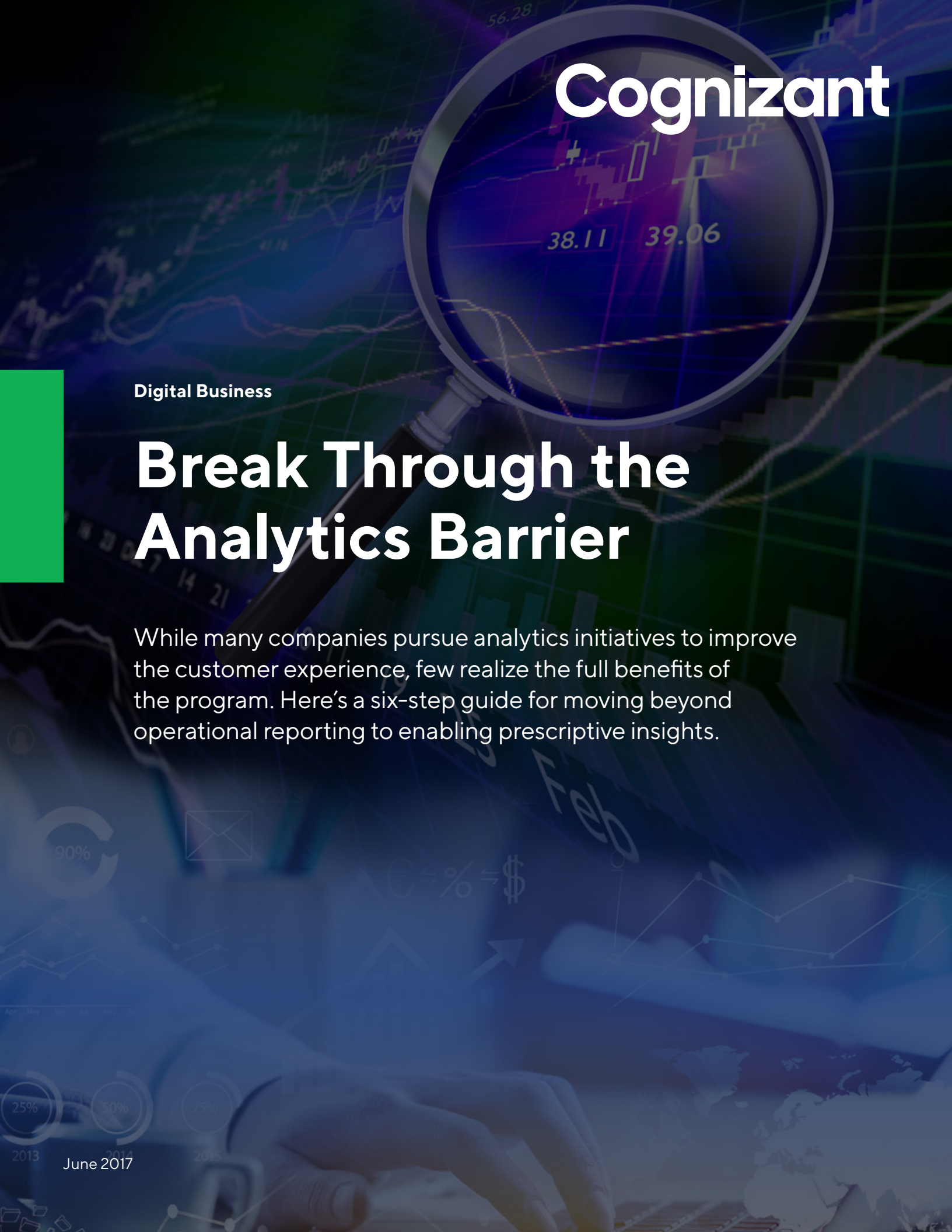

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Digital Business

Break Through the Analytics Barrier

While many companies pursue analytics initiatives to improve the customer experience, few realize the full benefits of the program. Here's a six-step guide for moving beyond operational reporting to enabling prescriptive insights.

June 2017

Executive Summary

Many businesses today find their analytics initiatives fall short of their promise to help them better connect with customers. The main reason is that many organizations still lack clearly defined customer experience outcomes. Because they're not sure what their goals are for analytics, they revert back to operating in data silos.

Our six-step guide can help organizations break through the analytics barrier and give new purpose to the customer experience.

- **Step 1: Define the customer experience outcomes.** Assess where the company is and where it wants to be.
- **Step 2: Integrate a big data infrastructure.** Create a backbone capable of delivering the desired outcomes.
- **Step 3: Rethink the customer journey.** Identify connecting points and their influence on the customer relationship.
- **Step 4: Enhance customer insights with digital data and processes.** Automation is a key asset to successful analytics initiatives.
- **Step 5: Construct solutions from the customer's perspective.** Run models that ask whether, and how, the business's actions affect the customer base.
- **Step 6: Test and measure for outcomes.** Embedding test and measurement into analytics enables organizations to determine whether activities add value – or just seem to.

Raising the bar on analytics

There's no doubt that analytics can be a powerful business acceleration tool. Using advanced analytics, businesses in all sectors, whether B2B or B2C, are learning more about their customers and turning those insights into revenues and profits.

Many organizations, however, struggle to effectively use analytics capabilities to shape the customer experience, leading to missed customer insights and disappointing financial returns from their analytics and information management investments. The reason many companies fall short is they fail to assess where they are in their business efforts, where they want analytics to take them, and how they will get there.

Part of the problem lies in defining what analytics means today. Many businesses still consider the routine reporting they receive via operational dashboards to be analytics. While dashboards are useful, they describe events that have already occurred, such as trends over time.

The real power of analytics is predicting events and prescribing a path for obtaining specific outcomes, such as identifying customers whose credit card payments will be delinquent in 60 days, and then proactively contacting them. Other examples include spotting policyholders researching coverage options and then offering them coverage tailored to their needs, or crunching through click-stream data to identify shoppers ready to buy.

Most organizations continue to wall themselves off from the benefits of predictive and prescriptive analytics (see Figure 1).

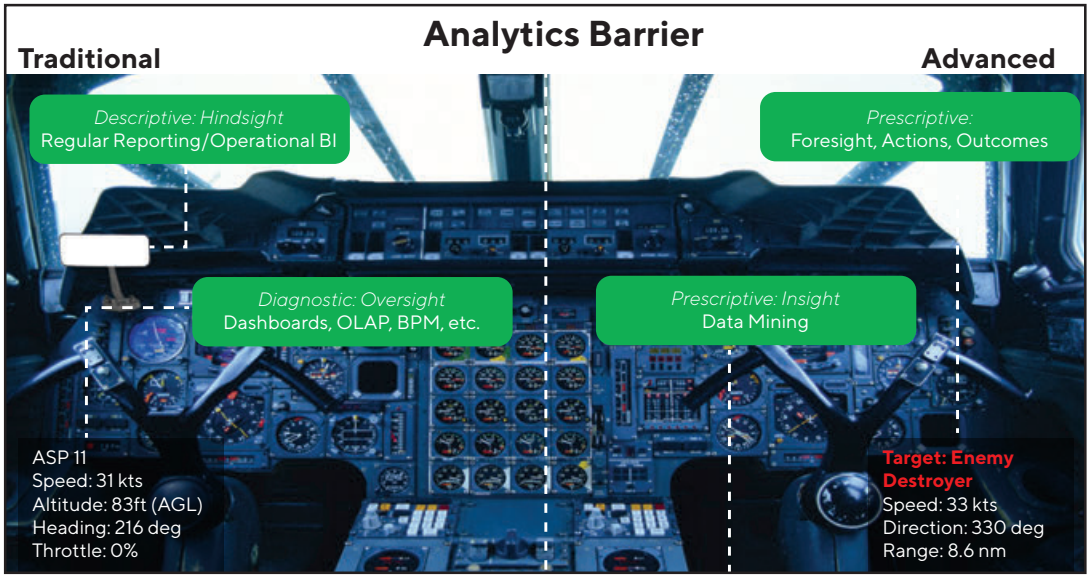

Figure 1

How can companies break through the analytics barrier? Using our six-step DIRECT guide, they can follow a process to success, no matter where they fall in the analytical maturity model.

Step 1: Define customer experience outcomes

Analytics isn't one size fits all. Organizations vary tremendously in where they are on their information journey. Many companies remain at Level 1 or 2 as defined by analytics maturity models; they likely use dashboards or scorecards and are still largely dependent on manual processes.

Regardless of maturity level, all businesses need to begin by defining their customer experience outcomes:

- **What is the business trying to accomplish with analytics?** Many organizations expect analytics to justify decisions they've already made, such as tracking product sales in a region they've expanded into. Instead, companies need to identify concrete goals for the analytics initiative, such as decreasing customer churn by 5% or increasing net promoter score by 10%
- **What systems and processes are in place to support the customer experience goals?** Once the goals are identified, the organization needs to create the analytics framework to support them. If the goal is to reduce churn, a system will be needed to track customers who have left and their interactions with the company. Systems and processes also need to be in place to effectively gain customer insights.

  Organizations also need to institutionalize the prescriptive analytics that will be generated and figure out how to operationalize the analytics to achieve customer impact. An effective way to do this is through a pluggable framework for analytics.
- **Is the business ready for change?** Companies are often inclined to stick with familiar routines and processes. This can make it challenging to transition the corporate culture from operational reports to predictive and prescriptive analytics. The traditional "rear-view mirror" approach provides a false sense of comfort: While rear-view mirrors may be useful on straight roads, they can be catastrophic on winding roads.

Moving up the analytics value chain

Once a plan has been established for optimizing how analytics will be used, it's time to examine existing technology systems. How will the business utilize the systems in place to quickly move up the analytical value chain?

Companies with no legacy systems can deploy the latest technologies to develop cross-channel customer experiences that meet specific business outcomes. Most companies, however, face the much tougher challenge of leveraging existing operations to address today's real-time, always-on customer experience.

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A common task for a traditional company might be to increase brand loyalty by using big data to bridge its order management, accounts payable and customer engagement systems and to create a faster, more agile information architecture that delivers real-time promotional offers.

By supplementing traditional infrastructures designed for core transactional capabilities with data warehouse and business intelligence systems, many organizations can retrofit legacy systems to also manage the databases, communications and content creation of customer experience.

The mash-up of transactions from disparate systems is a key step in defining the organization's business outcomes. It lays the foundation for the single version of the truth that's at the heart of a holistic customer view. It's also a meticulous, time-consuming process that's tempting to skip.

The results, however, justify the time expenditure. The fluid, real-time demands of customer experience call for speed and agility that a rear-view approach cannot deliver. The following questions can help businesses examine how ready their systems are to support the move up the analytics value chain:

- How can data warehouses, business intelligence and transactional systems be retooled to manage customer experience?
- Is there a plan established for creating more effective customer content and brand stickiness?
- How will knowledge and processes feed into workflows?

Step 2: Integrate a big data infrastructure

A big data infrastructure is the backbone that enables businesses to deliver the defined outcome, whether it's next best action or communicating with customers on their preferred channels.

The big data environment should encompass three layers:

- **Data ingestion:** This layer links to systems such as product order management or accounts payable. Its purpose is to move data quickly from source systems while ensuring quality and assurance checks.

While most companies still rely on data warehouses to stockpile records ranging from billing and ERP to customer relationship management, such all-purpose repositories are insufficient for the enormous volumes of information required to manage customer experience.

- **Data modeling:** This layer structures the data physically or virtually so meaning can be derived from it, whether through descriptive, diagnostic, predictive or prescriptive analytics. In response to emerging digital technologies, ontologies are outpacing relational databases as alternative models for representing information. Ontologies assist with the semantic tagging that helps identify nuggets of information. They're especially helpful for applications that require richer, more nuanced interpretations.
- **Data analytics.** Data is flattened out with products such as MarkLogic and SAP HANA, and a business intelligence layer is added. In essence, this layer makes the ontology reportable so the organization can identify trends. It's here that predictive and prescriptive analytics come to life – and where organizations gain the ability to meet customers where they are. For instance, they can identify customer churn trends, and next best actions can be identified, offered and tracked for effectiveness.

Big data architectures can bring analytics to life when they use smart information management designs. While most companies still rely on data warehouses to stockpile records ranging from billing and ERP to customer relationship management, such all-purpose repositories are insufficient for the enormous volumes of information required to manage customer experience.

For example, take the process of modeling key performance indicators (KPIs). If an organization wants to model data for, say, customer churn, it will need both structured data, such as online and offline transactions, and unstructured data, such as e-mails, images, customer service calls and social media sentiment.

Data warehouses are not flexible enough to support these types of computations. They take so long to do their work that business users often begin searching for other ways to transform data into insights.

One way to make data warehouses more agile is to process only the data required by a stated, with the level of detail needed to make decisions about customers and drive outcomes. The more business-focused data points the organization collects, the better it will be at predicting – and influencing – customer behaviors. Has a customer complained to a customer service rep or tweeted about the company? These are necessary data points to factor into knowing the customer and his or her motivations.

How much accuracy is required? While industries such as banking, finance and healthcare require 100% certainty regarding systems and decisions, many sellers of products and services can make predictive decisions with far less certainty, saving them the time and expense of creating complex models that support higher levels of precision. Instead of collecting, say, 30 dimensions for every customer, a retailer might be able to make predictive decisions with 95% certainty based on 15 dimensions. The big data backbone should only be as complicated as the organization needs it to be.

Step 3: Rethink the customer journey

Understanding the customer journey is at the heart of breaking through the analytics barrier. Instead of making guesses based on IP addresses and geographic locations, organizations can develop journey maps to identify connecting points and how the points influence whether customers stay or go.

Journey maps are powerful visual tools that trace customers' steps as they travel through the organization. They provide the big picture by following customers through channels, decision paths and, perhaps most important, emotions.

The customer journey needs to support the intended outcome of the business's analytics program. For example, if the goal is to improve customer retention, then each customer touchpoint needs to provide a positive experience that makes customers feel in control of their experience.

Deciphering the customer journey can also drive down transactional costs. If a business's web channel is undervalued and it needs to reduce contact center costs, for example, journey mapping can pinpoint where self-service breaks down. Doing so will provide customers with a smoother experience and better service, and the organization gains wider use of its lower cost channels.

Step 4: Enhance customer insights with digital data and processes

Too many organizations associate analytics initiatives with rolling out costly business intelligence systems and data warehouses. But in actuality, these programs require only focusing on the needed data sets. Analytics is fundamentally a business challenge first, an IT initiative second.

Many businesses are just beginning to take their first steps to automate standard functions such as accounts payable and receivable or claims submissions. As a result, they have a limited number of data sets to feed into their analytics initiatives. To use analytics to shape the customer experience, they'll need to digitize manual data entry processes, which will reduce costs and enable them to translate customer experience insight into action much more quickly.

Doing so also lays the groundwork for more sophisticated uses of automation, such as incorporating voice, images and unstructured forms into big data systems and including them in analytics.

There are three levels of maturity for creating value through automation, all of which use advanced technology:

1. **Rudimentary automation:** Script, document, report generation and business process control.
2. **Robotic automation:** Structured processes, runbook and workload control.
3. **Rational automation:** Cognitive, domain-specific and application lifecycle control.

Achieving higher levels of automation maturity can be time-consuming, but focusing on meaningful business results will greatly speed the process and provide the return on investment needed to expand the number of outcomes addressed.

Step 5: Construct the solution from the customer's perspective

This is the moment of introspection. Organizations need to ask: Have we kept the customer at the center of our analytics effort? Have we focused on specific outcomes that will drive business value? Do we have the maturity to achieve that value?

The right analytics solution depends on the organization's place in the maturity model, whether it has already proactively assessed and addressed customer behaviors or progressed to the point where its information management processes are repeatable and predictable, and activities are outcome-based. Some organizations may just be beginning their analytics journey.

No matter the level of sophistication, the frame of the solution remains the same, as it consists of agile, legacy and cohesion systems. Cohesion systems bridge agile and legacy systems and provide the interface for effective, targeted customer experience outcomes. If the big data infrastructure is well constructed, then the business model will be extensible to other cases, such as adding product lines or acquiring companies.

Established companies often have a data infrastructure that can take on new business problems but lacks the flexibility that marketing efforts need to move quickly. Young companies typically have the opposite problem: Focused on one business problem, they've gotten very good at one solution, and their speed and agility land them high on the maturity model, but they lack the infrastructure to tackle the next business problem.

As established businesses formulate their analytics solutions, they need to ask: What is our customer experience like? Is it a pleasure for customers to do business with us? Are we proactive in providing products and services? What's our turnover? How often do we lose customers?

Organizations also need to assess whether their initiatives will result in the hoped-for market share gains. Analytics enables businesses to predict the impact, as they can run models that ask whether, and how, their actions will affect the customer base. The answer might be yes, but the business needs to know its customers well enough to be able to predict the numbers that will leave while prescribing measures to reduce the churn.

If the big data infrastructure is well constructed, then the business model will be extensible to other cases, such as adding product lines or acquiring companies.

Step 6: Test and measure for business outcomes

Testing is an often neglected yet vitally important component for breaking through the analytics barrier.

For most organizations, test and measurement is a bolt-on function. It offers few guideposts for knowing whether employees' day-to-day activities will directly impact customers and the bottom line. After-the-fact testing has also led to the proliferation of diagnostic analytics in the form of dashboards that require human interaction to decipher the patterns of impact.

By embedding testing and measurement into all aspects of analytics, businesses automate the process – and gain the clarity they are looking for. It lets them monitor and measure whether business and technical activities actually add value.

A key step for any analytics effort is to build in checks and balances aimed at outcomes. Design principles must be applied upfront. Smart testing frameworks incorporate routines in parallel for unit, integration, system, user acceptance and continual production validation. One software tool for achieving validation is the open source Cucumber testing framework. Cucumber enables testing in parallel, so the writing of individual code modules occurs in tandem with testing. This approach results in fewer customer problems.

Testing is critical for determining whether the analytics effort is progressing toward intended customer experience outcomes. When that becomes clear, the business can increase its automation maturity and reduce the manual intervention required to decipher patterns. Testing allows organizations to advance beyond diagnostic analytics to prescriptive and prescriptive analytics.

About the author

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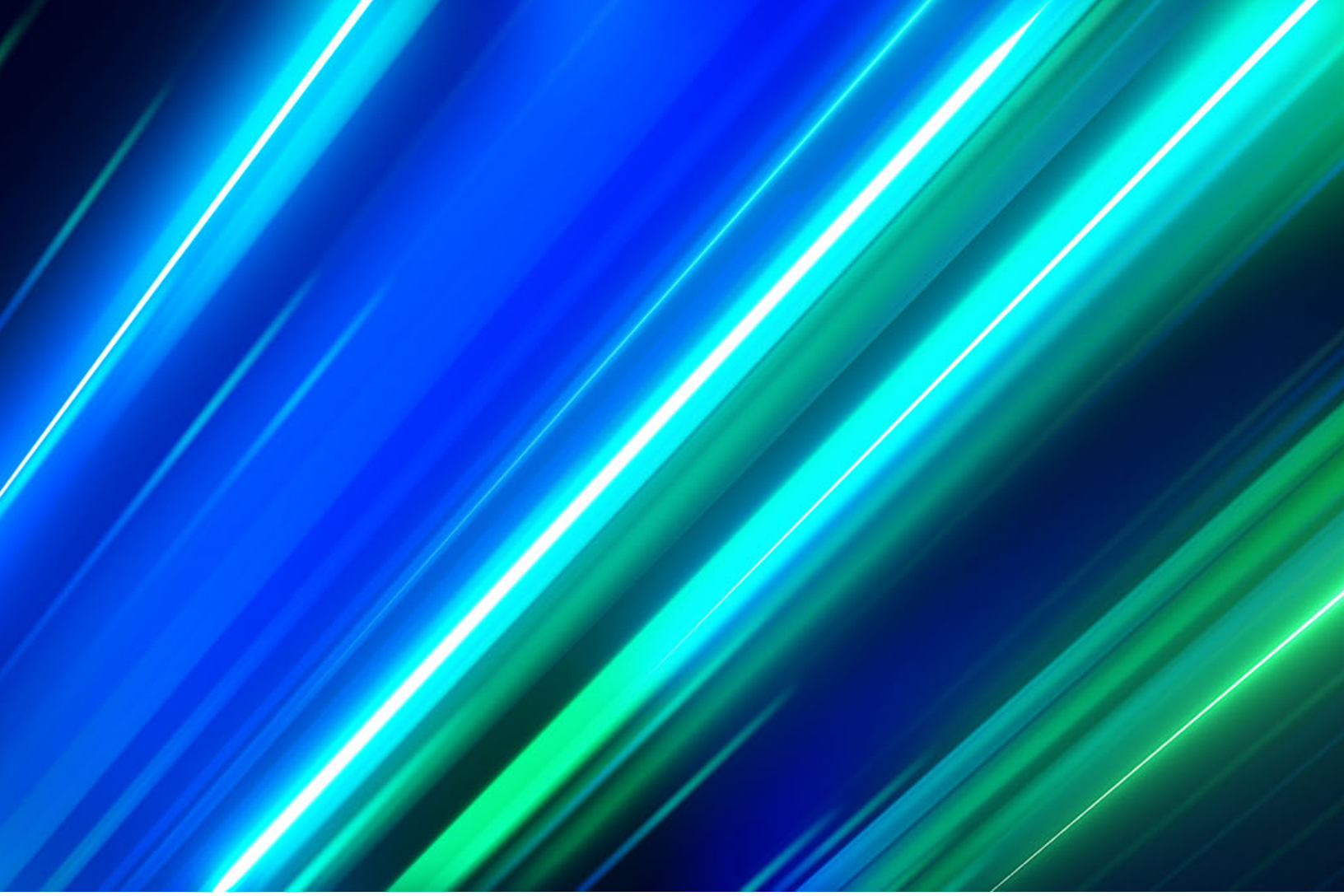
Jay Warren is a Digital Business AVP within Cognizant's Analytics and Information Management Practice. He has 25 years of experience designing, developing and deploying analytics and information management solutions focused on heterogeneous platforms such as Microsoft, Oracle, Teradata, IBM, SAS and Hadoop. Jay has envisioned and implemented over 30 foundational big data, information management and analytics solutions. He is co-author of a white paper on 64-bit analysis services, and he has presented at seminars by Microsoft, Cognizant and Medical Informatics World. Jay is an Annapolis graduate and former U.S. Navy aviator. He can be reached at Jay.Warren@cognizant.com.



Digital Business

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