eBook

Twelve Characteristics of an Analytics Culture

Signs, Symptoms, and Success Factors

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About the Author

Wayne W. Eckerson is an international thought leader in the data and analytics field since the early 1990s. He is a noted speaker, sought-after consultant, and widely read author. Eckerson has conducted many groundbreaking research studies, chaired numerous conferences, written two widely read books, and consulted with numerous organizations around the world. Eckerson is the president of Eckerson Group, a research and consulting firm that specializes in data analytics. He has degrees from Williams College and Wesleyan University. .

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 them to demystify data and analytics and develop business-driven strategies that harness the power of data. Besides research and consulting services, Eckerson Group offers the Industry Data Benchmarks service and the Rate My Data benchmarking platform. Learn what Eckerson Group can do for you!

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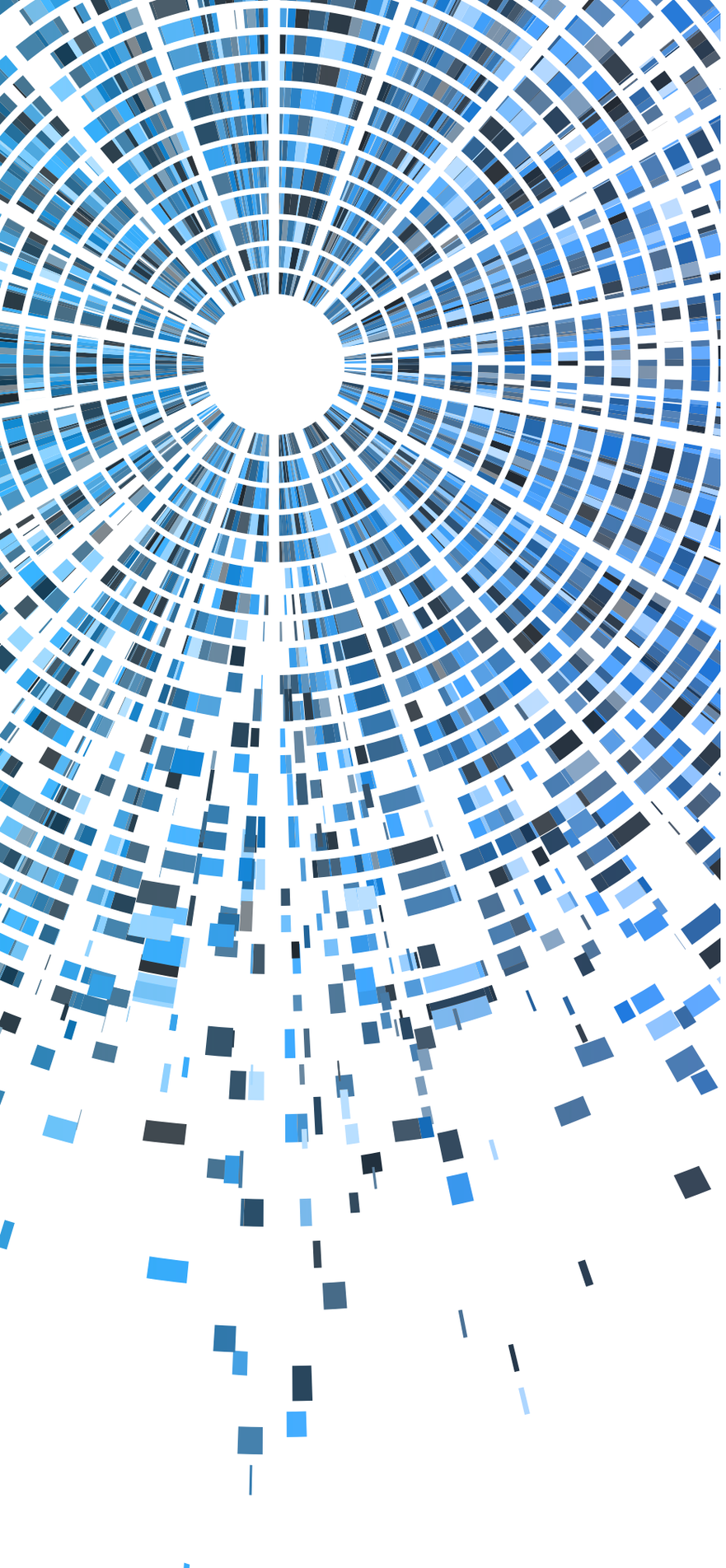

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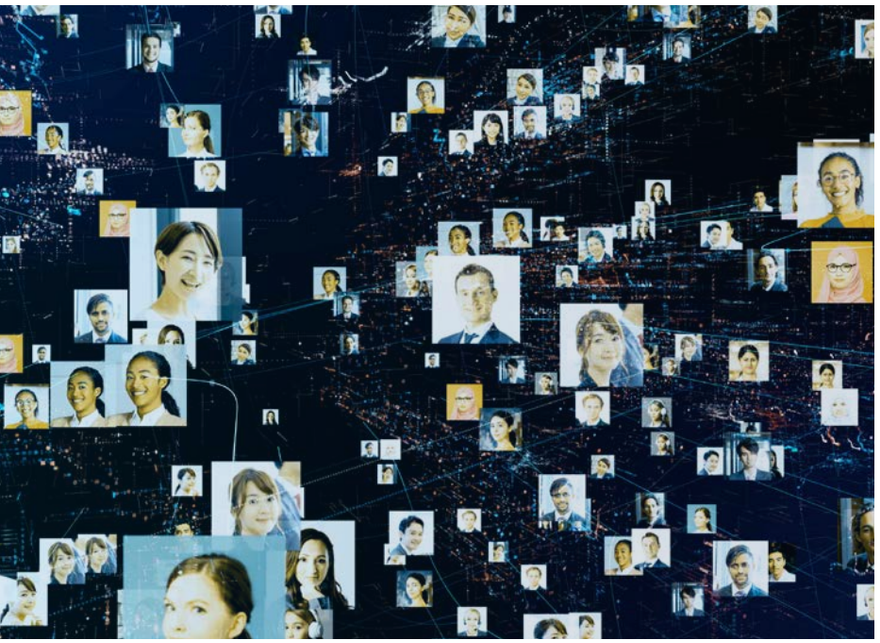


Introduction

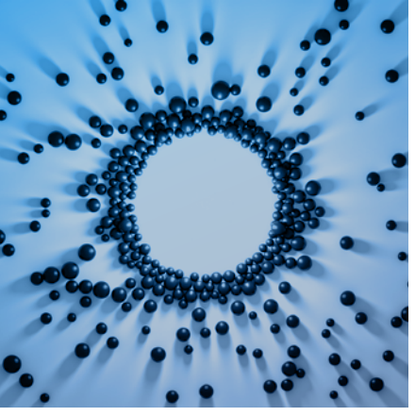
Culture is a hard thing to pin down. It's the unwritten words and assumptions that govern how people think, act, and respond. Most organizations want to create a culture of analytics but have no idea what it looks like or how to begin. This eBook describes 12 characteristics of an analytics culture. Although not a comprehensive list, the characteristics can serve as a guide for data leaders who want to foster a culture of analytics in their organization.

> **Chapter 1: Twelve Characteristics of an Analytics Culture.** This chapter provides an overview of the 12 characteristics of an analytics culture. It also describes why some organizations might have an advantage in creating an analytics culture and how others can catch up.

> **Chapter 2: Top-Down and Bottom-Up Traits.** This chapter dives into the first two categories of cultural characteristics, focusing on executive leadership and business user empowerment. Executives need to "walk the talk" and workers need self-service tools and the training and processes to use them properly.

> **Chapter 3: Sideways-In Traits.** This chapter focuses on two more categories of cultural characteristics, manifested by departments and the data team. An analytics culture exists when departments align around common data standards, and the data team fosters self-service analytics through coaching, training, and best practices.

An analytics culture is not built overnight; it's a journey that takes many years and concerted effort. In that regard, it's no different than building the data infrastructure and architecture that gathers the lion's share of attention in our industry. However, without attention to the softer side of technology implementations, those initiatives will likely never reach their full potential.



Chapter 1: Twelve Characteristics

This chapter introduces 12 characteristics of an analytics culture and describes factors that give some organizations an advantage and how others can catch up.

The analytics culture in many companies resembles the Wild West—everyone relies on their own data and resources and distrusts everyone else's. Spreadmarts and data silos abound—spreadsheets become data management and planning systems without adequate governance and controls. These organizations spend more time arguing about data than acting on it, as data analysts and engineers spend long hours patching together fragmented and inconsistent data and fulfilling an endless number of trouble tickets.

Data-driven organizations, in contrast, live and breathe data. Users trust data and take an active role in governing it. Executives use standard metrics and reports when making decisions. Analysts generate valuable insights because they spend more time analyzing data than finding and cleaning it. The data team is a strategic partner, not an order taker, that proactively suggesting solutions to pressing business problems. These organizations empower people with self-service tools and training and apply algorithms to optimize or automate business processes.

This report describes 12 characteristics of an analytics culture. It describes signs that each characteristic exists and symptoms when it doesn't. Most importantly, the report presents techniques that organizations can use to cross the data divide and create an analytics culture. It groups these characteristics in four categories: top-down, bottom-up, and sideways-in for departments and for the data team.

Different Starting Points

Data Pedigrees. Some companies have an advantage in creating an analytics culture because their product is fundamentally data. This certainly applies to financial firms, insurance companies, and telecommunications firms. Their core products and services (money, risk, and connectivity) are intangible, and thus represented as data. If they can't properly manage data, they aren't in business for long.

Data Accelerators. However, if your company manufactures automobiles, chemicals, or steel or produces consumer packaged goods, such as beer, toys, or computers, it's at a slight disadvantage. It often takes a few enlightened executives (or a lot of hard knocks) before the executive team recognizes the importance of data. Some enlightened executives now believe the value of data may be greater than the company's core product. Without data, they are running blind—they can't anticipate or respond quickly to competitive threats or opportunities.

Data Products. In addition, some executives now see data and analytics as a new revenue stream in itself. Data about customers and the way they interact with products and each other is a veritable gold mine. If companies can harvest that data internally, they can create better products and services and anticipate customer buying trends. If they can anonymize and aggregate that data, they can sell it to third parties and industry players and generate cold, hard cash.

Twelve Characteristics

Many ingredients go into creating a culture of analytics. The overarching culture of the organization is huge. Does the company encourage new ideas? Does it reward innovation? Does it unify business units and departments while giving them sufficient autonomy? Does it have an open culture where groups share information and ideas?

These factors influence how quickly an organization creates a culture of analytics. Without these factors, it is hard to get traction for data and analytics; but having them accelerates the formation of an effective analytics program and culture.

A data leader with broad operational responsibilities sits at the intersection of an analytics culture. A data leader can use the 12 characteristics as an action-oriented roadmap for building the necessary capabilities and relationships to create a data-driven organization. (See figure 1.)

Figure 1. Twelve Traits of an Analytics Culture

TOP-DOWN APPROACH
(Executives)

> **Commitment.** The CEO has issued a mandate to treat data as a corporate asset and top executives invest time and money to build the data team, infrastructure, and processes.

> **Example.** Top executives use standard KPIs and certified reports when making decisions, and they avoid using spreadmarts.

> **Decisions.** Executives know the best decisions happen when data and experience align. They use data to validate their intuition and intuition to validate the data.

BOTTOM-UP APPROACH
(Business Users)

> **Data Stewardship.** Business users trust the data and take an active role in governing it. Data owners and stewards work closely with data teams to ensure the data is high-quality and consistent.

> **Data Empowerment.** Business users generate insights on their own, using self-service tools and well-defined governance processes to ensure data alignment.

> **Data Literacy.** The organization fosters data and analytics knowledge through a curriculum of courses, certification programs, coaching, and mentoring.

SIDEWAYS-IN APPROACH
(Business Units)

> **Council.** The organization maintains an active Analytics Council that serves as a board of directors for all data analytics resources and activities in the enterprise.

> **Governance.** In conjunction with the data team, the council takes an active role in governing reports and data (e.g., metrics, dimensions, master data).

> **Collaboration.** Departments readily share data while business users share tips, tricks, and reusable code through meetups, online forums, and a shared repository of work.

SIDEWAYS-IN
(Data Team)

> **Center of Excellence.** The data team creates a federated center of excellence to align departmental and corporate resources and foster strategic technology partnerships.

> **Data Platform**. The data team runs a data management platform that manages shared enterprise data and offers tailored views for each department and use case.

> **Data Agility.** The data team uses agile techniques, DataOps, and cross-functional teams to build solutions quickly that deliver real business value.

There are other characteristics of an analytics culture, in fact many more. But those listed here are some of the most important and largely actionable.

For an in-depth look at all the factors required to generate a culture of analytics, consider having your data team take Eckerson Group's Success Signals assessment, which presents **144 best practices statements** for data teams to evaluate. The abridged version is 30 questions and takes 12 minutes to complete.

Chapter 2: Top-Down and Bottom-Up Characteristics

This chapter explores how executives create a culture of analytics through their words and actions and how that culture empowers business users and fosters governance and literacy.

How do you know when your organization has an analytics culture? The previous chapter described 12 characteristics of an analytics culture and grouped them in four categories: top-down, bottom-up, and sideways in (for departments and for the data team). (See figure 1 in Chapter 1.)

This chapter focuses on top-down and bottom-up traits. Top-down refers to the words and actions of top executives, while bottom-up focuses on how business users use information to do their jobs. These employees are both power users, such as data analysts and scientists, and casual users, such as data consumers and explorers. (See "How to Succeed with Self-Service Analytics, Part II: Know Thy Customer.")

Top-Down Traits

Executives set the tone and cadence for an organization. What they say and do trickles down and influences the attitudes and behavior of every worker. Employees take their cues from top executives, both in good faith to support the corporate mission and to secure their positions and livelihood. No one wants to "step out of line" and alienate a boss or executive who has the power to eliminate their job.

Data and analytics are not easy. Going from intuition- to data-driven decisions requires time, talent, and investment. Most importantly, it requires people to change the way they work. Such upheaval doesn't happen without strong executive leadership and support.

Executives who use standard data and reports to make decisions create a ripple effect throughout an organization.

EXECUTIVE COMMITMENT

So, the first and most important indicator of an analytics culture is executive commitment to data. In organizations with analytics cultures, top executives understand the importance of data and ensure their organizations manage it carefully. This commitment is usually manifested in the form of an "executive mandate," ideally issued by the CEO.

When the CEO writes a memo to employees about the importance of managing data assets or insists on a common set of metrics for measuring company performance, things change immediately. Grassroots initiatives around data quality, data governance, performance management, and master data management that once struggled to gain traction begin to receive extra attention and funding. Business unit managers that resist centralization or standardization efforts fall in line and take an active part in alignment activities.

EXECUTIVE EXAMPLE

But words only go so far. What an executive does has a far greater impact than what he or she says. Every parent knows that children follow their example more than heed their words. The same is true for organizations. An executive who issues a mandate for standard data and reports but then uses an ungoverned spreadsheet (i.e., spreadmarts) to make decisions sends a loud and clear signal to employees that it's ok to create data silos and resist enterprise initiatives to standardize, consolidate, and govern data.

Conversely, executives who use standard data and reports to make decisions create a ripple effect throughout an organization. Managers who report to data-driven executives know they need to study the executive dashboard so they can answer all the questions they might be asked. The fear of embarrassment and possible rebuke forces managers to become more data-driven themselves so they can defend their plans and justify their actions. This process trickles down from managers to subordinates throughout the organization.

EXECUTIVE DECISIONS

Another factor is how executives use data to make decisions. Research shows that the best decisions balance experience and data. Executives who understand the need to use data to validate intuition and intuition to validate data create organizational habits that result in better decisions. This is why

In an analytics culture, every business user takes responsibility for governing data, not just stewards and owners.

some people now talk about "data-informed" decisions rather than "data-driven" ones. Data without historical experience filtered by humans can lead to poor decisions.

Similarly, if executives don't review dashboard and scorecard findings in operational or strategic review meetings, lower-level managers and their direct reports learn to ignore requests for performance metrics from the executive suite. They might also stop using data when making their own decisions and plans. Executives set the tone for how the entire organization uses and manages data.

Bottom-Up Traits

Another way to tell whether an organization has an analytics culture is to observe how business users view and interact with data. At data-driven organizations, business users receive the tools and training to turn data into insights and actions. They also adhere to processes for governing data.

DATA STEWARDSHIP

In an analytics culture, business users trust data and actively govern it. The organization assigns data owners and data stewards to specific data domains. Data owners are accountable for the meaning and quality of data in their domains, while data stewards check the accuracy of critical data elements in standard reports and dashboards and work with data administrators to fix errors. Data stewards also recommend changes to critical data elements and escalate issues to a data governance council.

In an analytics culture, every business user takes responsibility for governing data, not just stewards and owners. For example, business unit heads endorse the creation of standard reports that have been vetted by a governance board and carry a certification seal or watermark; data analysts hand off ad hoc reports to a development team who converts them into production reports; business users generate tickets when they see errors in reports or alert a data steward or data administrator to the issue.

DATA EMPOWERMENT

In an analytics culture, business users have self-service tools that empower them to find, query, manipulate, visualize, and share data without IT assistance. Data analysts take responsibility for building ad hoc reports and dashboards for the department. They work closely with the data team to create departmental data marts and dashboards that supply most of the

Data analysts and engineers learn how to … transform from order takers and data providers to strategic consultants and storytellers.

data departmental users need. The data team works with departments to foster self-service while spending most of its energy building and managing an enterprise repository of shared data.

Organizations with a vibrant analytics culture support many types of self-service. For example, data consumers use interactive dashboards; data explorers can modify existing reports and dashboards via a semantic layer; data analysts create custom data sets and dashboards that enable them to explore and analyze data; and data scientists model historical data using statistics, machine learning, and artificial intelligence.

DATA LITERACY

Finally, empowered users are informed users. An analytics culture has an immersive training program designed to help business users across the spectrum better interpret and harvest data. The training programs teach business users how to use data and analytics tools, interpret corporate data, and take appropriate action. They also teach data analysts and engineers how to work with business users, transforming them from order takers and data providers to strategic consultants and storytellers.

Analytics cultures also promote informal training channels. Most foster a community of interest (CoI) among data analysts who meet regularly, in person and online, to share tips, tricks, and techniques. Data scientists mentor newcomers to the team and work collaboratively to solve problems. The data team holds office hours and labs to help power users sort out technical issues. In turn, power users provide ad hoc training and coaching to casual users who need help using self-service tools. Finally, users can call a data analytics help desk to troubleshoot problems and get help.

Summary. You can recognize an analytics culture first and foremost by observing the behavior of top executives. In a strong analytics culture, top executives make public commitments to advance data and analytics, set an example by using standard reports, and balance data and intuition when making decisions. In addition, these organizations train employees how to use data analytics tools, interpret data, gather requirements, and take actions. They also establish governance processes and roles so business users take an active role in governing data.

Chapter 3: Sideways-In Characteristics

A key signal of an analytics culture is whether departments align around common data standards and the data team fosters self-service analytics.

A data analytics culture is hard to pin down, and even harder to create. It's all about fostering the right attitudes and actions, things that are hard to teach but surprisingly easy to learn. Culture, after all, is the unwritten rules of how things get done. Humans excel at absorbing those rules, often subconsciously, until they become habitual ways of thinking and doing.

As we saw in the previous chapter, executives set the example for the organization. What they do—more than what they say—trickles down to the rest of the organization, influencing attitudes and behaviors. With the right culture and training, business users are empowered to govern data, generate insights, and take smart actions.

This chapter focuses on characteristics exhibited at the departmental level that are sure signs of an analytics culture. These "sideways-in" traits are divided between cross-functional initiatives and the activities of one department that has a huge impact on the analytics culture: the enterprise data team.

Departmental Traits

Departments are both the first and last places where an analytics culture takes root. Some departments, such as finance, sales, and operations, are very data-driven, while human resources, operations, and legal may lag behind, seeing no compelling need to analyze data. In organizations with a healthy analytics culture, almost every department actively participates in data-related initiatives.

Organizations with a strong analytics culture have an active data governance program supported by volunteers throughout the organization.

ANALYTICS COUNCIL

One sign of an analytics culture is the existence of an analytics council. This is a cross-functional committee of representatives from every business unit and department that consumes data. The council functions like a board of directors, overseeing the data analytics program for the organization. It reviews the data strategy created by the data team and approves budgets and funding. It also reviews and refines standards, policies, and initiatives that guide the implementation of an enterprise data strategy.

The council consists of a working committee, which is the workhorse of the council. This committee works closely with the data team to identify and prioritize projects, define tool standards, govern reports and data, train and support business users, and market the data program internally. There is also an executive committee comprised of senior executives who approve the strategy and funding and resolve any conflicts escalated by the working committee.

An analytics council ensures that data analytics is not siloed in one or two areas, but functions as an enterprise program. By its very nature, the council requires its members to adopt an enterprise view of data analytics rather than a parochial one. By meeting regularly, members learn that it's more efficient and effective to join forces than build data silos.

GOVERNANCE

A major responsibility of the analytics council is to manage risk and generally avoid bad things from happening with data. This includes breaches of data security and privacy; lack of data quality and consistency that erodes business confidence in data; and lack of standards for key metrics and data elements. To do this, organizations with a strong analytics culture create an enterprise data governance program to govern important data assets in operational and analytic systems throughout the organization.

A data governance program defines standards for key data elements. It creates precise, unambiguous definitions of these data elements and documents them in a business glossary. It also defines policies and procedures to create and update those definitions, track data quality, detect problems, and resolve conflicts. The program also assigns owners and stewards to critical data elements

A hallmark of an analytics culture is when people feel free to share information with each other and across departmental boundaries.

to ensure the accuracy and security of data elements under their purview and escalate problems to the appropriate committees.

Data governance is not sexy—it's arduous, time-consuming committee work. But organizations with a strong analytics culture have an active data governance program supported by volunteers throughout the organization and one or more full-time program managers who embrace these tasks with gusto, knowing the downsides if they don't.

COLLABORATION

Another hallmark of an analytics culture is when people feel free to share information with each other and across departmental boundaries. Collaboration is the inverse of data hoarding, a phenomenon that afflicts organizations that are riddled with data silos. Ironically, data sharing requires strong data governance to ensure that people can't access data they aren't authorized to see. Without strong governance, people lack the confidence to collaborate and share data safely.

Collaboration also involves connecting data analysts distributed throughout the enterprise. An online collaboration tool enables data analysts to share code and reuse workflows, making them more efficient. Communities of interest (CoI) enable analysts to meet monthly in person or virtually to share tips, tricks, and techniques. The CoI may also schedule periodic events, such as hackathons or internal trade shows, so data analysts can hone and demonstrate their skills.

Enterprise Data Team

Finally, an analytics culture is characterized by an enterprise data team that balances data access and data governance. The data team needs to foster self-service and data sharing, and at the same time maintain strict data access and security controls, high degrees of data quality and consistency, and strong systems reliability, availability, and scalability. It's not an easy role!

CENTER OF EXCELLENCE

In an analytics culture, the enterprise data team creates a center of excellence that disseminates knowledge, standards, and best

Another sign of an analytics culture is that business leaders are eager to partner with the data team.

practices to the rest of the organization. A primary channel for disseminating knowledge is through an analytics council, described above. The data team, in conjunction with the council, manages efficient project intake and prioritization processes to ensure rapid delivery of new functionality to the business. It also supports governance processes that certify and operationalize new insights to ensure the delivery of trustworthy data.

Enterprise data teams coach, mentor, manage, and support data analysts and scientists and align them with departments, using either a centralized or embedded model or a hybrid. First, they teach data analysts and engineers how to interact with business users. Rather than take orders by asking "What do you need?", data professionals learn how to work in a consultative fashion, asking "What are you trying to accomplish?" with myriad follow-up questions to get to the root of the request. They also teach analysts how to present results to business professionals in a compelling way so business users understand and adopt the results.

Some data teams go a step further and take an active role in hiring, training, and managing data analysts, including embedded analysts. This ensures the departments hire the right data analyst for the job and can help that analyst succeed in the new role. The data team also defines a career path for data analysts that will develop their technical skills and rotates them through different parts of the company to give them a broad understanding of business domains. They also give department heads and aligned analysts long-term goals to achieve to improve the generation of insights, such as creating a departmental data mart and dashboard. These types of programs prevent analysts (and their data) from becoming siloed, increasing retention and quality output.

DATA PLATFORM

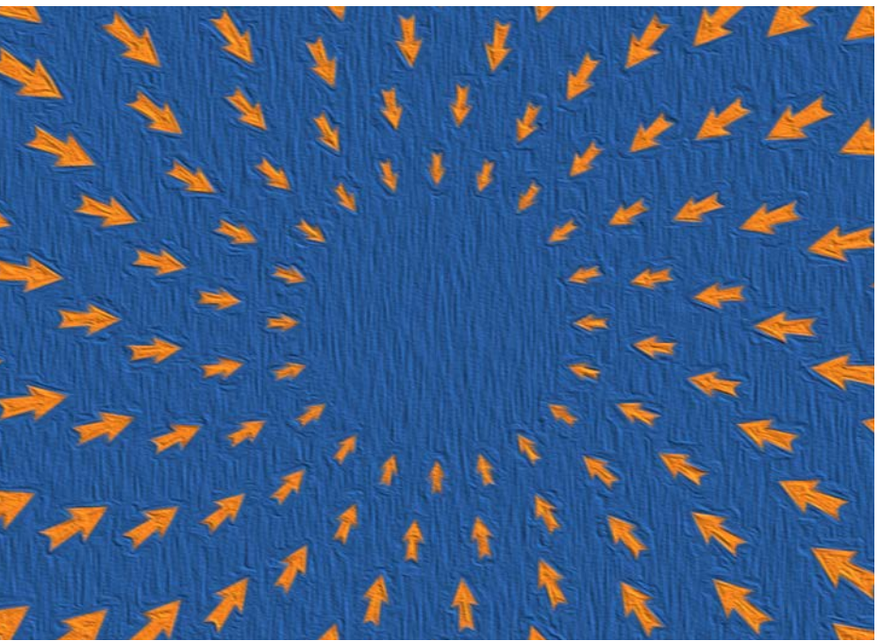
You can also judge an analytics culture by the organization's data platform. Does the platform run on technology from the previous decade? Or has it been continuously updated to leverage the latest technologies that improve scalability, flexibility, and reliability? Today, that means the platform runs in the cloud and provides on-demand scaling with pay-as-you-go pricing. This metamorphosis

requires a data team that continually seeks to refresh its skills and provide the best service possible to customers and executives willing to invest in data infrastructure.

DATA AGILITY

Another sign of an analytics culture is that business leaders are eager to partner with the data team. That's because the data team delivers valuable business solutions quickly. It uses agile development practices to work iteratively with business stakeholders and applies DataOps techniques to cut cycle times, data defects, and costs. It leverages cross-functional, cross-trained SWAT-like teams to accelerate project delivery. And it continuously seeks ways to improve its processes and services, adopting the mantra of continuous improvement. Its goal is to build solutions faster, better, and cheaper.

When enterprise data teams work in an agile fashion, business executives and managers begin to view the data team as strategic partners rather than bottlenecks to circumvent or avoid. In the early stages, the enterprise data team may need to break fundamental rules of architecture, such as creating a data silo, to generate a quick win. Once the business jumps on board and the data team gains credibility as a trusted partner, it can gain allowances to build its architecture, infrastructure, and processes to support end-to-end agility. This takes time but requires good faith from the business built on a succession of big and small wins.



Conclusion

An analytics culture is defined by the attitudes and actions of employees. That makes it hard to create and measure. It's like trying to pin Jell-O to a wall. Nonetheless, we believe there are 12 characteristics that correlate with analytics culture.

Some characteristics reflect executive attitudes and actions, while others are seen in the tools and training given to business users. Others correlate with cross-functional committees and initiatives, while the remainder are defined by how well the enterprise data team aligns with business departments and balances data access and control in the data repositories it builds and manages.

Creating an analytics culture is a journey. There are few shortcuts and no silver bullets. Organizations need patience and commitment to see positive results. More specifically, it takes executive commitment, well defined processes, a talented and well-funded data team, and cross-functional teams and initiatives to stitch together data silos into an enterprise data fabric.

The 12 characteristics presented in this report serve as guideposts to help data leaders and business executives understand if they are making progress in the right direction.

About Eckerson Group

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

Today, 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 on data and analytics. Our experts specialize in data governance, self-service analytics, data architecture, data science, data management, and business intelligence. Besides research and consulting services, Eckerson Group offers the Industry Data Benchmarks service and the Rate My Data benchmarking platform.

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

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