Devising a High-Impact Data Strategy:

ACHIEVE A DATA-DRIVEN CULTURE THROUGH INCREASED BUSINESS MATURITY

BY JEFF KANEL

Today's business leaders know data is important to their company. Naturally, they want a sound strategy that allows them to grow maturity with data. Unfortunately, data strategies rarely achieve their objectives. Often, this is because they focus their objectives solely on technology. More frequently still, they focus their strategy on maturing the IT organization while excluding the business organization.

This white paper will answer three fundamental questions about building a high-impact data strategy:

- Where is your data strategy falling short?
- How should you change your data strategy objectives to better frame your strategy?
- What should you expect to see in a successful data strategy?

INTRODUCTION

Earlier this year, I sat down with the CIO of a Fortune 1000 company. We talked about his vision for how data would transform the enterprise and how they immediately came up against a wall of thorns. He lamented that despite spending over $1 million on analytics the prior year, they had very little to show.

The business organization simply did not trust the reports and often repeated its mantra that "the data was bad." Business leaders treated IT as a transactional service provider, and their business employees would not engage with the data team beyond sending their report requests. Automation? "Forget that!" he said. They are not mature enough with the basics to even contemplate artificial intelligence.

When I suggested he consider investing in a data strategy, he responded they had previously done so with little success. They made the recommended investments in data governance, data warehousing and business intelligence, but the old problems persisted. The data strategy had, from his perspective, failed.

Every year, some version of this conversation occurs in most large organizations. Accountability often falls to IT and with good reason. However, organizations need to broaden their view of accountability to include business operations.

The greater a company's ability to convert data insight to business outcomes, the more benefits they produce, and the faster the company will produce them. Creating greater ROI from data strategy is simple: instead of focusing on data solutions, focus on business outcomes.

As the beneficiaries of the data inheritance, it is incumbent that employees participate in making data effective. This need eclipses requests for reports and data extracts.

Let's discuss where data strategies break down and how we can get them on track.

WHERE DATA STRATEGY FALLS SHORT

Data strategy is necessary and important: it guides technology investment and execution and defines an organizational structure. Executives often believe a data strategy will help fill data insight gaps by virtue of good execution within IT. Experience has shown this approach falls short.

You may recognize several common data strategy initiatives below:

- Introducing a new analysis tool
- Collecting data in a lake
- Building a data warehouse
- Mastering the data
- Forming a data governance committee
- Starting a data science group.

We will take a closer look at each of these plans to evaluate potential pitfalls.

❯ Introducing New Analysis Tools

Visualization tools can generally perform one of three functions: reporting, visualization and discovery. While some products on the market may perform double duty, few products natively perform all three.

Background of Analysis Tools

Most organizations grew accustomed to data reporting between 1990-2010. Reporting tools include IBM Cognos, Microsoft Reporting Services, SAP Business Objects and Crystal Reports. These are successful at producing multipage reports with complex layouts. These tools excelled at displaying data tables but were not built to support meaningful data visualizations. In the modern world of data, reporting is often considered an anachronism. Consumers expect a more interactive experience with their data.

In 2010, we saw the emergence of Tableau, a premiere visualization tool. Tableau changed our understanding of what we could achieve with data, and it held a growth position in the market for the next 5 to 7 years. QlikView emerged as a competitor, followed by Microsoft Power BI. Unlike their predecessors, these visualization tools provided a new experience, allowing end users to explore, filter and drill into visualizations rapidly. Business users finally began to feel some independence from IT.

Discovery tools entered the market in the mid-2010s. They pushed visualization and analysis capability fully out of IT and into the hands of business users while providing a friendly interface for importing data and applying stepwise transformations. From there, it was possible to slice and dice your data in a myriad of ways, unencumbered by what an IT developer might prescribe. Many of the visualization tools listed above include discovery capabilities. Newer tools include Looker and Alteryx, which entered the market in the late-2010s.

Limitations of Analysis Tools

Occasionally, we observe organizations purchasing a new analysis tool to fix the problem of business adoption. This approach is seldom effective at increasing access to data or the adoption of business intelligence for the following reasons:

1. **A new tool cannot improve the quality of data.** While modern tools can aid in data discovery and visualization, the underlying quality of that data, especially when it is sourced from operational databases, will defy usability by business employees. Joining tables and interpreting obscure operational coding is hard to get right, even for skilled technologists.

2. **A new tool cannot create business context.** Most people struggle to analyze data to drive process improvement or strategy. This makes sense: Their jobs focus on executing an operational process to achieve a business goal, not enriching or innovating the process. This is also why business users traditionally struggle to provide good reporting requirements to IT.

3. **KPIs are difficult to produce in analysis tools.** You can produce some metrics by a summation or counting (e.g., revenue, gross margin). These are simple to implement in a tool. Many of the most important operational KPIs (e.g., customer retention, inventory balance, 30-60-90-day outstanding AR) are quite challenging to implement correctly. They require specialized skills to develop. As a result, business analysts often resort to Excel, where they can manually build step-by-step data transformations.

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*By **themselves, new analysis tools will not drive significant business intelligence adoption.***

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❯ Collecting Data in a Lake

Data lakes are composed of several operational databases copied into an environment where an analyst can blend data. Data lakes are especially attractive to people who are adept at analyzing data. You typically find these skills in IT, data science teams, finance and actuarial departments.

Combined with replication technologies, data lakes can provide a near-real-time analysis of data from across the enterprise. There is no question they are an essential component of modern data architecture. Business users – notably from operations and sales marketing – will experience a high degree of difficulty employing a data lake.

Data lakes present many challenges:

1. Operational data tables are complex. Most operational databases optimize their data structure to support an application interface. This results in obscure data structures:

- Cryptically named tables and columns
- Multiple transaction types combined into a single table
- Abstraction (e.g., use of "party" tables)
- Fields containing large amounts of data
- Code lookups and more.

2. Data characteristics morph over time. Application interfaces, business logic and data all change as the business evolves. These changes are often small, numerous and perpetual. The consequence is that the database may require a different method of querying as the user looks further back in time: table joins, column values and filter methodology continually morph. Data quality often improves with time, meaning users can perceive older data as much lower quality than more recent data.

3. Bridging data across operational databases can be complex. The value of a data lake is that you can blend data from multiple operational databases. Blending, however, requires data values from one operational database that can bridge to data values in another. At a minimum, this requires analysis to match coded values between systems. In more difficult cases, there is no way to bridge similar data between operational databases effectively.

For example, consider one system that manages sales territories at a city or county level, whereas another system manages at a postal code level. Because postal codes can cross provincial boundaries and vice versa, it will be challenging to blend data across sales territories.

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Raw operational data, and therefore data lakes, present a variety of other issues beyond the scope of our focus here. Suffice it to say, only people who are skilled at querying complex data structures, deeply understand how to interpret raw data into meaningful business concepts, and are attuned to the complexities of connecting data across systems should use data lakes.

❯❯ Building a Data Warehouse

We define a data warehouse as a centralized store where data from many sources has been cleansed, integrated and labeled to match official business definitions. People often use them as a single source of truth for reporting, visualization, data extracts and ad-hoc analysis. While data warehouses are among the most expensive investments a company will make around data, they provide tremendous benefits. Data warehouses increase the reliability of reported data and reduce the time required to answer business questions.

Technologists love data warehouses. They love making data seem easy and perfect. Indeed, data warehouses have provided careers to countless data practitioners.

There is a commonly heard bromide in data warehousing circles: "If you build it, they will come." The idea is that if IT builds a high-quality data warehouse, it will attract business stakeholders as bees to honey. They will request reports and use the warehouse themselves to answer business questions.

When it comes to data warehousing, the disastrous truth is that if you build it, they won't come. In fact, they will likely find a problem with the data and lodge complaints. Meanwhile, the data practitioners remain oblivious to the matter and will happily pile in more data daily.

This pattern repeats itself endlessly in IT departments around the world. The cause is rooted in a chain of conditions commonly seen at the outset of the data warehouse initiative:

1. Business employees aren't engaged. Users need business context for their data to be useful for analysis. Context comes from understanding how you will filter, aggregate and define metrics for your data. To build context into a data warehouse, you need the engagement and insight of front-line business stakeholders – not IT people who "know the business" but individuals who embrace the day-to-day challenges of executing a business process. Most organizations skip the step of including business stakeholders when assembling their data warehouse. Everyone is culpable: IT often does not ask, and in the rare instance they do, other users are too busy to give it their attention.

2. Data warehouses become an exercise in loading data. Data practitioners love data, and they often deeply understand data to a greater degree than those running the business. This can lead data practitioners to a generally false notion that they deeply understand business

processes represented by the data. The result is a data warehouse as a collection of well-managed data elements. It embodies the perspective of data practitioners and ignores that of businesspeople. Oblivious data practitioners continue to add more data into the data warehouse, realizing too late, that no one cares to use it.

3. People don't trust data warehouses. The two prior conditions inevitably lead to this one. Trust is the currency of data warehousing. Anyone in the data warehousing field can tell you a single instance of incorrectly reported data will destroy trust and alienate their users. An inherent problem in data warehouses: The data is quite difficult to get right. Getting it right requires a crystal clear explanation from data consumers on what makes the data right to them.

Simply loading data straight into the warehouse almost never suffices. You must apply some transformation. Further complicating the matter is users assume previously used reporting sources (typically legacy reports or Excel spreadsheets) to be accurate by default. It is largely immaterial whether these assumptions are valid. The business expects their data to match, or they require a detailed explanation for why it does not. Lack of trust is the single greatest contributor to the abandonment of data warehouses.

4. Reverting to the old ways. Business stakeholders always obtain the data necessary to run their corner of the enterprise. They may scrape report data into Excel, load Access databases or request data extracts from IT, but they get the data somehow. As painful as these methods are for analyzing data, they are well-worn and comfortable. When users begin to lose trust in the data warehouse, it is simple to revert to the old way of doing things. This easy out is a major vulnerability for new data warehouses.

The consequence is that is the primary users of data warehouses tend to abandon them. Some analysts may still use them but few others. This unfairly brings the ROI of the data warehouse into question. Fortunately, we can realize the benefits of data warehousing by addressing the challenges described above.

❯ Mastering Our Data

A "golden record" typically is a complex data structure describing a business concept (for example, customer or product). Master data management (MDM) describes a set of technologies focused on building a golden record, dynamically updating it when data changes in operational systems and then propagating it back into other critical systems.

Master data management is useful in many scenarios. For example, it can improve the quality of service delivered to customers. It is necessary for proper maintenance of inventory and regulatory compliance, and it can reduce costs and errors in marketing.

However, users often prematurely undertake MDM. While the goals are admirable, they are difficult to meet without the context of solving a business problem. For example, a customer record created without context could capture a contact name, "SMITH, ROBERT J." However, this name is not useful when using a customer's first name (non-uppercase) in a salutation, when displaying the last name on a tax form, or for updating a system that stores a non-collated version of the full name, such as "Robert J. Smith." This is a crude example but illustrates that business context is necessary to drive effective master data management.

❯ Forming a Data Governance Committee

In my experience, no one likes data governance committees. Start one, and you'll soon agree based on meeting attendance. The only people who reliably attend data governance meetings are data governance leads, who are equally reliably lonely in their meetings.

A challenge for data governance committees is meetings can feel like a fruitless exercise. For example, they get hung up on negotiating the definition of words like "customer" and "sales." Everyone attending is pretty sure these definitions are obvious, at which point they look at their watch and wonder why they bothered to show up in the first place.

The definitions of these words are much less obvious than people think. It is an accurate cliché that every department in any organization will define them differently. If the goal is to establish trust in reports and data, getting the definitions correct is inestimably important. By extension, this means data governance is also important.

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Why then is it so difficult to make that happen? The reason is that data governance often lacks business context. When two reports show a different number, the definition of sales becomes very important. It matters to the salesperson struggling to meet quota just like it matters to the plant manager forecasting production schedules.

In those moments of need, people are ready to sit down and negotiate definitions. Until that moment, negotiating such things and the meetings required for those negotiations will seem frivolous.

Starting a Data Science Group

The rationale goes something like this: if we hire a team of incredibly smart people – PhDs in statistics, for instance – and give them access to all our corporate data, something great is bound to happen. They will search through our data and find opportunities to grow markets, cut costs, run more efficiently and increase everyone's year-end bonus. This line of thinking is more common than you may think.

While many organizations assemble the right people and data infrastructure, they fail to properly position data science teams for success. Often, the data scientists themselves reject external input into their work.

When building predictive models (or any other kind of models), it is crucial to start with business context, as we've mentioned before in our other scenarios. Data scientists need to understand what problem they are trying to solve. They need to understand which levers they can pull to solve the problem. Finally, they need to run experiments in the business to determine if the levers make a significant difference in business outcomes.

You must engage your business stakeholders when defining the problem. Furthermore, they must be committed to participating in controlled experiments. Management must be committed to innovating in ways that affect real customers. This is the most effective way to prove models work.

The data scientists alone with their data can accomplish relatively little. It is only with true partnership across the business that magic will happen.

◉ Treating All Data as an Asset

We often hear we must treat data as an asset. Technologists often repeat this phrase to garner support for their data initiatives. Across the table, executives roll their eyes, wondering why technologists think data is so much more important than running the business.

If we think critically, we realize "data as an asset" is not universally true and leads to some misguided behaviors.

As we previously mentioned, data warehouses are among the most expensive data investments a company will make. Yet users don't query 60 percent or more of data elements in every data warehouse for any purpose. Should you consider those never-queried data elements as an asset? If analysts never query 75 percent of data lake elements, should we consider them an asset?

Companies don't use around 85 percent of data for any purpose beyond the functioning of operational applications. No one analyzes that data, and few people care about it – nor should they.

Indeed, we don't always know what data will be beneficial, which is why data lakes are so valuable. They offer cheap storage for all the data. But deciding which of the data should be kept vs. discarded would be a monumentally time-consuming task. It is better to keep every bit of data until its value, or lack thereof, is glaringly apparent, at which time we can dispose of it en masse.

However, storing data of dubious value does not elevate it to the status of an asset. Here is an alternative viewpoint: data that helps us measure and improve the business is an asset. If we had a way to identify this kind of data, then we could laser focus our investment on a much narrower spot.

This outlook of data strategy may at first appear dismal. Realistically, you should view the data strategy initiatives listed above as mandatory for long-term maturity with data, but they are important to do correctly.

The singular common theme observed in the downfall of data strategy initiatives: business context is missing. Business context comes from business engagement and partnership with IT.
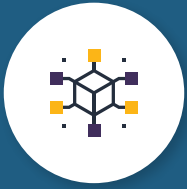
Building A Successful Data Strategy

Once you are oriented to the correct objectives, it's time to define the data strategy.

The section does not deal with IT and technology maturity. It is important to reiterate that IT topics such as data architecture, data governance and business intelligence will be essential components of a successful data strategy. These will reflect the business objectives as well as the complexity of managing data within your corporate ecosystem.

This section addresses business maturity with data. The business side of the data strategy should focus on developing business maturity in the following areas:

❯ Reimagine Business Processes

Identify business processes you could create or redesign by incorporating data insight. Artificial intelligence can be the foundation for a new process that otherwise could not exist without it.

- How could we make the process more efficient (or automated) by introducing data or AI for a given process?

- What is the approach for reviewing processes for redesign?

- How are data professionals in your organization consulted in process redesign initiatives?

Reimagine Business Processes Vignette:

The HR team recognizes that technicians are rapidly leaving the organization. HR engages an internal data science team to predict which employees are likely to leave and why. This leads them to correct systemic issues related to management and then coach individual employees before they exit.

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❯ Modernize Business Processes

Identify how you could enrich existing business processes by adding analytical insights.

- How can we enrich a given process by introducing insights or automation?

- How do we encourage business stakeholders to engage in a discussion around process improvement?

- What are management's expectations for enforcing the adoption of analytics insights?

- What is our tolerance for incorporating analytical insights into our ERP-based processes?

- Who is tasked with assessing existing processes for improvement opportunities?

❯ Manage with Accountability

Identify cases where management should hit KPI targets and hold them accountable financially. Leading metrics can be a powerful way to hold individuals responsible for week-by-week activities.

- What KPIs should our executive team focus on to ensure we meet business goals?

- What activity (vs. outcome) metrics should we monitor to ensure we meet future KPI targets?

- What are management's expectations for understanding metrics and holding their teams accountable?

- How is management financially held accountable for achieving KPI metrics?

- How can we give all employees insight into the metrics that measure their performance or their department's performance?

Modernize Business Processes Vignette

A supply chain supplies parts from a comprehensive list of manufacturers and then fulfills from the warehouse to the field technicians. Balancing inventory levels is a challenge. The procurement application presents a visualization of breakage rates by vehicle and geographic demand predicted by AI. Now, the right parts are in the right place at the right time.

Manage With Accountability Vignette

A field technician supervisor has a goal of increasing customer Net Promoter Score (NPS) from 7.5 to 9.0 during the current fiscal year. She automatically receives a list of five technicians whose performance needs to improve along with service call metrics. She helps each technician create a custom plan to improve their performance and NPS.

❯ Automate Everywhere

Identify cases where you can replace manual effort with automation, resulting in equal or better business outcomes.

- What is management's tolerance for investigating automation opportunities?

- Where can we improve customer experience by automating process-based decisions?

- How do we identify cases when we routinely rely on a person's intuition to deal with exceptions in a business process?

- How do we systematically review processes for automation opportunities?

Automate Everywhere Vignette

Reconciling invoices and purchase orders has long been a repetitive, time-intensive and error prone activity. Developers train robotic software to accurately recreate this activity by observing humans.

As a result, the Accounts Receivable team has freed up time to focus on value-added work.

The questions listed above are a sample of what you should ask when building a robust data strategy. Most importantly, the questions do not have technology answers but rather business answers. They are intended to drive discussion around the business maturity with data.

MAKE BUSINESS VALUE YOUR GUIDE

Traditionally, data strategies focus on data architecture, business intelligence and data governance. This view is narrow and often diverts attention from the big ROI opportunities. While these topics are important, you should begin data strategy by understanding how you create value from data.

Opportunities for value abound across the enterprise, such as:

Improving Your Products

Vast quantities of internally generated data allow for innovation in products and services. By identifying when customers abandon products or avoid beneficial features, you can hone products. This will directly drive greater market penetration and profitability.

Optimize Marketing Spend

Acquiring more customers and acquiring the right customers are central goals of marketing. This is possible through a deep analysis of the current customer base as well as the inclusion of third-party data. Customer acquisition costs mandate continuous improvement in targeted ad spending and other expenditures.

Delighting Your Customers

Improved customer satisfaction leads to retention and increased Lifetime Value of your customers. Given the high cost of customer acquisition, it is more practical to retain customers than to find new ones. The average cost of obtaining a single new customer can exceed thousands of dollars, so once you have them, you better keep them. A rich digital experience, customer support, retention and targeted concessions are crucial areas in which to improve customer satisfaction.

Increasing Accountability

Managers often bring years of experience in multiple functional areas including employee supervision. An individual's experience is quite limited compared to the diversity of problems they need to solve every day. For that reason, management depends on their intuition. Results based on applying intuition are mixed bag. Measuring business performance and providing this insight to management allows them to make decisions based on business facts. As well, it provides a method of holding individuals accountable.

Outpacing the Competition

Designing a sound business strategy requires a deep understanding of markets and customers. Customer loyalty will make or break any company. As more companies embrace AI, automation and other new technologies, their ability to steal your market share grows. Combatting market share attrition requires you to monitor the pulse of the market, as well as the pulse of your competitors.

Most companies are sitting on a goldmine of potential improvement previously stamped out by business process improvement. Once operational excellence programs have reached their zenith, further process improvements yield only incremental benefits. You've already picked the easy-to-reach fruit from the vine.

The correct objectives for a data strategy should not be technology, architecture, tools or IT processes. These are only a few of the logical steps leading to the objective.

Data strategy objectives should major on business areas that need improvement, opportunities for growth and profitability. Some questions to ask are:

- How does the business intend to grow in the next five years?
- Where are the greatest opportunities for cost savings?
- Where should we make the business more efficient?
- How can we delight our customers?

Once we know the problems to solve, we can determine how to apply data to solve them better. It is important to note data should never be the entirety of any solution but should play a lead part in business and process transformation.

In summary, the objectives of data strategy should be about solving business problems rather than focusing on data itself.

Conclusion

Data strategies are crucial for creating a data-driven culture. While they must include technical aspects such as architecture and governance, these technical aspects should take a back seat to the business role in driving outcomes.

A successful data strategy starts by having the right objectives focusing on business outcomes. Typically, objectives reflect the organization's business strategy or problems your company must address.

The data strategy must illuminate a path to growing business maturity with data. Excluding this side of the data strategy means relegating it to a data exercise that will never realize its potential. It is incumbent on the business – rather than IT – to develop awareness and skills for how you can leverage data to benefit your company.

In conclusion, including the business maturity and business context side of data strategy will align interest throughout the company and springboard you into a data-driven culture. Your customers, executives, management and workforce will benefit.

❯ ABOUT CENTRIC CONSULTING

Centric Consulting is an international management consulting firm with unmatched expertise in business transformation, hybrid workplace strategy, technology implementation and adoption. The firm has established a reputation for combining the benefits of experience, flexibility and cost efficiency with the goal of creating tailored solutions centered on what's best for your business. Founded in 1999 with a remote workforce, Centric has grown to 1,400 employees and 14 locations across the country and India.

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With 30 years of industry experience, Jeff brings a solid foundation in business process maturity, machine learning, business intelligence and modern analytics. He is the author of The Intelligent Enterprise business maturity model for data.

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