases, such as monitoring cloud costs or customer attrition or campaign performance.

AI modeling wizards. Data consumers don't have the time, interest, or knowledge to create predictive or statistical models; they are often repelled by statistical concepts or references. It only takes one abstruse word before they turn their attention elsewhere. Data explorers are more tolerant. And in the absence of available data analysts, they might try their hand at these wizards if they can justify the time spent. More likely, they'll need someone to coach them through their initial efforts and vet the results.

> **Vendor enhancements.** Although AI modeling wizards are geared more to power users, BI vendors are working to make these features more accessible to motivated data explorers. They continue to simplify

the wizard-driven interface, and explain all statistical concepts and terms with text and links to short videos and documents. Some are also building workflows into the features so data explorers can easily share their work with data analysts and get immediate feedback.

Although power users are the primary beneficiary of augmented analytics features today, this will change as the population of data explorers grows and the percentage of data consumers declines. Vendors are accelerating this evolution by adding innovative enhancements that overcome typical casual user objections and make the features less intimidating and easier to use.

Power User Adoption

For power users, augmented analytics either simplifies the process of finding and querying data (NLQ) or automates the discovery of insights in a large data set (assisted analytics and business monitoring) or simplifies the process of creating analytic models (AI modeling wizards).

Natural language query offers power users a much easier way to query data in an iterative fashion. They also can be enlisted to help model the NLQ data sets, better aligning the tools with their query requirements. This improves their experience and reinforces the utility of the feature.

> **Vendor enhancements.** Vendors are working to scale these features across larger volumes of data and numbers of concurrent users to ensure they provide consistently fast performance. To improve scalability, many vendors are moving these products to the cloud and extending the architectures to deliver push-down queries to remote, unmodeled data sets.

Assisted analytics and business monitoring tools save power users oodles of time, enabling them to respond more quickly to business requests and reduce their perpetually high backlog. These tools run thousands or millions of queries in a matter of seconds, exposing relevant correlations and insights that the analyst may never have considered. Or the results might point in a more fruitful direction for analysis or expose the root causes of anomalies more quickly.

> **Vendor enhancements.** Vendors are continuously tweaking their algorithms to learn more quickly and perform faster.

Assisted analytics … [enables business analysts] to respond more quickly to business requests and reduce their perpetually high backlog.

AI modeling wizards turn data analysts into citizen data scientists. They do this by providing a no-code, step-by-step wizard with built-in explanations and embedded help, making it easy to create data science models. Data scientists might also use an AI modeling wizard (or AutoML tool) to quickly prototype

a solution or test multiple approaches before writing code in a Jupyter notebook or another custom environment.

- **Vendor enhancements.** To continue turning power users into citizen data scientists, vendors are modifying the composition of their training offerings. Before focusing on tool features and functions, they educate users on statistical principles and concepts to ensure everyone has a working knowledge of how analytic models work, their inputs and outputs, and the differences among techniques and when to use each.

Secondary Priorities

After securing the proper fit between users and tools, it's also important to address other dimensions of the analytic adoption framework in figure 1: training, coaching, performance, data quality, and culture. Although it's beyond the scope of this report to address all these factors, it's important to recognize that there is a personal dimension of adoption. When it comes to adoption, the "soft stuff is the hard stuff." To ensure business users actively use new technologies, there must be a web of interfaces among business users and technical experts. These relationships, cemented through formal and informal workflows, span the user roles discussed earlier to disseminate knowledge and drive adoption.

Workflows

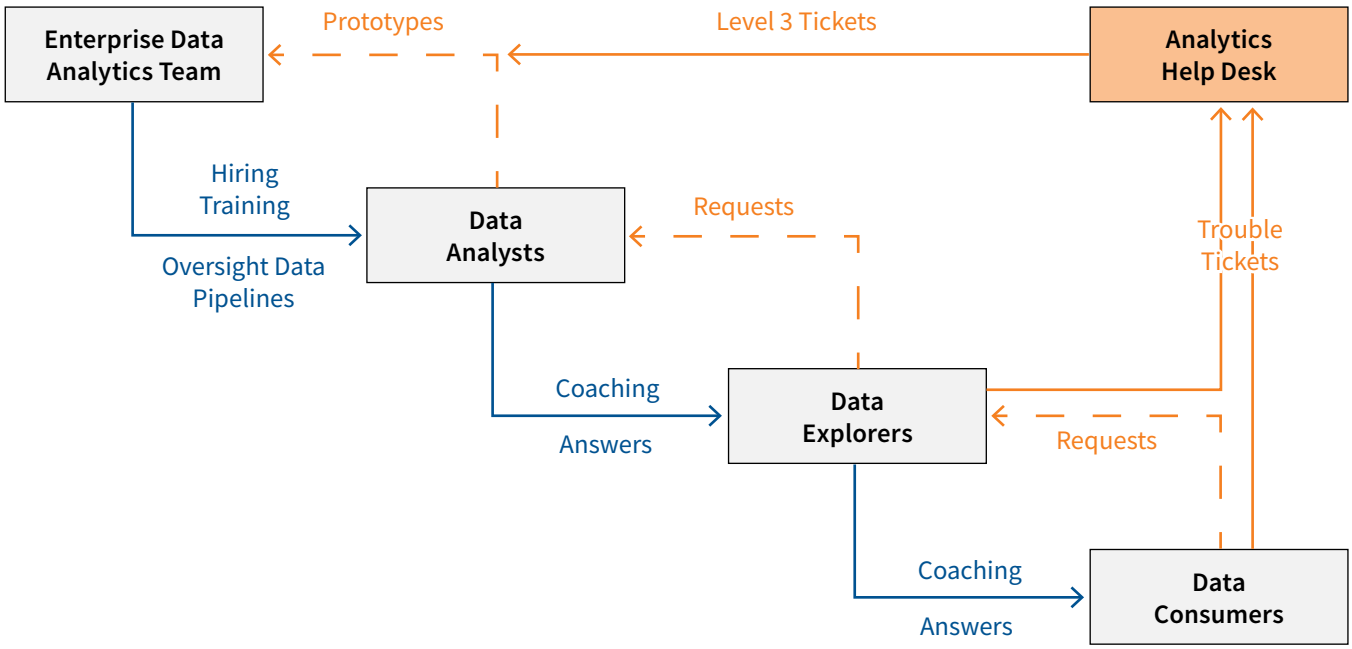
For example, some vendors are now baking these interactions into workflow-enabled toolsets. When a data consumer types a business question into an NLQ search bar, the system responds with previously executed charts, dashboards, or reports. If none apply, the user clicks a button to send the question to a resident data analyst, who uses a self-service analytics workbench (i.e., integrated data catalog, data prep, data analysis, and data visualization) to respond quickly with an answer. If the question is complex, the data analyst can chat with the user via the same interface to clarify the request and estimate the delivery date.

Informal Coaching

Some organizations rely on a less formal network of relationships. Here, coaching and support cascade downward from the enterprise data and analytics team to data analysts, who in turn coach and support data explorers who do the same for data consumers. At the same time, requests move in reverse from data consumers upward until they reach the level at which they can be addressed. Some organizations even add a data analytics help desk to siphon break-fix requests, password issues, and other small technical issues from the informal coaching network. (See figure 3.)

In addition, many organizations appoint "analytics ambassadors" to help business users and analysts upgrade their analytical skills informally. Also, enterprise data and analytics teams now hold office hours and open labs where data analysts can get one-on-one help. And monthly "lunch and learn" sessions on technical topics and webinars can promote best practices and successful use cases. All these initiatives boost analytics adoption and foster a culture of analytics.

Figure 3. Informal Coaching Network



Gradual Rollout

Finally, to avoid adoption meltdowns, analytics leaders need to implement a measured strategy for rolling out new tools and features. Ideally, they beta test tools or features with the target group before deploying broadly. (Remember, don't test data consumer features with data explorers or data analysts.) Leaders track what users like and don't like about the tool or feature and note where they got hung up in the process. Also, they try to test the features at scale—with both large data volumes and large numbers of users—to ascertain the impact on performance and response times.

Conclusion: Near-Universal Adoption

Augmented analytics represents the next generation of business intelligence capabilities. It injects AI and ML into the toolsets to make them easier to use and generate tailored insights. Augmented analytics promises to finally break through the perennial logjam of user adoption and finally make BI pervasive.

However, we have not achieved analytics nirvana yet. Although power users are quick to adopt augmented analytics features, casual users are much harder to please. Today, most (i.e., data consumers) just want to consume dashboards and charts and don't want to run ad hoc queries, examine detailed correlations, or create analytical models. However, this is changing.

In the near future, as data washes over economies and resets the expectations of a new generation of workers, more business users will want—indeed expect—augmented analytics capabilities. They will want AI/ML-infused tools that learn their behavior and conform to their needs without requiring advance configuration. Meanwhile, vendors will fine-tune augmented analytics features to make them more appealing to the masses of business users.

Thus, the convergence of augmented analytics and an increasingly data-savvy workforce will usher in a brave new world of near-universal BI adoption.

About Eckerson Group

Wayne Eckerson, a globally-known author, speaker, and consultant, formed **Eckerson Group** to help organizations get more value from data and analytics. His goal is to provide organizations with expert guidance during every step of their data and analytics journey.

Eckerson Group helps organizations in three ways:

- **Our thought leaders** publish practical, compelling content that keeps data analytics leaders abreast of the latest trends, techniques, and tools in the field.
- **Our consultants** listen carefully, think deeply, and craft tailored solutions that translate business requirements into compelling strategies and solutions.
- **Our advisors** provide one-on-one coaching and mentoring to data leaders and help software vendors develop go-to-market strategies.

Eckerson Group is a global research and consulting firm that focuses solely on data and analytics. Our experts specialize in data governance, self-service analytics, data architecture, data science, data management, and business intelligence.

Our clients say we are hard-working, insightful, and humble. It all stems from our love of data and our desire to help organizations turn insights into action. We are a family of continuous learners, interpreting the world of data and analytics for you.

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