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Bringing Method to the Madness: A Four-Step Guide to Going Digital

2018-04-19

With a structured approach, enterprises can ensure that the platforms, applications and processes that underpin their business will be adaptable, flexible and ready to deliver the digital goods.



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Digital platforms, processes and applications are rewriting the playbook for companies and organizations across industries. According to a recent [Gartner survey](#), 72% of IT respondents believe that digital business has accelerated the pace of business and technological change, with spending on digital tools and techniques averaging more than 11% of the organization's annual revenue.

In this high-stakes environment, speed is critical. At the same time, companies must justify the underlying business need that digital addresses. Without a comprehensive analysis, the legacy platforms, enterprise applications and business processes that support an enterprise can be compromised. During the initial stages of the move to digital, complexities and turnaround times can increase and weaken the links that connect people and systems back-to-front.

Furthermore, cloud-inspired objectives can sometimes increase costs and organizational uncertainty. Therefore, project managers must define functional requirements, commit to staying on schedule (and budget), and set realistic expectations for the business, its partners and its customers.

Understandably, many enterprises scramble to kick-start their digital initiatives, primarily due to a lack of clarity when selecting the right tools, associated platforms, and applications, as well as setting performance benchmarks. To avoid the most common pitfalls, we recommend the following four-step approach.

1 Understand the application landscape.

The most common mistake that project teams make when determining the scope of a digital initiative is to limit their focus to applications that connect directly to the end consumer only. What they fail to consider, however, is the impact of back-end and legacy systems that support and inform the overall customer experience. To fully understand their application landscape, companies need to perform a baseline assessment of their current IT environment, taking into account heavy-duty enterprise applications as well as business-process systems. In this way, project teams can deepen their knowledge of how these assets interconnect when supporting short- and long-term goals. Next, companies need to make sure that every aspect of the enterprise – from technologies to people – is prepared to transition to digital business before pushing the "start" button.

2 Perform a digital assessment.

We advise companies to develop a blueprint of the applications and business processes that will become part of their digital initiative. This task:

- Requires a structured assessment of the current application environment and identifies critical business processes.
- Maps current applications.
- Looks for interfaces that touch multiple processes.
- Determines external and internal complexities.
- Gathers input from customers and users to prioritize needs.
- Ultimately checks all of the above against the overall business environment and objective.

3 Develop a digital readiness index.

Steps 1 and 2 help companies prepare a digital readiness index, allowing them to confirm their priorities and challenges. A proper index will rate adaptiveness, industry focus, security compliance, maintenance, user experience, improved access and enhanced workflows. Once parameters are defined and weighted, this index can be calculated at the business and sub-process levels. See figure 1 below.

4 Prioritize digital projects.

The digital readiness index gives organizations a reasonable idea of the processes that will be easy to digitize, as well as those that will be more challenging. However, the index is only a checklist. Businesses also need to consider priorities – and the overall value that digitization is expected to bring to the enterprise – and prioritize processes accordingly. Either way, it is important to develop a digital roadmap. Some businesses may choose to digitize processes that are less challenging; others may decide to proceed with

digitizing a critical application that is more complex, but more fulfilling to customers.

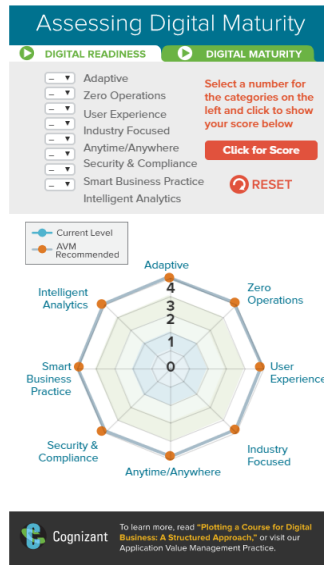


Figure 1

Of course, becoming a digital business requires significant investment, executive resolve and collaborative buy-in. Moving forward, we recommend that enterprises start their digital transformation with an assessment of their IT and business environments, including legacy systems and processes supporting back-end systems. We also advise a top-down approach to their digital initiatives — considering the business processes and objectives that impact the customer experience, then identifying and aligning applications and infrastructure components accordingly.

In our experience, a well-informed digital roadmap that aligns well with customer requirements can even be used to benchmark the competition. To stay on track, this roadmap is also invaluable when determining the key measures needed to avoid time delays, functional gaps and potential cost overruns.

To learn more, read *"Plotting a Course for Digital Business: A Structured Approach,"* visit our *Application Value Management Practice*, or *contact us*.

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Accelerate Business Growth and Outcomes with AI

How 11 organizations are using artificial intelligence to accelerate decision making, improve business processes, enhance user engagement, reduce costs and drive remarkable growth and profitability.

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Getting started on your AI journey

Within a few years, artificial intelligence (AI) will be a part of every aspect of our lives — impacting how we work, learn, eat, travel, obtain healthcare and receive a whole lot of services. AI is accelerating decision making, improving business processes, enhancing user engagement and reducing costs and its transformation will drive remarkable growth and profitability.

At Cognizant, we're working with our clients to deliver on AI's promise through our Applied AI framework. While previous innovations have accelerated productivity and revenue growth, these have had linear effects that scale with investment and people. However, AI is introducing non-linear improvements. And, its ability to scale and generate insights at the speeds of machine learning, exponential data growth and unparalleled computational power are delivering unprecedented outcomes to our business clients.

You could hire 10 more analysts to help understand your sales channel and adjust pricing, web content, and user experience to grow sales. Or you can leverage the power of evolutionary, learning AI systems to simulate millions of scenarios, all day and night, to optimize your sales channel and to predict outcomes.

The implications of AI's unique approach are profound: AI can learn by example rather than through brute-force programming; can understand human intention and emotions and act accordingly; and can handle extraordinarily complex relationships of data that are beyond the capability of human analysts working alone. AI can multiply what we currently do and take us to experiences we've never had before, at a speed and scale that will change entire industries.

These case studies present a range of real-world examples to guide your imagination. Here, you'll find situations where companies like yours found AI to be part of the solution. These examples show how: AI can enhance an existing application, workflow or process and reduce friction, AI can solve complex business problems by stitching together multiple parts of an experience. And, AI can offer up entirely new channels of revenue and service in ways not possible using traditional techniques.

At its core, AI is about intelligence — and thus requires a thoughtful and human-centered view of what we want, as employees, customers or partners in the ecosystem. Let these case studies inspire your journey and inform how AI is applied within your company and across industries.



Karthik Krishnamurthy

*Senior Vice-President and Global Head of Cognizant Digital Business's
AI & Analytics, Interactive and Intelligent Products and Solutions Practices*

Managing Complex Operations





Accomplishing exhaustive due diligence in a fraction of the time

The Challenge

A leading global professional services organization wanted to improve its laborious and time-consuming risk management due diligence process. International due diligence involves exhaustive research, with more than 40,000 global sources tracking not only media but also corporate records, financial transactions and legal cases at the company. Results based on analysts' text strings needed to be painstakingly reviewed for each entity before a report could be finalized.

We worked with the organization to more quickly and accurately research businesses for ties to potentially illegal behavior, such as money laundering, insider trading, corruption and terrorism.

The Solution

We developed an application programming interface (API) to connect the company's due diligence software to a machine-learning model. In less than five weeks, we developed cognitive



APIs powered by deep-learning algorithms and governed by predefined rules using semantic language processing.

Conventional search technology relies on Boolean word strings and returns results ordered by the appearance of individual words that

meet search criteria, irrespective of their context. Searches on our newly developed platform narrow results by indexing them against discrete parameters, including a custom dictionary of keywords for specific industry sectors.

[Read the full case study here.](#)

Our Approach

In a global environment where risk and regulation are on the rise, having tools to screen partners, vendors, counter-parties and acquisition targets for potentially criminal activity is vitally important. Our AI and analytics solution provides the global professional services organization with the means to automate risk detection across the broad range of its business relationships, improving its ability to comply with a complex array of international laws and compliance regimes.

Results

- | Sharply decreased researchers' time, with 14% of reports completed in one hour.
- | Boosted generation of due diligence reports by up to 30% more per year.
- | Enabled exhaustive research to be performed on over 40,000 global sources.
- | Enabled real-time analysis of compliance and financial risk in real time.



Mining data to optimize mining worker accommodations

The Challenge

A major mining company needed to improve the efficiency of how it managed housing for its onsite workers. Erratic housing needs and patterns, inaccurate daily occupancy reporting, price differences, and varying rules for employees and contractors made this a complex undertaking for the logistics team. The team also struggled with transportation planning. The company asked us for a technology-based solution to address these challenges and lower process costs.

The Solution

Our AI and analytics team worked with the company to develop a proof of concept for a secure data analytics solution that automates basic reporting, manages ad hoc schedule changes, predicts no-shows, and flags noncompliance and reporting anomalies that impact costs.

We built an “optimization engine” that processes current occupancy data and recommends space allocations based on a back-to-back optimization approach. Our team



consolidated these features into a digital analytics platform and shifted the platform to a cloud environment.

In subsequent stages, we expanded the platform’s capabilities to analyze

data on the company’s fleet of trucks, as well as a range of plant and equipment productivity metrics.

[Read the full case study here.](#)

Our Approach

Our team optimized the company’s accommodation management process at the lowest cost, automating room assignments by analyzing a complex set of variables. We partnered with the company to design and build a cloud-based data analytics platform that not only provides cost-effective solutions to the challenges of managing housing and transportation but could potentially optimize the logistics operations of the entire organization.

Results

- | Provided immediate ROI, with year-one savings of USD \$4 million.
- | Generated \$20 million in forecasted cost savings from optimized room utilization.
- | Forecast a 50% reduction in costs due to no-shows or records and reporting errors.



Fast-tracking cancer drug development using data science

The Challenge

The stakes are high in oncology drug development: The process is costly, the competition is fierce, and the mission — saving lives — is critical. A major pharmaceuticals company wanted to improve its highly manual process for conducting clinical trials for its cancer drugs. The company wanted to reduce the time it takes to conduct clinical trials for cancer drugs while increasing the effectiveness and safety of the drug development process.

The organization chose us as a partner for this ongoing initiative because of our skills in data science and artificial intelligence, as well as our deep experience in life sciences and the pharmaceutical industry.

The Solution

Our overall goal was to use AI to enhance decision-making in the clinical trials phases of oncology drug development. AI improves the process of selecting candidates for specific drugs by collecting evidence of drug effectiveness based on chemical structure and how the targeted body tissue responds.



We are working closely with the company's Pharmaceutical Development & Commercialization organization to build an automated process for data analysis in preclinical trials. The power of AI helps us predict adverse drug reactions,

which results not only in a safer and faster process but also a more streamlined regulatory approval process.

[Read the full case study here.](#)

Our Approach

The project is part of an ongoing research and development initiative, with each phase producing assets that can be reused as case studies for future research problems. This knowledge provides recommendations for improving the process of capturing data in other trials. Using AI and data science helps shorten preclinical trial times by three to four years and cut per-patient costs while improving safety and producing reusable assets and technical knowledge that can be utilized in future initiatives.

Results

- | Shortened pre-clinical oncology trials by three to four years.
- | Reduced overall cost by 8% to 10%.
- | Created a reusable, automated data analysis pipeline for drug candidates.
- | AI-enabled the deployment of next-generation candidate drug evaluation methods.
- | Saved time and money by streamlining the drug development process.

Improving Business Processes and Revenue





Assessing risks and rewards in the flood insurance market

The Challenge

Complex factors drive insurance in flood zones across the U.S., and a major global insurance company wanted to better understand the financial risks and opportunities involved in the flood insurance market. This meant understanding the size, scope and regional nuances of this market. We partnered with the company, with the goal of providing an integrated view of the flood insurance landscape in the U.S. — not just who has coverage and where, but what factors are driving the market, including behavioral patterns.

The Solution

We developed a solution illustrating the behavioral patterns and key drivers of flood insurance in the U.S. This involved analyzing flood hazard maps developed by the National Flood Insurance Program, as well as U.S. Census data and housing information available through Google Maps and Zillow.



We then employed geospatial analysis — data science that examines people’s geographic location and then derives understanding from that knowledge — and utilized a machine-learning framework to interpret the analysis. Using application program

interfaces (APIs), the data and intelligence were integrated into a user-friendly analytics application, providing a single view of data from multiple sources.

[Read the full case study here.](#)

Our Approach

We analyzed flood hazard maps developed by the National Flood Insurance Program, as well as publicly available census data and housing information. We identified an overall financial opportunity worth \$3.3 billion, with 83% accuracy and a potential market of \$34 million in New Jersey alone. The company is now well-equipped to fully develop its flood insurance business in the U.S.

Results

Our solution combines flood hazard maps, GIS data and the frequency and cost of historical claims to model risks across a portfolio.

- | Modeled a potential market with 83% accuracy.
- | Generated a ten-fold reduction in throughput time in underwriting.
- | Improved case acceptance by 25%.



Intelligent chatbots improves sales and customer satisfaction

The Challenge

A leading regional U.S. power utility sought to differentiate itself through customer service and customer satisfaction. With millions of customers in its geographic area, including thousands of businesses – from heavy industry and hospitals, to professional offices and restaurants – power consumption for its customers varies greatly. With such a varied customer base, no single account manager or service representative could possibly understand all the businesses and industries served.

The utility was committed to ensuring its field service personnel could be more customer-centric by equipping them to quickly answer questions and find ways to better serve customer needs. We focused on giving executives, account managers and field service technicians better tools to prepare for meetings with a range of customers.



The Solution

We developed use cases and solutions for an artificial intelligence-driven subject matter expert research chatbot, providing an intelligent personal assistant that helps the utility's salespeople understand their customers' industry and energy needs. This natural language processing virtual assistant informs sales personnel about factors

that affect utility usage within a particular industry.

The intelligent personal assistant also allows executives, account managers and customer service representatives to conduct research using voice commands or by typing queries.

[Read the full case study here.](#)

Our Approach

We combined voice-activated, AI-driven search technology with an application programming interface (API) that presents the user with an organized, detailed response to questions from information found online, helping salespeople better understand their customers' industries and energy needs.

Results

- | Enabled sales personnel to be informed on key factors related to specific industries.
- | Automated the research process for the sales team.
- | Provided instantaneous access to needed research materials through a voice or keyboard interface.



AI solution detects check fraud for a leading global bank

The Challenge

A global financial services organization wanted to automate and streamline its fraud detection process. At many large banks, millions of checks are still hand-written each month. While part of this process is truly automatic, including scanning paper checks, large banks still employ hundreds of people to sit every day at computer screens trying to spot signs of fraud in those scans. This process is time-consuming and inaccurate, and banks lose millions annually to counterfeiters.

Our objective was twofold: to spot fraudulent checks in real time at the time of deposit, and to reduce the number of checks requiring manual review. Such a solution would stem the outflow of disbursements on counterfeits, reduce tedious work and lower processing costs.

We helped the financial services organization build a machine-learning solution that teaches itself to identify counterfeit checks, thus reducing fraud risk and lowering costs.



The Solution

We developed an artificial intelligence-driven machine-learning solution to flag potential fraud by analyzing scanned images of handwritten checks. The technology is designed to automatically compare a variety of factors on scans of

deposited checks against a growing database of checks previously identified as fraudulent, and then flag potential counterfeits in near real-time while deposit transactions are in process.

[Read the full case study here.](#)

Our Approach

When we tested our model on a historical portfolio of past transactions, it demonstrated 50% savings on fraud losses. It processed up to 20 million checks per day, with end-to-end response times of less than 70 milliseconds and the ability to process up to 1,200 checks per second.

Results

- | Delivered a fast, accurate confidence score in less than 70 milliseconds on each check.
- | Forecast a \$20 million reduction in losses to fraud annually, based on current models.
- | Reduced manual effort while keeping initial and ongoing costs low.



AI is informing policy underwriting across their portfolio

The Challenge

There are four classic ways to manage insurance risk: assume it, lessen it, avoid it altogether or transfer it. The last is the most difficult, since it entails accurately pricing what is essentially unknowable. But advances in data science can now inform risk analysis in a whole new way.

A global reinsurance company needed help developing a data-driven information management solution that could determine the best cases for underwriting, and assist underwriters in assessing case files to decide which cases must be underwritten. The company asked us to help build an intelligent underwriting tool, driven by artificial intelligence, to aid the underwriting process and boost efficiency while predicting and prioritizing the cases that should and should not be accepted.

The Solution

We established an internal data science center of excellence that allows the insurer to examine underwriting processes across the



ecosystem, developing use cases and demonstrating proofs-of-concept for applying data collection, analytics and predictive modeling to address the range of risks in the company's portfolio. Using optical character recognition and image processing, the system processes complex and varied stacks of documents and assembles them as a single, consistently formatted document.

We used natural language processing to aid the organization and extraction of data from the source documents, as well as AI-based machine learning to make sense of the data and assign scores to the most promising cases.

[Read the full case study here.](#)

Our Approach

We combined geospatial information with demographic and social data, as well as data on the incidence of accidents, to understand where losses differed in certain areas. Our solution provides a holistic, end-to-end view of insureds at the individual level, resulting in a probability signaling the likelihood of a customer's risk of being involved in an accident.

This provided the insurer with a more detailed and reliable picture of the individuals whose automobile policies they were reinsuring, including behavioral and environmental factors. The insurer can now model premiums for different and more nuanced profiles of risk.

Results

During a six-month research and development phase, our solution:

- | Improved underwriting efficiency.
- | Reduced total underwriting time.
- | Increased case acceptance percentage and revenue.



Data analytics solution optimizes equipment utilization

The Challenge

A global mining company with more than a dozen mines on three continents faced financial hurdles caused by the delays in transporting ore, among other inefficiencies. The massive transportation equipment used by this company and the complex operations involved in the process were difficult to track in real time. To avoid further interruptions and to reduce the financial loss caused by the delay, the company asked us for help.

The Solution

To address efficiency improvements worldwide, our team gathered sensor data on the client’s global installed base of mobile equipment, monitored that equipment’s performance and applied algorithmic analysis to improve the efficiency of its use. The goals being to reduce queuing and idle time for heavy haul trucks, and to help ensure a steady stream of ore to refining facilities and transportation hubs at each mine.

Our machine learning solution monitors equipment in the field to isolate the major causes of wait times. Then, our model breaks down the



transportation cycle into eight steps – from queuing to load, to unloading and returning – and captures data on equipment location, movement, load, use, speed and efficiency to ensure the right equipment is in the right place as frequently as possible. A dashboard provides real-time monitoring and benchmarking

during the eight predetermined stages of the transportation cycle.

Our analytics application enables mine operators to monitor throughput, efficiency and tonnage, viewing the root cause of lower yields on a near real-time basis.

[Read the full case study here.](#)

Our Approach

Cognizant Digital Business established a center of excellence to collaborate with the client’s management team to design and deliver a solution that would gather sensor data on its global installed base of mobile equipment, monitor that equipment’s performance and apply algorithmic analysis to improve the efficiency of its use. Our machine learning solution provides a dashboard for real-time monitoring and benchmarking at various stages of the transportation cycle. The solution captures data on equipment location, movement, load, use, speed and efficiency to ensure optimal use of equipment.

Our cloud-based analytics solution also helped mine operators to monitor the throughput and efficiency by viewing the root cause of lower yields on a near real time basis.

Results

- | Increased annual throughput by 8% at the pilot site, by identifying bottlenecks.
- | Reduced annual capital cost by \$30 million due to higher equipment availability.
- | Saved 24 hours of manual equipment management time per site per week.

Making People's Lives Better





Preventive care, with a dose of artificial intelligence

The Challenge

A leading healthcare services provider wanted to reduce the incidence of drug addiction among its patients and lower healthcare costs by proactively identifying potential drug-seeking behavior. Treating addiction is very expensive – U.S. healthcare organizations spend more than \$500 billion annually caring for patients suffering from opioid addiction alone. Drug addiction also interferes with positive health outcomes for patients being treated for other conditions, and diverts much-needed resources from other patients. Across a large healthcare organization, however, it's challenging to consistently identify patients at risk of becoming addicted and alert physicians to that risk.



The Solution

People seeking opioids or other addictive drugs tend to behave in predictable ways and have common characteristics. We developed an artificial intelligence-driven machine-learning solution for the healthcare provider's compliance function that parses doctors' notes entered into the organization's electronic medical

records (EMR) to identify potential drug-seeking behavior.

Our AI-based solution links text analytics performed on physicians' notes from patient visits – including their impressions of a patient's behavior, appearance and diagnoses – with data in the organization's confidential third-party EMR system. It then uses that text analytics and

advanced machine learning to generate system alerts for doctors during patient visits when a pattern of at-risk behavior is identified. This enables caregivers to intercede with patients in real time and take corrective actions.

[Read the full case study here.](#)

Our Approach

We sought to identify common characteristics of typical drug-seekers by examining three sources of information: the patient's diseases and conditions as recorded in the EMR, the types of drugs that historically had been prescribed to the patient, and the behaviors and symptoms exhibited due to each type of drug. Our solution learns continuously from its own results to verify the accuracy of its models and improve searches.

Results

- | Targeted organizational savings of \$60 million.
- | Identified 85,000 at-risk patients.
- | Enabled the ability to capture behavior and symptoms as patients interact with a physician.
- | Enabled the ability to identify at-risk patients.



Customer care done right – with real-time AI

The Challenge

Customer satisfaction is paramount in handling claims and renewing policies. An industry-leading P&C insurer, however, was experiencing high call-handling times at its call center and lacked the ability to transcribe these calls to analyze the quality. Of an approximately 8,000 calls per month, only 40 received review. But auditing calls isn't enough: It doesn't proactively address how to best serve an upset, stressed caller facing a loss. The goal was to equip customer service representatives (CSRs) with the tools to quickly answer customer questions, provide key information and resolve their issues.

The Solution

We provided an analytics platform informed by artificial intelligence to improve the insurer's customer service, enable supervisors to monitor call quality and help CSRs understand customer sentiment during insurance claim calls. We worked closely with the insurer's internal innovation team to improve the customer experience in various scenarios. Use cases included



streamlining how insurance quotes are provided, automating and simplifying underwriting, and improving the claims process.

We extended the insurer's analytics capability to analyze customer sentiment during calls, provide

CSRs with appropriate information to respond with empathy, and offer questions and information relevant to each caller's situation.

[Read the full case study here.](#)

Our Approach

We taught the call center system how to recognize 40 individual steps for each call and created a dashboard that lets CSRs monitor call progress on their displays. By performing speech analytics on calls as they take place, the checklist is automatically updated to show which tasks have been performed and which remain outstanding. Using language analytics, including diction, word choice and tone, the system improves CSR insight into each customer's attitude.

Results

- | Achieved 85% to 90% call dialog accuracy.
- | Slashed supervisors' review time by 35% to 40%.
- | Enabled review of all 8,000 calls monthly.
- | Provided personality profiling and conversation cues for deeper insights.



Using data science to improve patient care and satisfaction

The Challenge

In healthcare, one of the most important measures of success is patient satisfaction. Every hospital patient in the U.S. is asked to complete a Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey. In 2017, a large health network asked us to analyze its CAHPS data using advanced artificial intelligence and computer science techniques.

The healthcare provider's goal was to fully understand patients' needs so it could improve its CAHPS ratings and develop better, more customized care. The challenge was to deliver specific, actionable recommendations and advice, using a combination of patient feedback and clinical background data.

The Solution

We investigated data from 60,000 patients who visited the organization's health centers over the course of six months. Our team evaluated key patient-care issues such as communication, responsiveness and pain management, and then compiled a



holistic set of analytics correlating the patients' clinical and social backgrounds, along with their satisfaction feedback.

We were able to identify and target very specific patient care issues, and show the healthcare provider where it ranked on these issues in relation to

national averages. More importantly, we were able to recommend specific actions the organization could take to improve patient care delivery, health outcomes and business operations.

[Read the full case study here.](#)

Our Approach

We delivered a detailed set of patient satisfaction analytics, along with observations and specific recommendations that would have the highest impact on patient satisfaction levels and resulting CAHPS scores. We made a number of suggestions regarding patient communications, such as older patients needing to be carefully briefed on their medications and new mothers requiring extra attention on discharge day. We advised the client on resource planning to ensure proper staffing for these special circumstances.

Results

- | Analyzed 60,000 CAHPS records.
- | Identified factors leading to lower patient satisfaction.
- | Recommended specific improvements for increasing patient satisfaction, which is expected to significantly improve the organization's CAHPS scores.

Learn More

For more information and to view our full library of client case studies, visit www.cognizant.com/case-studies.

About Cognizant Digital Business

Cognizant Digital Business helps our clients imagine and build the Digital Economy. We do this by bringing together human insight, digital strategy, industry knowledge, design, and new technologies to create new experiences and launch new business models. For more information, please visit www.cognizant.com/digital or join the conversation on [LinkedIn](#).

About Cognizant AI & Analytics Practice

As part of Cognizant Digital Business, Cognizant's AI & Analytics provides advanced data collection and management expertise, as well as artificial intelligence and analytics capabilities that help clients create highly-personalized digital experiences, products and services at every touchpoint of the customer journey. We apply conversational AI and decision support solutions built on machine learning, deep learning and advanced analytics techniques to help our clients optimize their business/IT strategy, identify new growth areas and outperform the competition. Our offerings include Insight to AI, Customer Intelligence, Intelligent Automation, Product Intelligence, and Risk & Fraud Detection. To learn more, visit us at www.cognizant.com/cognizant-digital-business/applied-ai-analytics.

About Cognizant

Cognizant (Nasdaq-100: CTSB) is one of the world's leading professional services companies, transforming clients' business, operating and technology models for the digital era. Our unique industry-based, consultative approach helps clients envision, build and run more innovative and efficient businesses. Headquartered in the U.S., Cognizant is ranked 195 on the Fortune 500 and is consistently listed among the most admired companies in the world. Learn how Cognizant helps clients lead with digital at www.cognizant.com or follow us [@Cognizant](#).

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Insight to AI

Accelerate Business Solutions With Insight To AI

Successful businesses understand their target customers and build business models around them. Those who want to better understand customers can benefit from the new opportunities afforded by artificial intelligence—but only if human insight informs machine learning and improves algorithms.



All big business decisions are bets on human behavior

INTELLIGENCE—DRIVEN BY HUMAN INSIGHT

Today's companies want to increase the efficiency of their business by increasing revenue and optimizing operations. And while performing analytics on massive data sets provides useful insights into trends and developments for strategic decision-making, those seeking to leverage data want to avoid common mistakes that arise from using traditional data collection methods.

What algorithms can't yet do at most businesses, is respond immediately at a granular level to changes in behavior on the part of customers.

Every situation is different. Every use case requires a fresh look. Many businesses, therefore, are examining the possibilities of using artificial intelligence (AI).

But what might adopting AI really mean for your business? For AI to work, it must be amplified by learning from detailed exploration of use-cases at the human level. It must be capable of adjusting to the varying needs, wants, expressed intentions and behavior of the range of customers and potential customers. Data is critical—but AI moves beyond that to relying on algorithms capable of processing at a profoundly new level.

OFFERING OVERVIEW

Insight to AI gleans meaningful behavioral context and insights from big data – revealing the motivations and influences that drive human decision-making.

MAKING BIG THINGS POSSIBLE, BY PUTTING PEOPLE AT THE CENTER

Cognizant's Insight to AI offering leverages human science and artificial intelligence (AI) to better understand the needs, aspirations and motives that underlie customer behavior. Our approach offers a proven path to realizing ROI sooner, by adding contextual intelligence to data analytics.

How will a shopper react to an offer? What determines their choices to proceed, and buy? How do online customers behave when selecting banking products or buying insurance? What ensures patients receive correct information and make the right choices for care? What's the right way to develop a new digital product—and successfully promote its adoption?

Answering these types of questions comes down to rapidly understanding consumer behavior and preferences. Against the backdrop of big data, companies can glean actions of individuals or subsegments of users and guide their actions based on what they're looking for, how they're looking and what they need.

It's not just about connectivity or processing power, it's about data-mining and inputs across channels. It takes machine learning to generate human insights that can in turn be fed back into the loop of decision-making and refining algorithmic processing to allow for personalized

responses. While cloud connectivity and analytics are scalable, using AI to gain insights and respond accordingly requires a carefully focused approach to each discrete application. That requires different tools and algorithms.

This capability is within reach. In conjunction with our strategic partner, ReD Associates, Cognizant is

Customer Stories - Innovative Credit Card Solutions

We examined how credit card fraud is perpetrated—from the eyes of the perpetrator. Once we understood how the fraud actually worked, we identified ways to make it harder for fraudsters to succeed by disrupting their business model. This allowed our client to predict fraudulent purchases of items that are often resold, and added requirements to validate purchasers' identity to thwart illicit behavior.

Cognizant also improved the acquisition of new credit card customers in the small and medium business segments for a major financial institution by analyzing the business owners' financial goals, tax planning strategies, employee relationships and the nuances of the business.

Advertisers will spend \$40 billion more on Internet ads than on TV ads this year.¹ Cognizant's Insight to AI shows them how and where to maximize their returns.

leveraging research in social sciences to improve the accuracy and reliability of insights—so companies can act on those insights, frequently in real time. By observing people, rather than collecting data, we can mine *the why behind the what*—using so-called “thick data” from social sciences and behavioral research.

BEYOND BIG DATA ANALYTICS

Data analytics uses algorithms to generate insight and combine that information with market research. But classic market research surveys fall short in predicting human behavior, because most people answer based on their aspirations rather than on how they really behave in their lives. Additionally, surveys suggest the majority of data analytics projects are stuck at the starting gate.

So, businesses become frustrated. The gap between investments and actual results in enhancing predictability and improving decision-making is huge.

The fundamental premise of our Insight to AI solution is that companies can use qualitative data based on the human sciences—anthropology, ethnography, sociology—to understand what drives customer decision-making. Insights from such research—“thick data”—helps organizations to better meet their customers' needs and fulfill them.

Insights can be screened against quantitative big

data that's already available, resulting in a clearer, more predictable and accurate view of the future. This helps companies run their businesses develop better algorithms and create a competitive advantage by changing how they do business. Cognizant's Insight to AI partnership with ReD Associates, can help our clients across the spectrum of AI:

- **AI Strategy and Roadmap Creation**
Our human-centric approach recommends a design strategy and roadmap for setting up an AI and Analytics organization.
- **Insights Definition and Experimentation**
Driving improved, measurable outcomes for a definitive business problem by combining big data & thick data for contextual insights.
- **AI and Insights Organization Definition**
Helps establish the client's insights organization to identify, prioritize and implement high value business opportunities.

Our customers, whether enterprise-level executives like Chief Digital Officers or heads of lines-of-business, have achieved results in customer intelligence, product intelligence, risk intelligence and operations intelligence, all supported by our implementation accelerators like Vantage Point, our AI Center of Excellence and Augmented Analytics.

OFFERING OVERVIEW

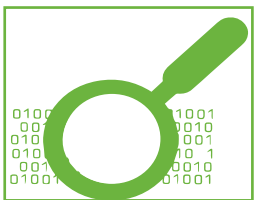


REALIZING DATA'S POTENTIAL

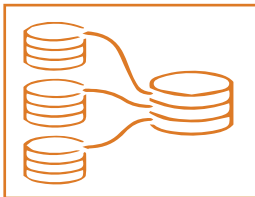
How to unleash the full potential of data? First, identify its status, then plan to address its deficiencies.



Overcoming Data Overload - The sheer abundance and heterogeneity of data sources is often baffling, and managing them is time-consuming. Cognizant helps organizations make decisions about what data is useful, how it can be processed and how to turn massive amounts of data into meaningful insights.



Providing Necessary Context - Numbers alone don't tell the story; it's easy to confuse correlation with causation. We help organizations correctly identify emerging issues in data, by developing appropriate algorithms that generate insights to inform decision-making.



Bridging Organizational Silos - Cultural and organizational gaps between IT and business teams can impede the automation of day-to-day activities. We help companies bridge those gaps and migrate all their assets into one ecosystem.

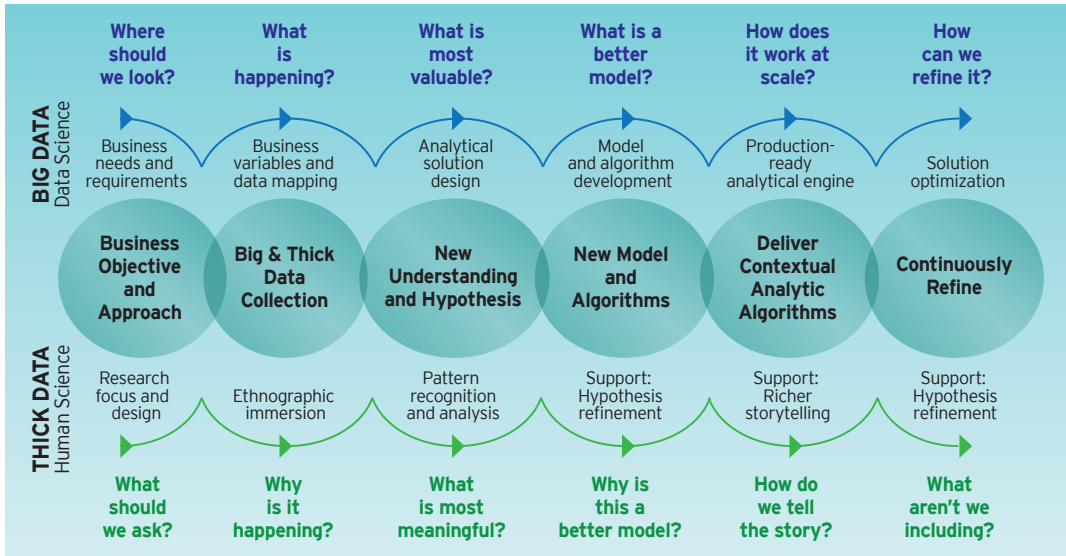


Figure 3. Six Steps to Better Insight to AI Intelligence

COMBINING DATA SCIENCE WITH HUMAN SCIENCE

To address gaps in our client’s analytics, we collaborate with internal teams in a six-phase progression:

- **Define Objectives and Approach** - Using data science and human science methods, we address two critical questions: “What questions are we looking to answer?” and “Where should we look for important data?”
- **Collect Big and Thick Data** - We gather relevant data to answer the question, “What is happening with our customers?” and “Do we know why?”
- **Develop an Understanding** - We perform analytical solution design, coupled with pattern recognition and analysis, to gain insights into “What products/solutions are most valuable?” and “What are most meaningful?”
- **Develop an Hypothesis, Then Generate New Models and Algorithms** - We next seek to develop hypotheses, design and test models and associated algorithms, then refine the hypothesis to address the question, “What is the better model - and why?”
- **Deliver Contextual Analytic Algorithms** - Provide an improved production-ready analytical engine, which includes richer storytelling for actionable and saleable insights, enabling continued algorithm innovation to meet evolving market needs.
- **Continuously Refine** - Iterate the resulting algorithms to optimize the solution and refine hypotheses. This ensures an ongoing process of answering not only “How can we improve the solution?” but also “What are we missing that needs to be added?”

PROVEN STRATEGY. UNPARALLELED EXPERTISE.

Cognizant's Insight to AI offering helps businesses engage and interact more effectively with customers—promoting insightful, personalized user interactions that drive loyalty, revenue and growth. We provide solutions based on the world's leading data analytics techniques and methodologies.

Our work is complemented by the proven expertise of our exclusive partner ReD Associates, a global leader in applying human sciences to the challenges of developing meaningful products and solutions. Together, we design and create advanced algorithms capable of merging big data and “thick data”. We provide:

- **Advanced AI and Analytics** - Our unified, mature approach integrates best-of-breed data science and human science methodologies.
- **World-Leading Expertise** - Cognizant and ReD Associates provide the most experienced, best-in-class analytics and AI experts.

- **From Strategy to Execution** - Our Insight to AI solution focuses on obtaining actionable information with greater accuracy and reliability, moving from data to insight.
- **Informed Decision-Making** - We focus on gaining richer, more detailed perspectives on why people do what they do, moving from data to insights, then from insights to decisions.

LET'S GET STARTED

Most analytics platforms present only half of the picture. Cognizant Insight to AI approach results in significantly improved algorithms that deliver the actionable insights big data alone can't provide—and the results you want, at scale.

We help business leaders develop strategies for addressing existential challenges—and have performed Insight to AI projects for multiple Forbes Global 2000 enterprises. To learn more, please visit <https://www.cognizant.com/cognizant-digital-business/applied-ai-analytics>.

REFERENCES:

1 Source - <https://www.recode.net/2018/3/26/17163852/online-internet-advertisers-outspend-tv-ads-advertisers-social-video-mobile-40-billion-2018>

ABOUT COGNIZANT

Cognizant (Nasdaq-100: CTSH) is one of the world's leading professional services companies, transforming clients' business, operating and technology models for the digital era. Our unique industry-based, consultative approach helps clients envision, build and run more innovative and efficient businesses. Headquartered in the U.S., Cognizant is ranked 195 on the Fortune 500 and is consistently listed among the most admired companies in the world. Learn how Cognizant helps clients lead with digital at www.cognizant.com or follow us [@Cognizant](https://twitter.com/Cognizant).



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Cognizant Softvision

Designing experiences, engineering outcomes.

Digital Engineering that delivers

Cognizant Softvision designs, engineers and delivers digital products and experiences that drive digital-first business models. We offer the most comprehensive engineering expertise and client-centric methodology for sustainable innovation.

Our capabilities

- Design and Build New Products and Experiences
- Transform Legacy Applications for the Cloud
- Modernize Core Infrastructure and Enterprise Platforms



Cognizant Named to HFS Research Winner's Circle in Software Product Engineering

In HFS Research's 2018 Software Product Engineering Services Blueprint Report, Cognizant is placed in the Winner's Circle for its consulting capability, deep client relationships and a strong partnership ecosystem for software product engineering.

[READ THE RESEARCH](#)

A passion for designing and building tomorrow's customer-centric digital products



We develop products that customers crave

New digital experiences transform customer journeys, rapid innovation launches new brands, and industry-first technology resets customer expectations.

Evolving traditional business into a digital-first mindset can overwhelm the most diligent organizations. Innovation—even with the best of intentions—has the potential to interrupt the operations. Most companies cannot afford to veer off course.

Cognizant Softvision's customer-centric approach to digital product engineering harnesses speed, scale and a digital DNA culture to deliver

engineering leverages speed, scale and a digital DNA culture to deliver experience-based software products. We enable our clients to accelerate their digital transformation journey by developing strategies to replace legacy systems with a cloud-native architecture. This is the first step to clients evolving from traditional into digital companies—ready for tomorrow's marketplace.

[VISIT COGNIZANT SOFTVISION](#) ▶

[READ THE PRESS RELEASE](#) ▶

Our digital DNA

Our digital engineering culture

10,000+ world-class product, design, and engineering pros residing in our thriving communities of talent, called Guilds. With a goal of better user-experiences, they collaborate to infuse technology, design and product-led thinking at every step. It's a global team that elevates clients to create organic, sustainable innovation.



Masters of transforming while performing

To enable our clients to evolve their traditional business, a digital-first mindset is central to our approach. Every day, we collaborate within our Guilds of technical specialists who we bring together as cross-functional, client-dedicated Pods that deliver results and innovation to clients. We enable agile thinking for problem solving.



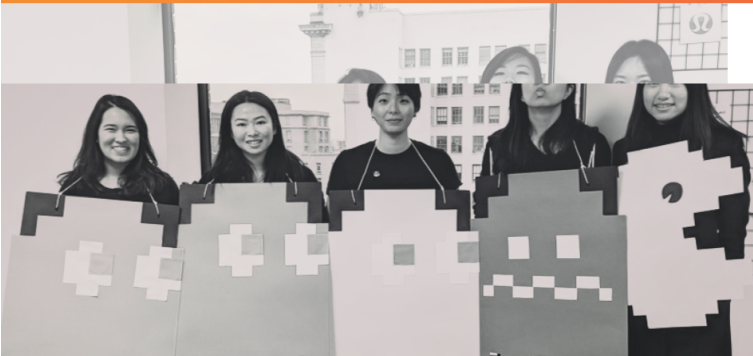
The power to scale

Cognizant Softvision's extensive client relationships and deep industry expertise catalyze our ability to scale quickly and efficiently. Our people-focused mindset puts consumer needs ahead of technology and allows us to deliver industry-first products that match tomorrow's user expectations.




Speed that keeps the pace

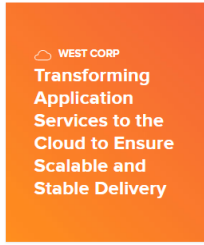
Product design-led and social science-informed, our agile teams of specialists turn real user needs into improved, innovative experiences—fast and on time. With a network of global talent and a model built for rapid, collaborative problem-solving, we hit targets, look for what's next and endlessly innovate. It's an outcome-based system that delivers.



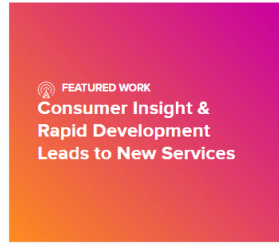
Learn more about our skill and scale




Top 3 Imperatives for Banks & Financial Services Companies




WEST CORP
Transforming Application Services to the Cloud to Ensure Scalable and Stable Delivery




FEATURED WORK
Consumer Insight & Rapid Development Leads to New Services



FEATURED WORK
Insight to Code Opens New Revenue Stream for Vehicle Manufacturer



BLOG
The Five Things I Learned While Being Acquired



Top 5 Imperatives for Communications, Media & Technology Companies

Take the first step

Serving customers by looking forward as well as back is a big promise, but the power of today's new digital capabilities is vast and growing.

Let's talk about how digital can work for your business.

NAME*	EMAIL*	ORGANIZATION*
CONTACT NUMBER*	REGION* ▼	INQUIRY TYPE* ▼
MESSAGE		
<input type="checkbox"/> I am not a robot		<input type="submit" value="SUBMIT"/>



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 Communications
 Consumer Goods
 Education
 Healthcare
 Information Services

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 Life Sciences
 Manufacturing
 Media & Entertainment
 Oil & Gas
 Retail

Technology
 Transportation & Logistics
 Travel & Hospitality
 Utilities

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 The Work Ahead
 Business Value of Trust
 21 Jobs of the Future
 Jobs of the Future Index

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INFORMATION FOR SUPPLIERS

Procure-to-Pay

