

› White Paper



# Five Steps to Analytical Maturity

A Guide for Pharma Commercial Operations

▶ Prepared by PharmaVOICE with support from SAS

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## A Story of Data

Data and its use to produce insights has become a principal priority for the life sciences industry. Yet using analytics to drive efficiency has been problematic for many companies as they struggle with how to create an insights-based culture and improve processes for managing their data. The need for better data insights is relatively new for the industry. In the past, profit margins for pharmaceutical products were significant, but increased competition, loss of patents on many blockbusters and the fact that the low-hanging fruit (compounds that were easiest to develop) has been picked, has left companies with thinner margins. This is forcing companies to gather better insights through analytics in order to make business decisions.

To compete, companies must embark on a journey toward analytical maturity. That means developing analytical capabilities to enable the organization's decision makers to examine fact-based insights. While the results from analytics are not the only considerations for decision makers, they can be the primary components to making well-informed decisions. Organizations that incorporate analytical insights are in a better position to allocate budgets to the most valuable investments. For example, an organization using analytics to its commercial advantage will spend less on promotions to achieve the same result. Savings can be directly translated to the bottom line or reinvested to improve the top line.

The combination of physician prescribing, patient level and CRM data can build a solid foundation for big data in life sciences. But for this information to be useful, it needs to be mined for insights. One example is finding out which physicians are high-value and responsive to a company's various promotions. The big data agenda requires companies to rethink the way they currently manage information and what types of analytics they can use.

To get started, you need to ask a series of questions; for example, what data do you have and what other data could be available to deliver better answers? How should you modernize your analytic infrastructure to deliver fast answers that allow scenario simulation? What types of analytics do you need - predictive modeling, optimization and/or demand forecasting? And, how do you drive the required behavioral change throughout the organization? This paper addresses these questions by outlining the analytical journey and the five steps to achieve analytical maturity.

"The big data promise will become a reality through the application of data and related analytics across the full value chain of drug promotion. This wave will impact everything from enabling hypertargeted patient selection for trials to having iterative drug discovery pipelines automate the selection and testing of early stage compounds."

President of an Information  
Services Company

What stage are you in the journey to analytical maturity, and do you have a plan of action to achieve those higher levels of analytical maturity?

## Taking the First Step to Analytical Enlightenment

On the journey toward analytical enlightenment, executives must first begin by doing an assessment of the organization to determine an action plan. Identify a key stakeholder to conduct internal benchmarking around existing capabilities and, crucially, think about who needs to be involved. Obviously, the analytics or operations teams and IT need to be involved. But in addition, the marketing and selling organizations have to take ownership of the content and the information in order to do analysis and be supportive of using analytics to make decisions.

You can improve adoption by having top-down messaging to kick-start initiatives. The extent to which executives emphasize the need to deliver on those initiatives, in some cases even directly addressing the need for analytics, helps to underscore the importance of analytics.

It's also important to remember that analytical enlightenment is not about the data or analytics per se, but rather how those insights are used to drive the business where it needs to go and allow business leaders to make smart investment decisions. Companies need to be prepared to put in the time and expense over multiple years for continual improvement and enhancement of analytic capabilities for insightful and trustworthy results.

## Five Steps to Analytical Maturity

The journey to organizational maturity can be approached through five steps, outlined below.

### 1. Know what you're looking to achieve.

Take a step back and think about the business issues your organization is trying to solve. Ensure the project is small enough

to be manageable, because the scope of a project will be critical to managing time and resources. Having a well-crafted analytics plan with clear goals makes it easier to:

- Craft a promotion.
- Understand the message to deliver.
- Know what components need to be included.
- Identify what the competition is doing.

Invest in data sets that provide the foundation necessary to accurately answer the questions you need answered. While it might be interesting to get data showing that doctor A clicked on a website more frequently than doctor B, if that isn't going to factor into key decision making, then there's no point investing the time and money to uncover this metric.

Understand that it takes discipline to ask what the agenda of the analytical organization is. What do we want them to be able to tell us? Equally, it's important to identify the stakeholders: Who will be affected by the initiative and who are the potential saboteurs? Use analytics to support decision making, not to replace anecdotal information and intuition.

### 2. Commit resources and encourage ownership.

Resources have become more constrained in the industry, making executive buy-in and the ability to tie the project back to the broader business vision critical. Establish a commitment to quality data. While analytics teams may conduct data extrapolation and analysis, unless the owners of the data provide good quality data and ensure it can be accessed, the analysis will be stymied. So, for example, if the marketing team has held a program with a group of doctors, it's important to ensure that list of doctors is readily accessible within the central data repository.

The issue of ensuring that data gets captured properly is a huge problem within the industry, but IT and analytics teams can help by being very specific about what needs to be in the repository. When it comes to data generated through an outsourcing partner, companies need to think about who controls the data and where it resides. The danger is that without due consideration, a company can lose control of its data and insights. One way to manage this issue is to ensure procurement writes into contracts that vendors are required to return the data.

### 3. Communicate regularly and in a structured way.

Communication has to be formalized, with regularly scheduled meetings to discuss where the organization is in the implementation process, where the potential or existing barriers

are, and how those are to be overcome. Companies may also want to consider other methods of communicating updates and process enhancements, including shared portal sites, training and education, and newsletters. Ad hoc communication creates uncertainty.

The next question is who should be communicating with whom and when? The earlier in development that the R&D and commercial sides of the business begin communicating with one another, the better. For example, communication helps R&D to determine priorities and how much need there is in the marketplace for a new compound in a particular therapeutic indication; it gives the commercial side of the business time to develop a commercialization strategy that is more likely to resonate in the market. Conversely, good communication also enables the commercial side of the business to inform R&D if, for example, it would be valuable to have another compound in a particular indication to enable more efficient use of resources, or which therapeutic categories the organization is developing a capability in. It is often advisable to have a data steward at the table to help negotiate and manage the conversations around the data. Data stewards also help mediate the relationship between business and IT.

#### 4. Invest in analytics for the long term in a disciplined way.

Turnover within departments and teams is generally high, which can mean while analytics was a priority for one set of team leaders, others might value analytics less. Without organizational discipline around analytics, it's difficult to achieve one version of the truth, and data can be twisted to make a situation look better than it is. Unless companies take a disciplined approach, there is a risk of data paralysis with analytics teams spending their time spinning data and creating numerous reports, all repeating the same thing and each having to be reconciled and digested by decision makers. It's important, therefore, to balance an analytics team with data science people alongside those with line experience, such as former district managers. In so doing, it not only creates a team with experience in analytics, but also one that can determine what insights are useful versus simply a point of interest.

Technology has made it easier to understand what analytics can do for an organization, but it's important to realize technology won't solve the larger business issues; it's the supporting piece - not the resolving piece. What technology can do is make it possible for business users to access data and implement and interpret the insights that analytics enables, and not just rely on data scientists or programmers to do this for them. This vastly increases the pervasiveness and power of analytics.

"Data is the foundation upon which the value-adding analytics are built. Effective end-to-end data integration establishes an authoritative source for all pieces of information and accurately links disparate data regardless of the source - be it internal or external, proprietary, or publicly available."

Research Analyst

An analytically mature company invests time in data management to ensure the integrity and quality of the data, but there also needs to be governance around how data is used and disseminated and shared across an organization. It's important to determine where the analytical applications are to be stored and provide stakeholders with the training and background to learn about analytics and perform analytics in a shared environment and space that is monitored and controlled.

#### 5. Develop the capabilities to do predictive analytics.

Predictive analytics is the branch of data mining used to predict future probabilities and/or trends. One or more predictors is observed among subjects in past outcomes, and then applied to future subjects to predict their responses.

Predictive analytics can help companies determine where they should be investing dollars, saving time and money. For example, if a marketing team runs a campaign against a broad audience, without the benefit of predictive analytics, it will cost more and achieve generally the same result as running the campaign against those who are predicted to have a higher probability of responding.

It's important to have a more mathematically rigorous way to predict future probabilities and trends. The US Affordable Care

Act and the emergence of Accountable Care Organizations (ACOs) have made the industry increasingly aware of the importance of outcomes-based research, which requires more post-marketing studies and rigor around predictive analysis. Economic changes have driven other considerations. For example, people have become more transitory, which impacts the distribution of the patient population. In response, some companies are:

- Gathering geospatial analysis.
- Looking at how diseases are distributed.
- Trying to understand how disease patterns change from one year to another.
- Finding what those patterns look like as patients move from one situation to another.
- Understanding how these changes affect cost and management of different facilities.

These trends mean companies need to be able to gather large numbers of potential predictor variables and test them against past responses. They can then build out models that are often mathematically complex. These coefficients drive the predictions of future responses. In order to conduct rigorous predictive analytics, companies need both the skills base and the tools, including systems for integrating data sets from across the organization, data mining tools for extrapolating useful data and data visualization tools to provide insights that might otherwise be hard to extrapolate.

## Applying a Change Management Approach to Analytics

Once you know the core set of steps and activities, change management strategies can be modified and applied to any initiative. From the beginning, you will need executive buy-in. Top-down messaging from company executives is going to be what kick-starts the adoption and sustained use of analytics. One way to achieve that buy-in is by tying the specific business issue back to the vision of the business and to clearly defined metrics.

Connecting the dots between the business goal and required data can be challenging. Data stewards can serve as the connecting point because they are knowledgeable about both business and IT, accountable for the data and responsible for developing and enforcing data standards. They promote the standard use of data through common processes and definitions, which are very important in the analytics process.

Organizations that are honest about their strengths and limitations can better anticipate and overcome obstacles. It's crucial to bring cross-functional teams together to discuss common concerns as they relate to the current initiative

and reach out to different stakeholders. It's also important to consider the type and frequency of communication that will be necessary going forward – and not just with stakeholders but other employees.

Establishing success metrics for the initiative is paramount; never be afraid to reevaluate and shift course. How did the initiative stack up to the success metrics? What worked? What didn't work? In what ways would you redefine the road map or delivery model for the next initiative?

**Step 1: Plan** – Establish key business issues and identify a small controlled project.

**Step 2: Analyze** – Determine communication strategy; assess cultural challenges and constraints; determine success metrics.

**Step 3: Enable** – Define ongoing rules of engagement; prepare communication of value.

**Step 4: Measure** – Monitor, evaluate and report out.

Level of Maturity	Culture: Decision Makers Use of Data and Analysis	Internal Process Readiness	Analytical Capabilities	Data Environment: Infrastructure and Software
Level V	<b>Explorative:</b> Decision makers search for new ways to use advanced analytics to support business decisions.	<b>Enhanced:</b> Continually refining processes around data enhancement and analytic methods to optimize resources.	<b>Optimized:</b> Commitment to innovative analytic use for future growth and draws on advanced analytics and advances in new techniques.	<b>Championed:</b> Continuous improvement/learning to support the most difficult business challenges.
Level IV	<b>Empowered:</b> Decision makers leverage analytics across the organization to support business decisions.	<b>Optimized:</b> Widely deployed data processes support specific business insights.	<b>Assertive:</b> Management supports analytics to bring business units into alignment; analytics talent centralized; best practices shared.	<b>Quantitatively Managed:</b> Projects aligned to strategy; documented best practices; smoothly running advanced features and functions.
Level III	<b>Analytically Astute:</b> Decision makers adopt analytics for all decisions, including key investments and resource allocation.	<b>Implemented:</b> Common data management processes in place and use of data sets and analytics established for decision making.	<b>Open:</b> Good intentions, but slow to change; analytics development is constrained, yet departments have own experts/plans.	<b>Defined:</b> Clear project life cycles and processes; strong and flexible data environment; infrastructure and software indexed and retrievable; desire for new features.
Level II	<b>Analytically Aware:</b> Decision makers recognize benefits of analytics to support decision making but don't leverage analytics consistently.	<b>Siloed:</b> Development of department-level processes for data procurement, management and analytics.	<b>Aware:</b> Full benefits of analytics poorly understood, siloed and ad hoc activities, yet reasonable results.	<b>Managed:</b> Project-driven, often reactive; no best-in-class sharing; completeness unknown.
Level I	<b>Analytically Unaware:</b> Decision makers rely on perceptions, historical decisions and non-validated beliefs.	<b>Void:</b> No defined data management or analytic processes to support insight development or business decisions.	<b>Basic:</b> Lack of analytical skills or executive interest; poorly organized, reactive; considers historical reporting to be analytics.	<b>Basic:</b> Some projects have defined scope and objectives; inconsistency and duplication of software.

Table 1: Analytic Maturity Scorecard: Each part of the organization must determine where it is and where it aspires to be. Perhaps Level V may not be the goal for every team on every measurement.

## Closing Thoughts

Lack of quality data can be a major hindrance to the success of an analytics program. Pharma is one of the only industries that has nearly perfect data, by customer, for its own products and its competitors. This information can be sliced and diced with little skill through a variety of tools. In many cases, data is the foundation, and sometimes the only information found in an organization's reporting. The tendency to overuse this data has inhibited the collection and use of other forms of information.

For example, the same basic market share data can appear on dozens of reports. Reporting of basic measures takes organizational time and bandwidth and should be automated. Instead, companies need to invest time capturing or acquiring new data that will offer additional insights. There is an ever-expanding number of data sets being offered to pharma companies; buying and incorporating all of these assets is also an organizational quagmire. Companies investing in those data sets will find help in answering critical business questions.

A successful analytics outcome in a mature organization will result from having a clear sense of what the organization is trying to accomplish, knowing what the goals and metrics are, and devoting time for training, education and communication. An analytically mature organization has a formalized communication plan and is willing to go back and evaluate and report on those results.

An analytically mature company gives clear thought to how analytics tools and plans will shape its growth pattern. Companies need to invest in processes to make sure that data is driving decision making, that the information is of the quality that it should be, and that it is being shared in a way that's beneficial to everyone.

There has been much research published on the role that analytics can play in increasing organizations' productivity. Some research, for example, has shown that even a small deviation toward data and analytics is linked to productivity gains of 5 to 6 percent. For the life sciences industry, these gains can be captured in many areas, such as increasing the capabilities in customer segmentation, global pricing decisions and inventory management. Therefore, the call to move from a "gut feel" decision-making culture to a data and analytics fact-based, data-driven decision-making culture is not only an important step to increase efficiency but also to improve the bottom line. It is also a step that requires discipline, a clear plan and a willingness to adopt a considered change management approach to data and data analytics.

The move from a 'gut feel' decision-making culture to a culture that is data-driven and therefore fact-based – due to insights gained from data and analytics – is an important step to increase efficiency and bottom-line considerations.

## About SAS and Health Analytics

SAS is the industry leader in health analytics software and services, delivering best-in-class solutions for improving medical care, strengthening financial performance, deepening customer relationships and pursuing medical innovations. For more than three decades, SAS has been the trusted industry standard for clinical trial data analysis and reporting in the life sciences industry.

SAS makes business insight accessible to sales and marketing leaders without requiring deep statistical or technical knowledge. SAS gives nontechnical users access to the right data, the tools to get answers to more sophisticated questions and the ability to format presentation-quality results to draw and share conclusions. SAS also delivers the industry's widest portfolio of analytics, algorithms, mathematical data manipulation and modeling capabilities.

To find out more about how SAS analytics can improve commercialization activities for your organization, read more at [sas.com/lifesciences](https://sas.com/lifesciences).

Small and midsize organizations face many of the same business challenges as their larger counterparts. Learn more about SAS solutions for small and midsize companies by visiting [sas.com/smb](https://sas.com/smb).

## About PharmaVOICE

PharmaVOICE provides readers with insightful and thought-provoking commentary in a multiple-perspective format through forums, topics and articles covering a range of issues from molecule through market. PharmaVOICE subscribers are also kept abreast of the latest trends and information through additional media resources, including WebLinx interactive Web seminars, podcasts, videocasts, white papers, e-surveys and e-alerts. Additionally, PharmaVOICEMarketplace.com provides a comprehensive directory of products, services and solutions for the life sciences industry.

To access relevant and trending industry content, visit [pharmavoices.com](http://pharmavoices.com).

To contact your local SAS office, please visit: [sas.com/offices](http://sas.com/offices)

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