

DREXEL LEBOW

**Analytics**

**50**

**AWARDS**

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DREXEL'S LEBOW  
COLLEGE OF  
BUSINESS

AND THE

CENTER FOR  
BUSINESS  
ANALYTICS

D R E X E L L E B O W

# Analytics|50

**The Drexel LeBow Analytics 50** is a national recognition of analytics distinction, honoring 50 organizations using analytics to solve business challenges. The biennial initiative spotlights best practices and connects academia and industry. Honorees were selected by a panel of researchers and practitioners who judged nominations based on the complexity of the business challenge, the analytics solution implemented and the solution's business impact on the organization.



DREXEL UNIVERSITY

Center for

**Business Analytics**

*LeBow College of Business*

# WELCOME

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Oct. 5, 2023

We're delighted to welcome you to the 2023 Drexel LeBow Analytics 50 awards ceremony. Now in its fifth iteration, this recognition honors analytics distinction, amplifies best practices and applauds organizations across the nation for leveraging data to ask questions, address challenges and, ultimately, drive change.

Since its inception more than seven years ago, Drexel LeBow's Center for Business Analytics has had the privilege of learning from and connecting with data leaders across organizations and industries. Fueled by company partnerships that enliven curricula, inspire research and cultivate top talent for employers, we continually look forward to hearing about organizations' data in action. Your efforts in mobilizing data to navigate health care provider shortages, optimize wastewater treatment operations, improve customer acquisition and advance sea turtle conservation, among many other achievements, demonstrate not only the importance of technical expertise but also the power of ingenuity, innovation and the ability to bring data to life.

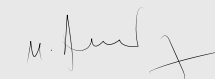
As the analytics field continues to evolve, so does our Center – not only in our approaches to preparing future analytics professionals at Drexel LeBow but also through reimagining how we impact a more comprehensive ecosystem of learners, educators and professionals. From youth to industry leaders, our life cycle of engagement introduces data-driven decision-making to middle and high schoolers, delivers business analytics degree programs to undergraduate and graduate students, fosters connection with alumni throughout their careers, and highlights the expertise of practitioners. Your work is the culmination of that life cycle – epitomizing success and growth while influencing each of the stages before you.

Thank you for the opportunity to recognize your contributions to the analytics field. On behalf of Drexel LeBow, congratulations!

Sincerely,



**VIBHAS MADAN, PHD**  
Dean, R. John Chapel Jr. Dean's  
Chair, Professor of Economics



**MURUGAN  
ANANDARAJAN, PHD**  
Senior Associate Dean;  
Academic Director, Center for  
Business Analytics; Professor of  
Decision Sciences and MIS



**DIANA JONES**  
Executive Director,  
Center for Business Analytics

# THANK YOU, SPONSORS.

We extend our sincere appreciation to this year's sponsors, whose generous support helps to make this recognition possible and strengthens the Center for Business Analytics in its commitment to developing experiences that prepare future analytics leaders. We are incredibly grateful for your support of and impact on Drexel LeBow's business analytics students and programs.

D R E X E L L E B O W  
**Analytics|50**

**precisely**

**TRAVELERS** 

PROMETRIC 

**iO** associates

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DREXEL LEBOW  
**Analytics**  
**50**  
**AWARDS**

THE HONOREES

# ACCENTCARE



accentCare™

Charlotte Mather  
Vice President, Nursing Operations

Dallas, TX

Health Care

## BUSINESS CHALLENGE

Hospices are seeking to develop a better understanding of their performance as they strive to provide patients and their families with quality care — particularly during the final days of life.

## ANALYTICS SOLUTION

In 2022, AccentCare began utilizing Medalogix's predictive analysis software platform that collects data on a patient's vital signs, pain assessments, medications changes and physician notes, among other data. The software uses more than 900 different data points that aid medical teams in predicting when a patient will need more intensive care during the last 7 to 12 days of life.

## IMPACT

After testing Medalogix's technology at certain locations in 2022, AccentCare saw a positive impact on its quality Consumer Assessment of Healthcare Providers and Systems scores. The results of the assessment inspired AccentCare to roll it out across all of its hospice locations, helping to develop a stronger understanding of patient conditions and provide necessary services.

# AIR CONSULTING



Marlene Sim  
Director of Operations

Philadelphia, PA

Business Management

## BUSINESS CHALLENGE

Organizations pour billions of dollars into coaching and leadership development each year. Yet, most struggle to understand whether that investment is producing results. That's because most providers deliver coaching and leadership development programs through a disconnected system of spreadsheets and emails that are difficult to manage, impossible to measure and void of the data-driven insights necessary for meaningful impact.

## ANALYTICS SOLUTION

AIR Consulting developed and launched a series of dashboards in Coaching Zone®, the company's web-based platform, that make it easy for its HR users to see, track, and measure coaching and leadership development programs with ease.

Developed based on more than a decade of bespoke reporting, and in close consultation with a group of trusted clients, Coaching Zone's HR Dashboards gather and synthesize data from a variety of sources to give users at-a-glance access to the information and insights that matter most to them. These powerful tools empower users to:

- See and track the progress of individual coaching, team coaching and leadership development engagements across their organization
- View developmental goal data at aggregate and individual level to understand what their leaders are working on
- Understand the effectiveness of coaching and development initiatives and their impact on individual leaders and the organization

In its dashboards, AIR also includes benchmarking across the company's entire data set, which is updated daily, so users can understand not only their leaders and organizations, but how they compare to leaders and organizations across their industries and around the world.

## IMPACT

Since launching this new feature, AIR has seen an increase of 43 percent in user adoption within the Coaching Zone® platform. Many of these clients have communicated that the ability to access the progress on coaching and leadership development engagements and glean insights has empowered them to demonstrate the value of coaching and leadership development initiatives within their organizations.

# AMERICAN AIRLINES



Ganesh Jayaram, PhD  
Chief Digital and Information Officer

Fort Worth, TX

Aviation

## BUSINESS CHALLENGE

In the immediate aftermath of the COVID-19 pandemic, airlines across the globe experienced an extraordinary number of flight delays and cancellations. Exacerbating the problem is a record shortage of airline staff, particularly within the ranks of pilots and air traffic controllers, and increased instances of extreme weather.

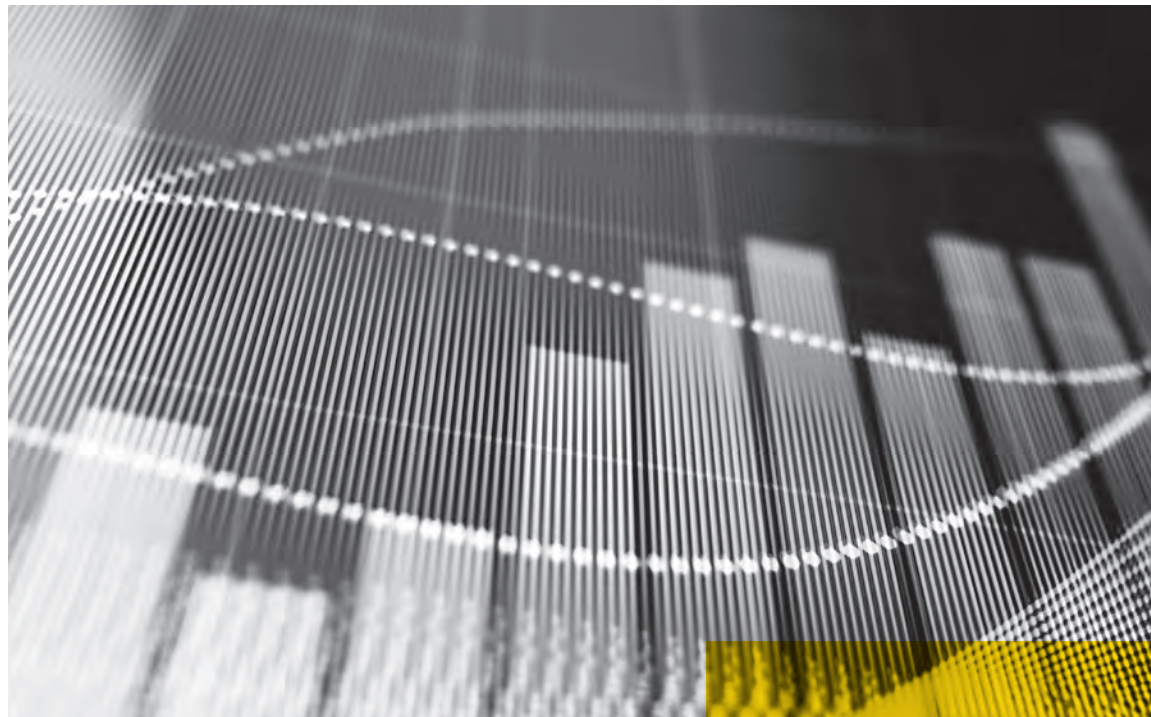
## ANALYTICS SOLUTION

American Airlines partnered with Microsoft, moving its data to Azure's cloud platform; implementing data hubs and frameworks; and employing AI, machine learning and data analytics to every aspect of its operations. This data transformation has helped American Airlines develop a deeper understanding of how issues impacted the airline in the past and how it can best overcome those same issues as they occur in the present.

## IMPACT

By centralizing its data into one central location on Azure, American Airlines will increase efficiency and decrease costs. While in the past it took weeks to absorb new data sources, these data systems allow real-time data from throughout the airline to be utilized for improving customer and operational outcomes in hours. The technology has also reduced the need for manual involvement from airline workers. For example, an intelligent gating program at the airline's Dallas-Fort Worth hub provides real-time analysis of routing and runway information. The program automatically assigns the nearest available gate to arriving aircraft, lowering costs by reducing taxi time, thus saving jet fuel.

# AMERICAN CENTURY INVESTMENTS



Tarun Sood, DBA '23  
Chief Data Officer

Tim Benham  
Senior Municipal Credit Analyst

Kevin Kelley  
Manager, Innovation Lab

Kansas City, MO

Finance

## BUSINESS CHALLENGE

With over 50,000 issuers and new bond deals coming to the market each week, the municipal bond market can be overwhelming for any investment team. At American Century Investments (ACI), the municipal credit team is smaller relative to its peers managing similar asset sizes. ACI wanted to leverage data to evaluate more effectively which credits to focus on from the upcoming week's deals while also casting a wider net from which to capture. ACI knew that analyst time has been constrained due to the lack of standardization in municipal daily disclosure and new issue documentation, and its length of 250+ page documents has made it difficult to quickly find important terms. The company strategized how it could streamline and simplify this process by leveraging new technology and techniques — freeing up valuable time for analysts and helping them to make data-informed decisions on the worthy credits to review for purchase in ACI funds.

## ANALYTICS SOLUTION

ACI has experimented with natural language processing (NLP), optical character recognition (OCR) and machine learning to extract keywords and topics from documents to automate processes. The company applied these tools and techniques in a small proof-of-concept for the municipal credit initial offering document and ongoing disclosure documents and showed the potential benefits of continued experimentation. ACI partnered with a group of Drexel LeBow business analytics students to automate an NLP-driven summary sheet, which generated additional derived metrics that allowed analysts to measure and compare bonds, relative metrics and ratings such as weighted average of yield and credit quality score and weighted average of risk metrics.

## IMPACT

The OCR and NLP-powered business term and bond measure extraction delivered the right level of detail for analysts to quickly respond to new offerings or make changes when disclosures show emerging trends. Bolstered by sector-specific business logic, additional bond analytics enable the credit analyst team to measure bonds relative to existing agency ratings as well as homegrown metrics. The end product highlighted the need for continued research, analytics and insights to support the municipal credit sectors. The team expects this and other related analytic builds to save hundreds of hours per year, making analysts more productive as well as empowering them with the right data to make informed and timely trade decisions on bonds.

The innovation program was formed about two years ago to funnel new ideas inside ACI and scale them to fully implemented business models. Innovation partnerships with academic institutions leverage research and student participation in the innovation process to contribute to ACI, as well as further students' education and employment. The Innovation Lab is a dedicated team exploring new technology and experimenting through prototypes to measure future business value through implementation.

# AMERICAN MEDICAL GROUP ASSOCIATION



Elizabeth L. Ciemins, PhD  
Vice President, Research and Analytics

Alexandria, VA

Health Care

## BUSINESS CHALLENGE

Colorectal cancer (CRC) is the second-most common cause of cancer death in the U.S. When diagnosed early, the five-year survival rate is over 90 percent. Stool-based screening tests are an effective option for people at average risk, but if it's positive, it must be followed by a colonoscopy within six months. However, the existing standard quality measure focuses on initial screening only. Since organizations use quality measures to prioritize improvement initiatives, a measure for CRC screening that fails to reflect the full testing process is a critical blind spot.

## ANALYTICS SOLUTION

By examining data from the electronic health records (EHRs) of 21 American Medical Group Association (AMGA) members, the organization learned that only about half of patients who had an abnormal stool-based test completed a colonoscopy within a year, demonstrating the need for an EHR-based companion quality measure. AMGA collaborated with AARP and Optum Labs to develop detailed specifications for a companion quality measure and to test reliability, feasibility and validity using de-identified EHR data from 38 organizations. AMGA evaluated differences in performance by race and ethnicity and worked with three AMGA member organizations to confirm the value of the measure, as specified, and the feasibility of obtaining the necessary data.

## IMPACT

Based on this work and another quality improvement initiative, AMGA Foundation launched a best practices learning collaborative focused on CRC screening and follow-up. AMGA will be working with 20 member organizations, using both the standard quality measure (reflecting initial CRC screening) and this new, EHR-based companion measure. Interest was further inspired by the finding that rates of timely follow-up after a positive stool-based test are 12 percent lower for Black or African American and Asian patients, offering participating organizations an opportunity for tangible progress on health equity. This carefully specified and well-studied new measure will enable tracking of impact in the new CRC screening collaborative.

# ANTHROPOLOGIE



ANTHROPOLOGIE

Ian Dewar  
Senior Director of Customer Strategy

Elizabeth Diehl  
Senior Manager, Analytics

Philadelphia, PA

Retail

## BUSINESS CHALLENGE

Anthropologie has always had a high percentage of repeat customers. For many years, the focus of marketing was retention, with a heavy emphasis on email and catalog as key tactics. This continued into the first year of the COVID-19 pandemic as the business focused on promoting the right products based on shifting purchase priorities while people worked from home. One key issue that expanded in this time was the high reliance on retaining active customers who were by default getting one year older every year. Anthropologie's analytics team realized the average customer age was continuing to raise as the brand focused on retaining active customers. Recognizing the need to refill the customer funnel with new customers, Anthropologie began a deeper analysis of customer age and ways to focus customer acquisition on younger customers.

## ANALYTICS SOLUTION

Using third party data, Anthropologie was able to match age data to both active and new customers every month. With increased access to customer age, the team divided customers into clusters based on age range and products purchased to understand where there was opportunity for increased penetration with younger customers. Using the foundational analysis, the team identified product groups with younger customer conversions. With this background data, the team created promotional tests with Meta to showcase key products to an audience under the age of 40 and an audience over the age of 40 to better understand cost per acquisition and product preference. By better understanding the under 40 customers' path to purchase, Anthropologie was able to build acquisition tactics for that segment of customers.

## IMPACT

The analytics team has now built a model to identify the number of customers under the age of 40 needed to lower the new customer age. The combination of background behavior and acquisition costs helped to forecast achievement of this goal via organic communication versus building an incremental acquisition campaign to build the new younger customer base. With increased understanding of the differences between customer behavior by age band, Anthropologie has now created specific marketing plans for under 40 versus over 40 and used customer data to better target existing customers and build acquisition campaigns for new ones.

# ARMY FUTURES COMMAND



Lieutenant Colonel Ralph Parlin  
Analytic Support Branch Chief

Austin, TX

Defense

## BUSINESS CHALLENGE

As a new Army headquarters, Army Futures Command needed an information environment for its success, requiring technologists to work closely with domain experts through rapid iterations to implement modern data, information and knowledge management processes and technologies that deliver quantifiable near-term improvement to priority command decision processes.

## ANALYTICS SOLUTION

Leveraging Azure PaaS and Army Futures Command's data science environment, the analytic teams were able to engineer critical decision support analytic pipelines that digitally transformed staff processes, enabling better and faster decisions. This often meant transforming siloed, static processes into digital workflows that standardize data at the point of capture; provide robust data transport, storage and telemetry; and deploy analytic decision support. Army Futures Command's engineering fundamentals are such that with each new analytic pipeline established, a data ecosystem is built, providing increased data relations and richness and allowing analysts to find insights in ways that were previously not possible.

## IMPACT

The analytic support division has grown the Command's data ecosystem 10-fold in the last 12 months, and with the digital transformation of over 10 workflows, it has allowed staff sections from across the headquarters to reduce staff and become more performant with an estimated 700+ staff hour savings each month. However, this work has done more than reduce staff hours. It marks the first steps toward establishing the culture, engineering and governance of a modern, data-centric organization by providing the Command a single source of truth data ecosystem; streamlining and reducing reporting channels for subordinate units; establishing an enterprise-level analytic capability; and perhaps most importantly, enabling the most valuable resource — people — by relieving them of making trade-offs between the time they spend processing data and building decision support products with the time they spend conducting analysis and interpretation.

# BABYLON MICRO-FARMS



Graham Smith  
Chief Technology Officer

Richmond, VA

Controlled Environment  
Agriculture

## BUSINESS CHALLENGE

Babylon Micro-Farms aimed to scale its network of remotely managed farms to hundreds of locations around the globe.

## ANALYTICS SOLUTION

Successful hydroponic plant cultivation requires constant monitoring and adjustment of environmental conditions to ensure healthy and nutritious crops. This challenge is amplified when trying to operate a distributed network of vertical farms. Babylon Micro-Farms has developed a remote management platform that combines proprietary computer vision to measure plant health and growth rate, pattern analysis for predictive maintenance across its fleet and growth recipe automation to improve plant yields. Using this approach, Babylon Micro-Farms has streamlined the user experience, making it possible for anyone to be a successful vertical farmer without requiring any prior expertise. Its fleet of micro-farms around the world is generating a valuable dataset that is being leveraged to continually learn how to improve yields and improve the user experience.

## IMPACT

The solution has enabled vertical farms to be “remotely managed” in a way that previously required a team of trained scientists and engineers — allowing hundreds of customers to realize the benefits of hydroponic growing and thousands of consumers to taste fresher, local and more sustainable produce. Babylon Micro-Farms has just a small, centralized team operating a distributed network with hundreds of farms.

# BARTRACK



BarTrack

Hunter Markle  
Co-Founder

Sterling, VA

Hospitality, Technology

## BUSINESS CHALLENGE

Significant business challenges for the hospitality industry and organizations that serve beverages on tap include beverage waste, lack of visibility into how waste occurs, and time spent taking and counting inventory. Beverage waste accounts for the loss of over 25 percent out of every keg due to foamy pours, unrung drinks and overpours — and the industry spends countless hours every week picking up kegs to estimate inventory and track it manually.

## ANALYTICS SOLUTION

BarTrack uses analytics for its clients by collecting pour data (every time a beverage is poured) from its patented sensors and integrating that data with the clients' point of sales systems. The company then uses client sales data and a custom algorithm to identify pours versus sales so clients can see when, where, how and why waste is occurring. BarTrack's data is the most granular in the industry — so a restaurant can look at a dashboard and view metrics for every beverage, the exact time waste occurred and how it occurred. Additionally, BarTrack's analytics provide its clients with real-time inventory levels so they can see exactly how much is left in a keg, rather than needing to pick up the keg to make an estimate.

## IMPACT

Collecting this data has enabled BarTrack to share its data across the entire ecosystem. The company is now beginning to work with various stakeholders — including beer distributors to provide them with real-time inventory and keg levels, draft beer servicing companies to provide them insight on foaming issues, and breweries and producers to enable them to identify where their beverages are being poured and if they are pouring in the proper temperature and pressure conditions. Additionally, BarTrack's clients are seeing an additional 10 percent out of every keg.

# BEST BUY



Craig Brabec  
Chief Data Analytics Officer

Richfield, MN

Retail

## BUSINESS CHALLENGE

Best Buy puts a strong emphasis on creating positive customer experiences in its stores, online and through its services. The quantity and variety of experiences Best Buy creates can make it challenging to analyze feedback for continual improvement. Prioritization using quantitative data, such as the value of a positive experience, is also needed to focus investments on the highest impact areas first.

## ANALYTICS SOLUTION

Best Buy performed a matched-pair analysis — which enabled a comparison of customers with the same profiles, yet different shopping experiences — that controlled for extraneous variables. Two questions were analyzed: What is the difference in spend between someone who had a good experience versus a bad experience? If we don't answer the phone at the store in a timely fashion, will the customer spend less money? Utilizing analytical techniques was very important, as Best Buy didn't want to run a field experiment where it purposely gave a customer a bad experience! This method allowed the company to look through very large datasets to find "statistical twins," where one had a good experience and another a bad experience.

## IMPACT

Understanding that resources are finite, Best Buy was able to prioritize experience improvements appropriately using this solution. The company gained understanding that there is a ceiling to experience improvements, allowing a focus on improvement to a point instead of to "perfect." Best Buy can now show revenue impact by service type based on improved experiences. While specific numbers aren't able to be shared, some service improvements can result in twice the number of gains in future revenue from a customer. During the analysis, the company uncovered additional insight on data from store calls (customers calling one of the store locations directly versus a central call center). Customers with a "sales intent" who give up while waiting for a call to be answered spent less over the next year. Increasing the ability to have these calls answered faster can result in a significant sales lift.

# CATHOLIC RELIEF SERVICES



Kathryn Clifton, PhD  
Global Data Analytics and Reporting Lead

Baltimore, MD

Humanitarian Development

## BUSINESS CHALLENGE

One of the biggest challenges Catholic Relief Services faces in the aid industry is making sure the organization is reaching the right people at the right time with its humanitarian support — helping those whose lives most hang in the balance due to urgent issues, such as extreme hunger or disease. One of the reasons it can be so hard to target the right people is that they are not always available to enroll in or attend the organization's services. People with low socioeconomic status work hard and are often busy; however, machine learning and AI are increasingly helping to bridge the information gap, allowing Catholic Relief Services to be far more efficient with aid dollars while saving countless lives in the process.

## ANALYTICS SOLUTION

AI helps Catholic Relief Services track the efficiency of aid programming — such as tracking attendance data for food distributions in places, such as Southern Madagascar, that are struggling with extreme hunger. AI also helps to track the gender, age, ethnic group and location of the people receiving aid, which enables Catholic Relief Services to adjust programming while addressing any gaps. Such real-time aid tracking and decision-making can mean the difference between life and death for those in particularly vulnerable situations. For example, the organization noticed in Benin that families of five with children behaved very differently than families of five with adults. Those with children were more likely to show up to get their bed nets. When the project was finished, the organization was able to share this type of information with the government to further efforts that could be targeted toward families of adults and families living near borders or highways that were less likely to show up to bed net distributions.

## IMPACT

Catholic Relief Services' AI model has been successful in countless ways, including in several malaria bed net distributions as well as within several food security programs and water and sanitation programs. Excitingly, the organization has plans for using the AI model in even more programs. Insights from the model allow these programs to target groups and identify their challenges while making the programs function far more effectively. In this way, AI is a game-changer for the aid sector, and the organization expects it to become even more vital to the work it does in the future.

# CITY OF PHILADELPHIA'S OFFICE OF IMMIGRANT AFFAIRS (OIA) AND OFFICE OF INNOVATION AND TECHNOLOGY (OIT)



Kistine Carolan  
Senior Program Manager

Philadelphia, PA

Government

## BUSINESS CHALLENGE

The Office of Immigrant Affairs (OIA) must coordinate data collection on language usage from 5+ vendors and 80+ city agencies. In this work, the office faced three challenges:

- The data management process became onerous, which took time away from core program work and advocacy efforts.
- Scattered data requests required OIA to create one-off analytics reports, disrupting workflows and requiring duplicative calculations.
- City employees lacked awareness of the free interpretation services. The community mistrusted how much the city was actually providing language services and the diversity of languages represented. Researchers, city council members, language advocates and more had trouble accessing OIA's PDF-based reports on language services usage, which they needed to inform research, legislation and more. The reports also lacked engaging and easy-to-understand visualizations of the data.

## ANALYTICS SOLUTION

As data and technology experts, the Office of Innovation and Technology (OIT) developed the Language Usage Dashboard in collaboration with OIA, the data owners and subject-matter experts on language services. OIA uses the dashboard to streamline data management, using it in working meetings with 80+ city agencies. OIA replaced manual analysis and email-based coordination with the dashboard, creating internal efficiencies. The dashboard promotes community trust by making the data accessible, engaging and interactive. It supports advocacy efforts, both by those in the public who are requesting services and internally when OIA and departments use it during budget planning. Lastly, having this data public promotes healthy competition among vendors, increasing the quality of customer experience.

## IMPACT

The dashboard saves more than 2.2 months annually of OIA staff time previously spent on tedious data coordination that can instead be devoted to core program and equity work. It vastly increases the city's consistency in data reported to the public and leadership by having it available in a centralized dashboard. The city also shared the underlying data that powers the dashboard as open data so that other researchers, journalists, students, advocates and more can use it for their own analyses. Through the visibility of this inter-departmental collaborative product, the city increases its commitment to residents to provide quality language services. Moreover, the dashboard serves as an accountability channel to ensure that the contracted translation and interpretation vendors report their data consistently to the city while improving quality of services, providing affordable pricing, reducing response time to connect with interpreters and establishing a wider pool of linguists to be prepared to provide the requested services in any language.

# COMCAST



Ernie Pighini '86  
Executive Vice President, Finance

Philadelphia, PA

Telecommunications

## BUSINESS CHALLENGE

Before implementing the Digital Changemaker program, business teams were relying on limited technology-skilled resources to help them automate their processes. They had goals to simplify and automate some of their more repetitive tasks but were unable to meet them. There was a need for technology that would allow a business user to code solutions for quick wins that would normally be passed over by the company's automation teams.

## ANALYTICS SOLUTION

To further build on the success of the Controllershship's automation efforts, the Digital Changemaker program was established. The program was designed for high-potential, digitally focused employees embedded within operations teams to accelerate citizen-led automation efforts. Beyond just addressing workload constraints within the Controllershship through automation, the primary focus is to invest in employees' professional and leadership development. Building a digitally minded workforce that is empowered to think outside the box and execute their own ideas not only benefits the Controllershship's culture and impact, but it also benefits the entire company, as the skills are transferable to any organization.

## IMPACT

Changemaker benefits are best categorized into three areas. Personal and professional development is at the forefront, and the Changemakers routinely solve problems that have plagued their teams for years. Nearly a quarter of participants have been promoted or have changed roles since enrolling, spreading the knowledge to new areas of the company. Secondly, the participants not only improve themselves, but they enrich their teams, championing change and technology among their peers as subject matter experts. Lastly, participants gain leadership visibility through cohort fireside chats, senior leadership team presentations and 1:1 mentoring.

One hundred fifty automations have been built, saving approximately 22,000 hours of annualized work hours and an estimated \$10 million in business benefit. One Digital Changemaker shared their thoughts: "The Digital Changemaker program had many benefits — networking and collaboration, data analytics experience, software knowledge — but most importantly, empowerment."

# CVS HEALTH



Jason Minchillo  
Executive Director, Data Science

Woonsocket, RI

Retail

## BUSINESS CHALLENGE

When the COVID-19 pandemic shifted the world, CVS Health was one of the leading retailers at the center of it — leading in an instrumental role by ensuring that impacted communities had access to critical services and helping people get the care they needed.

As one of America's leading retail pharmacies, CVS Health faced a continued surge and a need to support customers and communities during a pressing public health challenge. To sustain the level of crisis response that would provide the most essential services to the people who relied on them, CVS Health needed to examine and manage inventory throughout its retail locations — determining product performance and potential demand to ensure the continuity of care for customers, clients and patients.

## ANALYTICS SOLUTION

Leveraging SKU analysis, CVS Health was able to predict and optimize product performance throughout its pharmacies, increase forecast accuracy and reduce bias. Through these efforts to better understand product demand, CVS Health reduced excess inventory and optimized its small parcel shipment costs.

## IMPACT

Through its data-driven approach, the company's air shipments were reduced by 20 percent, resulting in cost savings and efficient inventory control processes.

# DELAWARE ACADEMY OF MEDICINE AND DELAWARE PUBLIC HEALTH ASSOCIATION



**Héc Maldonado-Reis**  
 Director of Research Development  
 and Analytics at Tech Impact's Data  
 Innovation Lab

Newark, DE

Health Care, Public Health,  
 Nonprofit

## BUSINESS CHALLENGE

The Delaware Academy of Medicine / Delaware Public Health Association (Academy/DPHA) needed to understand the composition of the Delaware health care workforce following the COVID-19 pandemic. Subject matter experts across the state were anecdotally aware of a health care worker shortage but unaware of the details supporting it. One acute area of need related to the nursing workforce. The Academy/DPHA needed data to be analyzed to make strategic decisions regarding workforce training and policy recommendations.

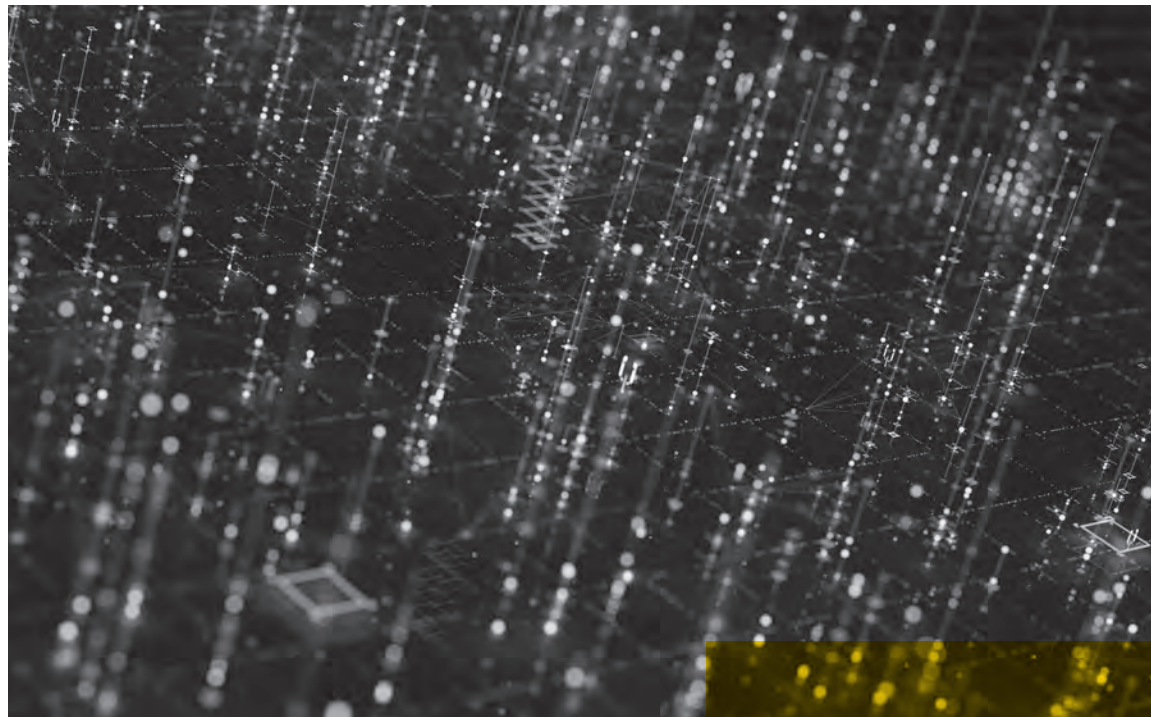
## ANALYTICS SOLUTION

The Data Innovation Lab (DIL) engineered a person-place dataset to explore distribution of nursing types and specialties at the ZIP Code Tabulation Area (ZCTA) level by leveraging health care provider licensing data and the National Provider Identifier (NPI). The dataset was processed to include one active license per nursing professional current as of March 2023 and grouped by nursing types including Licensed Practical Nurses (LPN), Registered Nurses (RN) or Advanced Practice Registered Nurses (APRN). Target patient populations were determined for each nursing type and the per capita proportion of nurses was calculated at specialty and license type levels for each ZCTA using demographic data from the Census. Geospatial data was pulled from the Census to visualize ZCTAs across the state combined with the per capita proportion of nurses. This dataset is large and complex, so a custom geospatial web application was built to allow end users to understand workforce challenges.

## IMPACT

The visualization and dataset inform the state of the nursing workforce population across Delaware and provide an understanding of the state's training demand across geographies. For current nurses, it provides guidance toward obtaining higher levels of training and education and having a more targeted involvement in population health. From here, a triage system where APRNs broadly assess the needs of patients and disseminate specialized care to physicians and other specialists can help ease provider shortage in Delaware.

# DELTA COMMUNITY CREDIT UNION



Sujatha Rayburn, DBA  
Vice President

Atlanta, GA

Financial Services

## BUSINESS CHALLENGE

Credit unions face a variety of challenges, including keeping up with their counterparts, modernizing to maintain relevancy and investing with limited budgets. Advancing digital transformation is crucial for survival in this competitive environment: those who do not advance risk the loss of key relationships and revenue sources.

## ANALYTICS SOLUTION

Following the COVID-19 pandemic, Delta Community Credit Union leveraged data analytics to develop a stronger understanding of member needs and offer relevant products and services. As a result, the credit union implemented a full-service model that provides products, services and strong communication channels for its members, regardless of whether they bank in person or online. The credit union is helping businesses to build a self-service model that empowers members to access their accounts, view transactions and much more through an online portal or mobile application. This deeper understanding of what members require has increased member satisfaction and maximized Delta Community Credit Union's value proposition.

## IMPACT

In addition to improving member satisfaction, the model also has automated processes that increase operational efficiencies and reduce costs.

# DISTRIKT



**DISTRIKT**

Hong Xiao  
Chief Innovation Officer

New York, NY

Data, Media,  
Marketing Technology

## BUSINESS CHALLENGE

DISTRIKT was brought in to consult for a scheduling software company that makes it more efficient for customers to book appointments with home service providers. The company had been in business for 11 years and hit a plateau in its growth due to its inability to analyze booking data, identify trends, align business strategies and secure repeat customers.

## ANALYTICS SOLUTION

The challenges this company faced were due in large part to its absence of data architecture design, leaving massive gaps and inconsistencies within its database. As a result of DISTRIKT's strategic data design and technology implementation, DISTRIKT was able to build a true data warehouse within Google BigQuery to clean, organize and further analyze the company's data through integrations with Tableau.

This allowed DISTRIKT to enhance the capabilities of the company's scheduling software and introduce data monetization opportunities that leverage data and paid media on behalf of home service providers.

## IMPACT

The solutions developed by DISTRIKT resulted in new data revenue streams for the company, including new user acquisition campaign solutions for its home service provider clients (managed by DISTRIKT).

These solutions utilized the company's data to strategically build both direct and lookalike audience segments for targeting across paid media channels (Google, Facebook, Instagram, etc.).

In addition to home service providers paying to use the company's scheduling software, approximately 60 percent purchased monthly advertising packages to generate quality leads. This new revenue stream did precisely that, while increasing the company's consumer database and attracting potential buyers.

Though the company has not yet been acquired, it has received multiple offers.

# ESTES EXPRESS LINES



# ESTES

Bob Cournoyer  
Senior Director of Data Strategy,  
BI and Analytics

Richmond, VA

Trucking

## BUSINESS CHALLENGE

Regardless of industry, customers are increasingly demanding access to data in real time. At many large organizations, however, data is spread out across various data systems. At Estes Express Lines, this issue forced each internal team to write its own code to access data from those systems. To meet customer demand and provide the necessary real-time information to internal stakeholders that would allow them to meet a customer's shipping requirements, Estes Express began working to improve data integration and data management.

## ANALYTICS SOLUTION

Estes Express applied Denodo's data fabric, making all of its enterprise data available in one central location. This data accessibility has enabled Estes Express to manage, incorporate and distribute data to any customer or internal stakeholder in real time.

## IMPACT

Estes Express' new data strategy has not only reduced the time to market, but it has also allowed the company to cut down its number of SQL databases, reducing technical debt.

# FOURFRONT



**Bob Scavilla**  
Partner and Chief Executive Officer

Philadelphia, PA

Digital Marketing,  
Technology

## BUSINESS CHALLENGE

FourFront's multilocation client MobilityWorks wanted to assess the effectiveness of its advertising campaigns and determine how far customers were willing to travel to buy a wheelchair van. Historically, the company's campaigns were set to target up to 100 miles from each store location. The challenge was determining whether Google Ads reached the company's target audience within a suitable distance from its physical locations. As MobilityWorks' data partner, FourFront was tasked to validate or debunk this assumption.

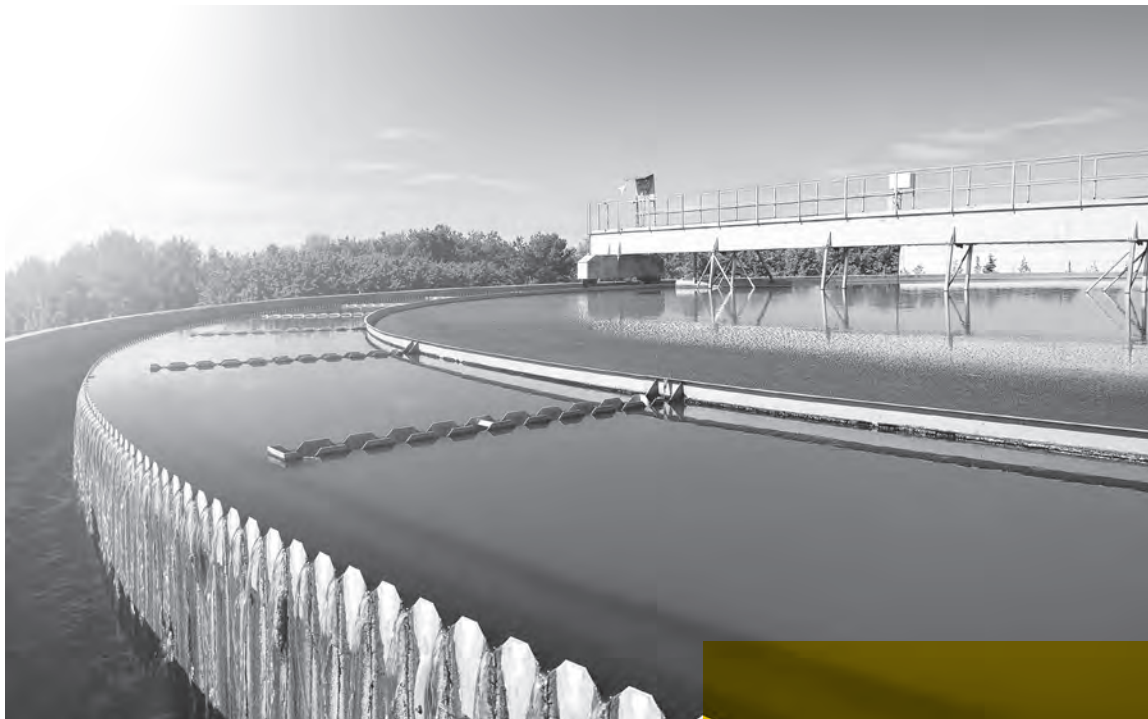
## ANALYTICS SOLUTION

FourFront developed a tool called GeoReport+ that enriches Google Analytics data with precise geographic location and zip code information. The tool also calculates the distance of each user session from the nearest store. Analysis of the enriched data revealed that user conversion likelihood varied by location and depended on whether the store was in a rural or urban area. To address this variability, FourFront provided the capability to define an ideal target radius for each store based on population density. Using the target radius, the tool segments each user as either "in range" or "out of range" to accurately quantify and assess the traffic quality.

## IMPACT

GeoReport+ data allowed MobilityWorks to optimize its ad campaigns for better targeting and improve the ROI on the company's spend. The enriched data is also used to identify expansion opportunities, measure various trends and improve the targeting of the company's emerging e-commerce offering for underserved areas. This solution emphasizes the importance of using data and analytics in making informed marketing decisions to optimize ROI. As a result of the impact GeoReport+ had on its business, MobilityWorks continually calls upon the FourFront team for additional data insights to inform marketing and various other aspects of business operations. For example, FourFront is often asked to analyze the potential benefits of new acquisitions from a data point of view.

# FREYA SYSTEMS



Chris MacNeel  
Chief Operations Officer and  
Senior Data Scientist

Media, PA

Information Technology  
and Systems

## BUSINESS CHALLENGE

Freya Systems partnered with a local municipal wastewater treatment company to optimize their operations and reduce costs through data-driven tools. The treatment of water consumes a significant amount of energy, and the client's budget for 2022 was over \$28 million — a 5.26 percent increase from the previous year. Wastewater treatment plants, particularly the aeration blower system, consume a substantial portion of energy, accounting for up to 70 percent of energy usage. Freya aimed to enhance efficiency by applying data analytics to optimize the client's aeration process.

## ANALYTICS SOLUTION

Freya analyzed the client's three years of data, collaborating closely with their team to understand operational intricacies. The data included dissolved oxygen measurements, valve openings, blower activity, pressure, airflow and other relevant parameters. Through analysis, Freya identified frequent, redundant activations of the fourth blower caused by preexisting automated processes. Leveraging this insight, they constructed an advanced random forest algorithm that accurately predicted 30 minutes ahead whether all blowers would be triggered.

## IMPACT

The algorithm's impact addressed three major challenges in wastewater treatment: cost reduction, greenhouse gas emissions reduction and equipment longevity. The industry's significant energy consumption results in 45 million tons of greenhouse gas emissions annually. Small-scale improvements can yield substantial benefits. Optimizing operational efficiency and reducing equipment usage prolongs asset lifespan while positively impacting costs and the environment. The algorithm demonstrated remarkable efficacy in predicting simultaneous blower usage during its trial phase, leading to its integration into plant automation. The actual cost reduction is difficult to calculate due to billing structures, but initial calculations revealed that the fourth blower accounted for approximately 10 percent of daily kilowatt usage. With 120 days of concurrent blower usage annually, the algorithm has the potential to save 5 to 8 percent of kilowatt usage on those days. The client reported that Freya's algorithms exceeded expectations and have successfully integrated into plant automation.

# HAMILTON LANE



Griff Norville  
Managing Director and  
Head of Technology Solutions

Conshohocken, PA

Investment Management

## BUSINESS CHALLENGE

Today, the private markets are occupying an increasing share of investment portfolios, and yet, limited partners spend an excessive amount of time and resources striving to capture the upside returns of this complex and illiquid asset class. It can be especially challenging for private market investors to navigate the multi-layered due diligence process, manage portfolio liquidity and plan for future commitments.

## ANALYTICS SOLUTION

Hamilton Lane (Nasdaq: HLNE) is one of the largest private markets investment firms globally, providing innovative, data-driven investment tools and solutions to institutional and private wealth investors around the world. Dedicated exclusively to private markets investing for more than 30 years, the firm has nearly \$818 billion in assets under management and supervision, composed of \$117 billion in discretionary assets and approximately \$701 billion in non-discretionary assets (as of June 30, 2023). Hamilton Lane's Technology Solutions, anchored by its proprietary Cobalt LP™ platform, couple leading technology with comprehensive private markets data and extensive due diligence to provide clients with the same insights and tools leveraged by the firm's global investment team.

## IMPACT

Encompassing one of the largest private markets databases globally, clients can leverage the Cobalt LP™ platform to cast a wider net in search of their next investment opportunity as well as conduct sophisticated market research, portfolio construction and analytics. Ultimately, these solutions are designed to help limited partners make decisions at each step of the investment process with greater confidence, precision and insight.

# HONEYWELL CONNECTED ENTERPRISE



Michael Ruiz, PhD  
Vice President and General Manager,  
Honeywell OT Cybersecurity

Atlanta, GA

Software, Cybersecurity

## BUSINESS CHALLENGE

Cybersecurity threats in the Operational Technology (OT) space are growing at an exponential rate. OT is at the heart of the world's critical infrastructure. To protect critical infrastructure globally, companies are looking for intelligent asset tracking and asset management capabilities that enable cybersecurity teams to protect their enterprise IT and OT assets. Large organizations have tens of thousands of OT endpoints and hundreds of thousands of IT platforms. Bridging the divide between OT and IT with accurate, reliable and timely insights is crucial to solving this problem. It requires pre-processing of data at the edge and processing of data using advanced analytics at the enterprise level. Converting raw data into actionable insights in the cyber domain is a challenging problem for any organization.

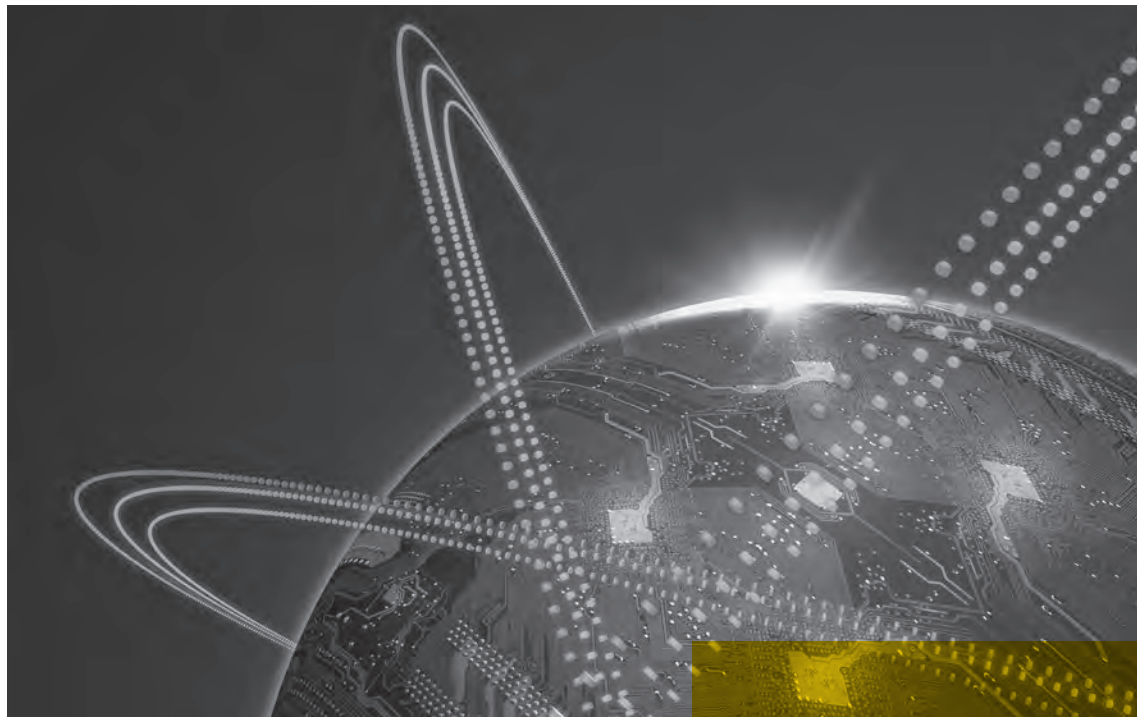
## ANALYTICS SOLUTION

Cyber Insights is a product co-created with Honeywell Connected Enterprise's leading clients and focused on data-driven approaches that enable clients to leverage the platform to understand the state of their cybersecurity from vulnerability, threat and compliance perspectives. Leveraging advanced analytics, the system exposes diagnostic, descriptive and prescriptive analytics insight to help clients make sense of their complex technology ecosystem. Honeywell Connected Enterprise's current version, in development, implements AI and machine learning to provide predictive analytics and to model context-based prioritization and remediation plans.

## IMPACT

This solution is still new. However, the company's research indicates that this capability will decrease the time that an attacker goes undetected in an OT network by 50 percent, which can reduce costs associated with incident remediation that, today, average more than \$4 million per incident, and limit damages caused by the incident, which average more than \$100 million per incident.

# IGNATIUZ SOFTWARE



ignatiuz

Himanshu Goil  
Managing Director

Exton, PA

Software Development,  
IT Consulting

## BUSINESS CHALLENGE

A leading pharmaceutical ingredient company faced challenges in meeting growing demand in a volatile market. It sought to optimize production processes and improve supply chain management. By implementing an analytics solution, the company achieved significant improvements.

## ANALYTICS SOLUTION

The solution involved a multi-phased approach that included data collection from sources such as SAP, production machines and supply chain partners. Real-time connections were established to collect and process confidential data. Advanced analytics techniques, including machine learning algorithms and statistical models, were applied to analyze the data and identify patterns and trends. The insights were visualized in an interactive Tableau dashboard, enabling better decision-making.

## IMPACT

As a substantial impact of the analytics solution, the company experienced enhanced efficiency by identifying inefficiencies in the supply chain processes and obtaining insights for improvement. Predictive models optimized the supply chain and production processes, resulting in reduced lead times, increased output and lowered operational costs. Inventory management was enhanced through real-time data on inventory levels, demand and lead times, leading to reduced excess inventory.

The solution also provided increased visibility into the supply chain, enabling proactive measures to address disruptions and mitigate risks. Decision-makers had the ability to monitor inventory levels and identify potential issues, allowing for quick responses and minimizing the impact on business operations. Overall, the analytics solution delivered several unexpected benefits, including improved efficiency, better inventory management and increased visibility, helping the company meet growing demands successfully.

# INTEL



intel®

Melvin Greer, PhD  
Fellow and Chief Data Scientist

Santa Clara, CA

Technology

## BUSINESS CHALLENGE

One of the most significant roadblocks hindering organizations that want to start or expand their use of deep learning models is the level of complexity in moving from the training stage to the inference and deployment stage. Deep learning has become the de facto approach for developing highly accurate models for image classification, object detection, real-time video analytics and many other problems. These advancements in accuracy have, however, increased the complexity of model development, training and deployment.

## ANALYTICS SOLUTION

Melvin Greer, PhD, fellow and chief data scientist at Intel Corp., created an AI tool that integrates and automates the training and deployment phases into a single workflow. Instead of relying on a data scientist to select, fine-tune and craft a neural network architecture during training, Greer's solution employs an innovative architecture design approach that automatically crafts a custom neural network architecture for the labeled training data being used. This simplifies model optimization for deployment during training. The result is a more streamlined workflow with less room for error, more models deployed and a simplified model management experience. This architecture performs its innovative architecture discovery and training on efficient Intel Field Programmable Gate Array (FPGA) accelerators — the same hardware acceleration that many organizations deploy for boosting the performance of models in production.

## IMPACT

This full ecosystem approach, employing advanced technology for both the training and deployment stages, means that models created during the training stage can be used in production deployment. There is no quantization, no pruning and no fusing to be performed. The model does not need to be converted, translated or reevaluated since the training optimization produced the most efficient design for the data. This change dramatically reduces time from days to minutes, decreases the cost to deploy to a fraction of the traditional method and requires fewer data science resources. The result reduces ongoing system complexity, improves overall financial performance and increases technical agility to deploy newer models as the system needs change with time.

# IOMICS



**IOMICS**  
SCIENCE THAT INSPIRES™

Joseph Gormley  
AI Technology Consultant  
Cambridge, MA  
Health Care, Life Sciences

## BUSINESS CHALLENGE

Among the highest priorities in drug research today is the development of smarter, faster and more evidence-driven discovery tools and technologies.

## ANALYTICS SOLUTION

IOMICS' AI-based platform for biomarker and drug discovery is driven by three important data science innovations:

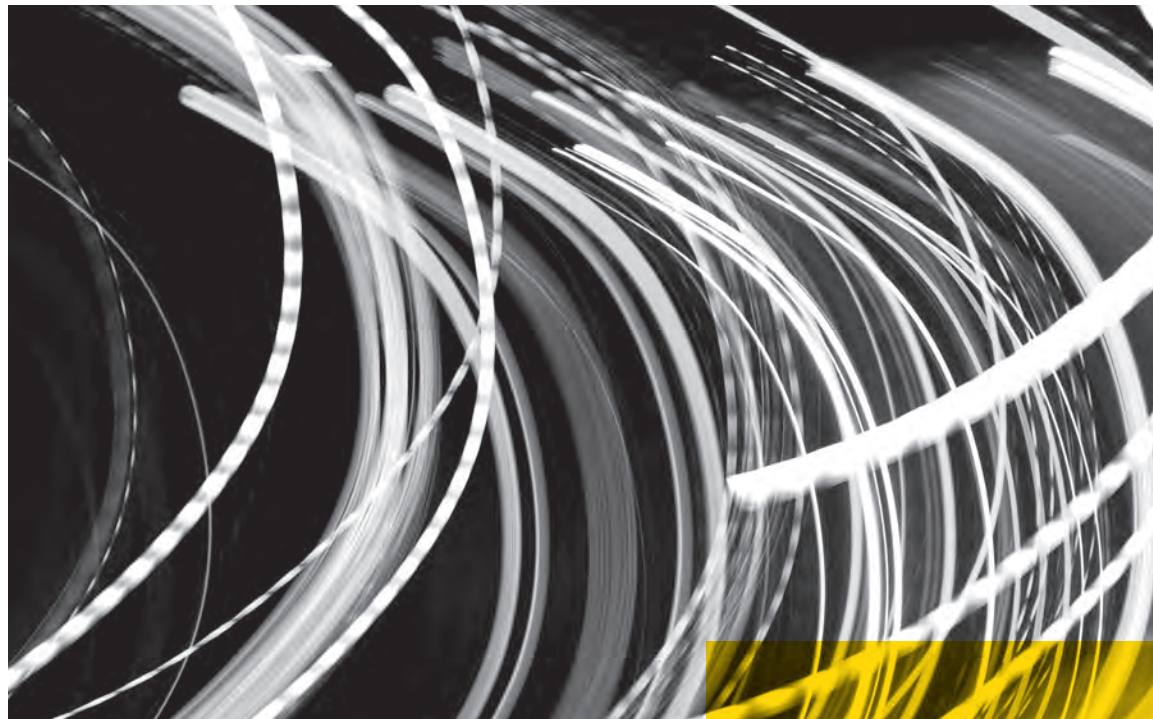
- Formalizing biological objective functions for use as control metrics
- Creating predictive models that operate in an automated cycle of exploration and information generation
- Enabling process discovery at the biochemical pathway level (which serves as a proxy for the state of a cell)

In combination, these innovations allow chemical behavior, cellular dynamics and therapeutic effect (e.g., toxicity, efficacy, etc.) to be profiled and optimized for identifying new drug-target candidates in a goal-oriented and more actionable context. Among IOMICS' successes is the study of biomarkers and, by extension, drug targets for dementia and Alzheimer's Disease. In collaboration with a top academic medical center, IOMICS' in silico discovery platform was utilized to identify molecules of interest and support rationalization of their importance in cognitive decline. Multiple actionable proteins were rapidly identified, with their cellular role retrospectively confirmed in independent laboratory experiments (e.g., *Nature* 570: 332–337), further validating the potential of multiscale computational strategies for drug and biomarker development. IOMICS' AI-based discovery platform will be applied to initiatives in cardiology, oncology and virology in 2024.

## IMPACT

The importance of AI and discovery automation within health care cannot be overemphasized. Precision medicine, which addresses the unique biology of individuals, will require new methods for rapid prototyping of drug-target candidates that are effective for the millions of new genomic profiles now being obtained in clinics. IOMICS technologies have been driving innovation at multiple NIH-funded academic medical centers and universities since 2014. Smarter AI-based discovery automation strategies, as demonstrated by IOMICS, will have a positive impact on personalizing therapies, reducing cost and time-to-market and improving patients' lives.

# IQVIA



Kristin Brilliant  
Director, Product Offering, Technology  
and Analytics, IQVIA MedTech

King of Prussia, PA

Life Sciences

## BUSINESS CHALLENGE

When a medical device and diagnostic company is ready to deploy a product to the marketplace, that organization needs to first understand where relevant procedures are performed and by whom. It also needs clear insight into how health care organizations are performing in terms of patient outcomes so it can deliver appropriate solutions (i.e., products) to the right patients at the right time. Yet, companies are often challenged with an inability to easily synthesize and understand the vast amounts of complex data to effectively track, monitor and ultimately improve these procedures.

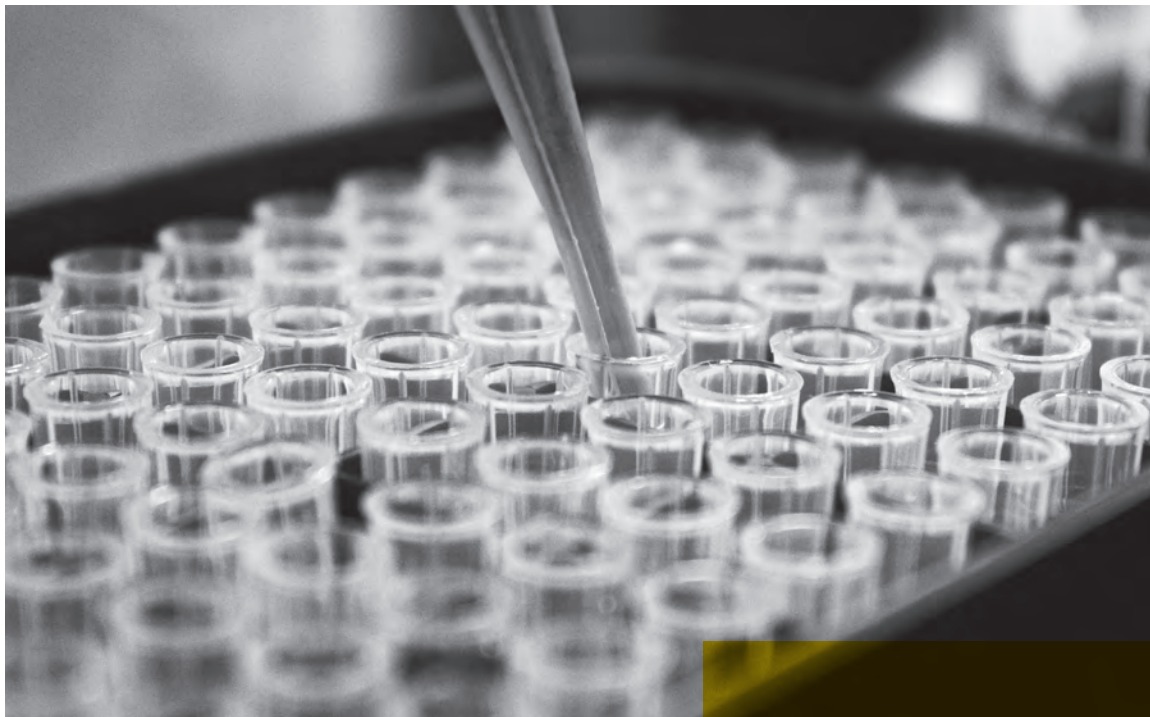
## ANALYTICS SOLUTION

Because IQVIA recognizes the inherent challenges in mining those critical insights across disparate data sources, including medical claims, reference information and publicly available datasets, it invested in the self-service search tool ThoughtSpot to empower medical device companies with the ability to analyze and explore their data at a granular level. Empowered with a way to quickly and easily slice and dice data, run ad-hoc analysis reports, and explore their data freely, these organizations gained the ability to better understand the market at a granular level with clear insight into where their products can truly improve patient outcomes.

## IMPACT

The introduction of ThoughtSpot allowed IQVIA to bring a new solution to the market that can and will help medical technology companies advance health care forward and ultimately improve their patient and product outcomes.

# LABWARE



**LABWARE**<sup>®</sup>

Patrick Callahan '93  
Head of Data and Analytics

Wilmington, DE

Laboratory Information  
Management Systems

## BUSINESS CHALLENGE

Laboratories around the world face challenges in analyzing and making predictions from their data due to various reasons. Laboratory data is often complex and voluminous, making it difficult to process and interpret using traditional data analysis tools. Additionally, laboratory experiments are typically designed to explore a large number of variables, which can lead to the generation of large datasets that are challenging to analyze and interpret.

## ANALYTICS SOLUTION

LabWare created a data science engine that enables the labs to do analytics on their own data. The company's data science engine leverages the power of R and Python to enable laboratories to analyze their complex and voluminous data and make predictions with ease. With the engine, laboratories can identify patterns, extract insights and gain a deeper understanding of their data to make informed decisions.

## IMPACT

Integrating AI and data science as foundational elements of LabWare's software has given the company a competitive edge in the market. With the ability to leverage these advanced technologies, LabWare can offer its users powerful analytical capabilities that help them gain insights and make better decisions. This has opened a whole new world of possibilities to expand the company's software and explore new use cases in the laboratory space.

# LOCOMEX



LOCOMeX

Fauziya Yakasai, PhD  
Head of Data Science and Analytics

Philadelphia, PA

Technology

## BUSINESS CHALLENGE

Logistics and supply chain have always been challenges that demand attention. Especially during the COVID-19 pandemic, it was evident that many organizations face supply chain disruptions and challenges, are unable to track their shipments and face delivery delays. COVID-19 exposed the lack of supply chain resiliency for so many organizations.

## ANALYTICS SOLUTION

LOCOMeX worked closely with a few of its clients and their analytics teams to understand the data complexity and harness the data to address challenges of supply chain resilience. The company developed a data-driven supply chain optimization model that predicts and optimizes supply chain disruption risks and also tracks the impact of ESG, sustainability, supplier diversity and local or domestic content policies.

## IMPACT

The solution helped LOCOMeX's clients to:

- Accurately predict supply chain risks and potential for delays.
- Track and analyze ESG metrics, thereby contributing to supply chain decarbonization.
- Build sustainable business practices.
- Build a machine learning supplier based ESG risk scoring model to predict suppliers' ESG materiality risk and impact on supply chain resilience.

# MCDONALD'S



Molly Sullivan  
Senior Manager,  
Data Quality Engineering

Chicago, IL

Food Service, Retail

## BUSINESS CHALLENGE

As America's largest fast-food chain, McDonald's must sort through massive amounts of data. Utilizing accurate, sound and complete data is key to making informed business decisions as the company continues to grow and evolve.

## ANALYTICS SOLUTION

To understand data quality, foster trust in data and direct decision-making, McDonald's proactively monitors and addresses data quality incidents in real time. An example of proactive monitoring was the launch of the MyMcDonald's Rewards Program that allows customers to receive points on every order, which can be redeemed for free or discounted items. During the pilot, McDonald's used the Lightup application to measure data quality, helping the company to resolve issues prior to a broader rollout. As a result, 99.99 percent of the loyalty points data was accurate when the program was fully launched. Lightup's capabilities enable McDonald's to address data issues quickly when they do occur.

## IMPACT

McDonald's has more confidence in its business-critical data, empowering the company to make decisions quickly and confidently. The decreasing amount of data quality issues and use of AI-powered data quality checks have allowed the company to accelerate its time to market and will improve business outcomes.

# MEDSURVEY



Gennadiy Geyler '06  
Chief Solutions Officer

Southampton, PA

Market Research

## BUSINESS CHALLENGE

As medical treatments are becoming more specific, there is an increasing need for more market research to effectively bring new products to market. CAR-T is a novel cancer therapy, so there is a less than clear understanding of it outside of the pharmaceutical and physician worlds. MedSurvey took the additional due diligence of analyzing insurance claims data and found there were far fewer patients and treating physicians than anticipated.

## ANALYTICS SOLUTION

Through MedSurvey's proprietary tools, developed based on years of medical market research experience, in combination with a variety of commercially available databases, the company was able to determine there were fewer patients and physicians involved with CAR-T. MedSurvey was also able to properly identify the type of physician that was administering the treatment. This differed from what was originally anticipated prior to MedSurvey's analysis of claims-level data and other real-world evidence. With the new understanding of the actual size of the market as presented by MedSurvey and its real-world evidence, survey design shifted from a quantitative methodology to a qualitative methodology to provide a deeper understanding of the original business questions posed by the pharmaceutical company. This precise targeting has aided pharmaceutical companies in making more intelligent and data-driven decisions.

## IMPACT

Oftentimes, health care market research studies are designed around lacking information. Through use of real-world evidence and commercially available databases, MedSurvey has been able to point its clients in the right direction when it comes to designing a market research strategy. This thoughtful approach in sorting out issues in the beginning and arming clients with analytical reports helps to improve methodology and produces better research.

# NESTER



Brendan Kennealey  
Chief Executive Officer

Wilmington, DE

Real Estate

## BUSINESS CHALLENGE

The no. 1 regret of homeowners is not being prepared for the unexpected costs of maintenance and repairs. NESTER tackles this challenge head-on using data and analytics. However, its biggest hurdle in helping customers is that the data the company needs doesn't currently exist anywhere in an aggregated form.

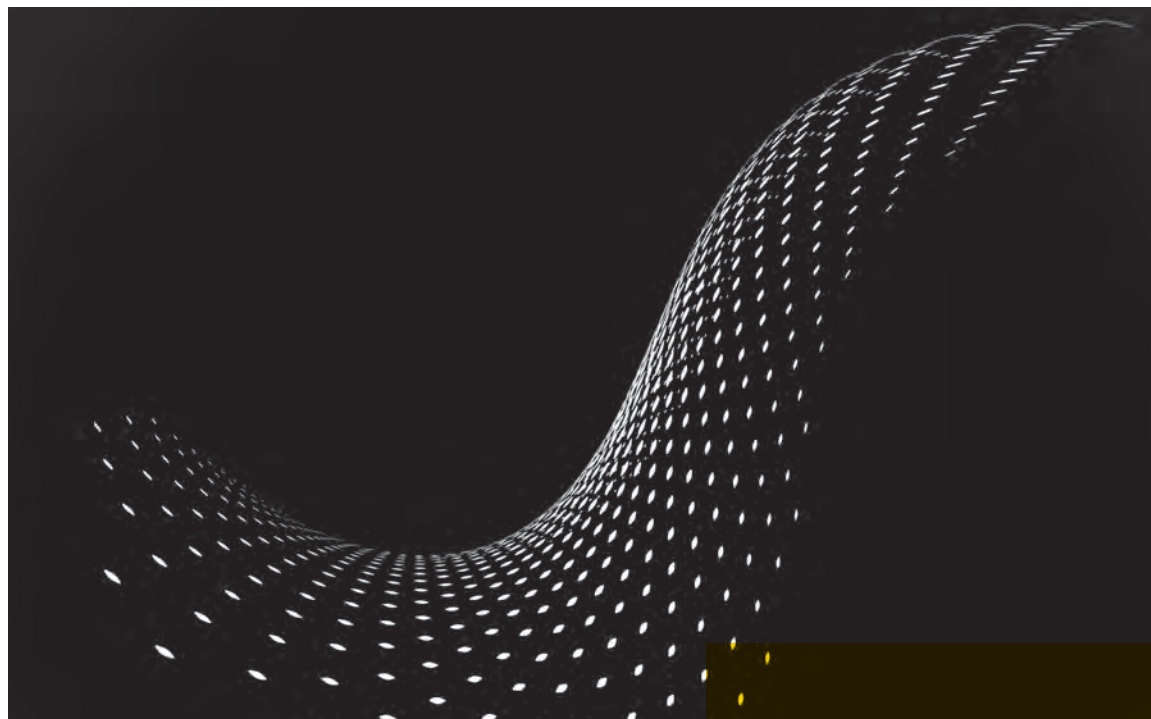
## ANALYTICS SOLUTION

NESTER built a platform where homebuyers and homeowners can input data about single-family homes across the country. Then, through a series of proprietary algorithms, the company uses that data to create a NESTER Report, which includes a maintenance timeline and cost projections for future repairs on any existing home. Homebuyers can use their NESTER Report to make more informed decisions when purchasing their homes, deciding on how to best finance their homes and negotiating the prices of their homes. Homeowners can also use their NESTER Report for planning and budgeting for homes they already own.

## IMPACT

This solution is the key to NESTER's success and makes the company attractive not only to consumers and corporate partners, but also to investors who understand the long-term impact this data — and the company's commitment to steward it responsibly — will have on the industry.

# NEUROFLOW



Bill Lynch  
Senior Director of Data Science  
and Analytics

Philadelphia, PA

Digital Health

## BUSINESS CHALLENGE

The nation's mental health crisis has driven demand for behavioral health support and services to an all-time high. Meanwhile, the supply of health care providers and specialists remains alarmingly low, leading to long patient wait times, poor clinical outcomes and higher health care costs. Hospitals and health systems are actively seeking data-driven solutions to bridge this gap in care to help facilitate remote screening for behavioral health and triage individuals to the right level of care.

## ANALYTICS SOLUTION

Combining remote assessment data and other validated metrics, the data team at Philadelphia-based health tech company NeuroFlow has created a proprietary severity score to develop a baseline for individuals and triage them accordingly. Patient-reported and passive data were collected from 3,000 users to develop and train an AI algorithm that demonstrated a strong correlation between the severity score and PHQ-9 and GAD-7 scores. Acuity levels calculated by NeuroFlow's severity score had statistically significant correlations with expert panel clinical assessments of patient records. The severity score is capable of identifying at-risk individuals whom a PHQ-9 may miss during standard treatment, as it incorporates additional data such as mood scoring, journals and other patient-submitted health information.

## IMPACT

Leading organizations utilize the NeuroFlow severity score to properly risk stratify individuals and ultimately help get the right people to the right level of care. For example, Jefferson Health reported a 34 percent reduction in emergency department utilization thanks to the NeuroFlow platform, and Prudential was able to identify 19 percent of claimants with a physical disability who used NeuroFlow had previously unidentified mental wellness needs. The NeuroFlow severity score showcases the impact that thoughtful data-driven solutions can have on supporting care providers and driving innovation for the health care system.

# NJ TRANSIT



Lookman Fazal  
Chief Information and Digital Officer

Newark, NJ

Transportation

## BUSINESS CHALLENGE

In 2020, NJ Transit initiated a data mining process from its old infrastructure, aiming to transform its IT operations to a cloud-based system. This would facilitate predictive analytics and machine learning.

## ANALYTICS SOLUTION

The IT team diligently collected data from various sources, moving the bulk of it to a multi-cloud setup. With this data warehouse, NJ Transit can derive more insights, assessing train and bus punctuality, employee availability, the reasons behind delays and forecasting weather impacts on services.

## IMPACT

NJ Transit has expanded its team to boost its data transformation and hasten insights. The company's advanced data capabilities enable better foresight of its business analysts' needs and allow the IT team to create innovative ideas, focusing on developing and modernizing transportation services.

# OWENS CORNING



Malavika Melkote  
Director Analytics and IT

Toledo, OH

Manufacturing

## BUSINESS CHALLENGE

Sustainability is about meeting the needs of the present while leaving the world a better place for the future. Transparency is important in providing customers with information about Owens Corning products. Life Cycle Assessment (LCA) is used to measure the environmental footprint of a product at all stages of its life cycle, from extraction of raw materials through processing, manufacturing, product use, and all the way to end of life through disposal or recycling. This project delivered scalable digital capabilities for LCA data and insights to drive sustainability goals. The objective of the project was to enhance efficiency, speed and scalability, with data collection from over 100 plants around the world and multiple third-party sources on which to analyze and report.

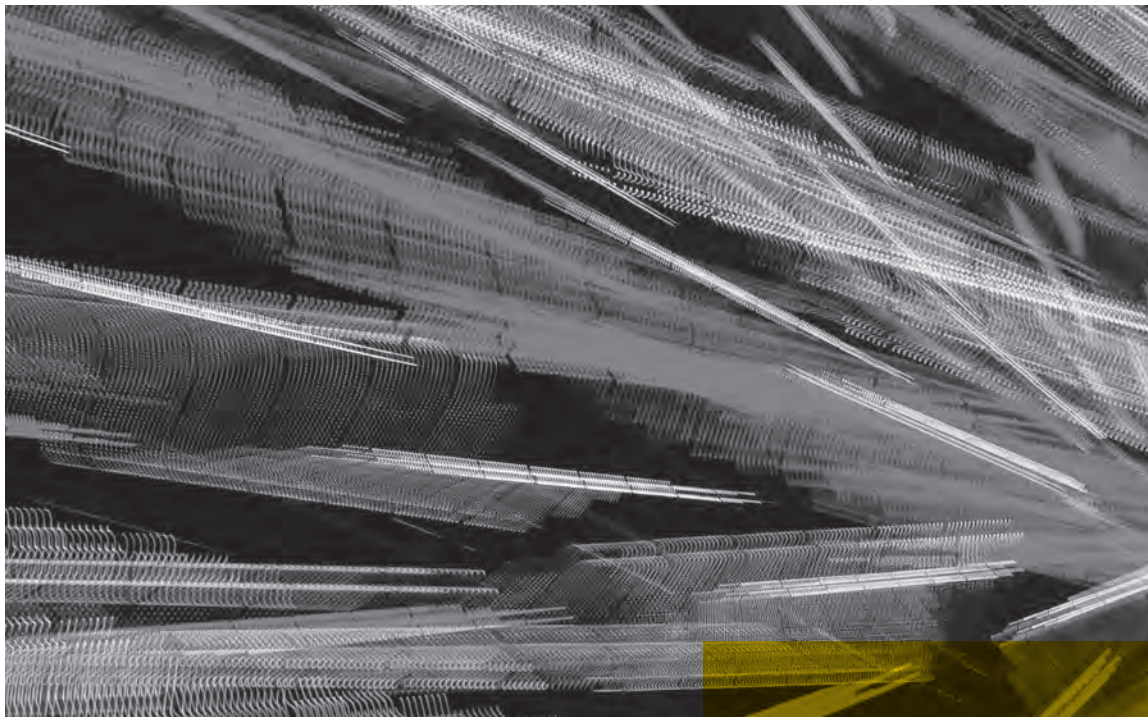
## ANALYTICS SOLUTION

Data collection across plants was manual and prone to inconsistencies, as inputs depended on the employee collecting data, which caused variation in measurements and information from plant to plant. The first step was to standardize data collection to build a user tool enabling data for an LCA to be obtained by simply selecting a plant, product group and date range. Calculations were standardized by leveraging the enterprise data warehouse for metrics and reporting. A true game changer was the improved speed with which data was collected from plants and third-party sources, creating a future-ready data foundation. Using flexible models, the team can calculate product environmental footprints and perform scenario analysis to direct product and process design changes, which can lower the environmental footprint.

## IMPACT

The data foundation, built for future growth, drives employee productivity in plants across the globe by reducing time spent on data collection and integration from one month to three days. LCAs can be performed at a higher cadence with increased accuracy, continuously improving product sustainability with a data-driven feedback loop. The data foundation also improves responsiveness to customer requests for information related to carbon footprint.

# POND LEHOCKY GIORDANO



 POND LEHOCKY

Shawn Lehocky, MBA '23  
Chief Executive Officer

Philadelphia, PA

Law

## BUSINESS CHALLENGE

Pond Lehocky Giordano LLP had tens of thousands of individuals soliciting its help to receive various types of benefits at a devastating point in their lives when they were injured, disabled, in financial despair, on medications and unable to provide for their families. The challenge was that the clients were not aware of all the possible benefits to which they were entitled. The firm's task was to efficiently analyze each case and establish a systematic approach to uncover all potential benefits that could be pursued on their behalf.

## ANALYTICS SOLUTION

The firm built an algorithm that analyzed clients' files, matching critical information against keywords to identify liability and damages in mass tort, single event, Social Security disability, workers' compensation and employment law cases. Overcoming nationwide data challenges such as regional vernacular, misspellings and medical codes, the firm's solution involved word frequency counters and external data sets to cleanse and structure the information into a workable database. Once terms were flagged, the team informed clients of additional legal avenues they were eligible for beyond their initial case. This revelation often came as a surprise to the clients, who were previously unaware of these opportunities.

## IMPACT

Pond Lehocky Giordano's invention brought hope to thousands of clients during their toughest times. Its success led to the creation of a dedicated department for mining new cases from the firm's existing inventory. From a business perspective, this innovation has significantly increased revenue, improved client return rate and boosted customer lifetime value by 20 percent. As a result, the firm has experienced exponential growth and established a nationwide network of exceptional law firms capable of handling any type of case in any location. The department has become one of Pond Lehocky Giordano's largest and will continue assisting clients well into the future.

# PRECISELY



precisely

Amy O'Connor  
Chief Data and Information Officer

Burlington, MA

SaaS, Data

## BUSINESS CHALLENGE

As the global leader in data integrity, Precisely helps over 12,000 customers around the world to achieve trust in their data through building maximum accuracy, consistency and context. But after a period of fast growth and high volumes of merger and acquisition activity, the company was met with a familiar challenge — how to bring together the data from different acquired companies and ensure its integrity for confident decision-making across the business. The project team, led by Amy O'Connor, Precisely's pioneering chief data and information officer, drove large-scale digital transformation to integrate the newly acquired businesses and build a new organization based on trusted data.

## ANALYTICS SOLUTION

The team relied upon the company's own market-leading data integrity solutions to create foundations of accurate, consistent and contextual data — prioritizing the integration of customer account data and embedding a best practice approach for building data quality and standardization that could be continued over time. Location intelligence was leveraged to unlock additional context and create a complete view of the data, while the company's own unique location identifier, PreciselyID, enabled data to be easily tracked and organized at scale.

## IMPACT

The team succeeded in establishing a culture of data integrity across all parts of the business, which involved migrating 228 datasets across eight lines of business in just nine months. In doing so, the team successfully implemented data standardization processes to ensure data consistency moving forward and improved data quality by an impressive 98 percent.

"As the global leader in data integrity, we have a responsibility to demonstrate best practices in achieving trusted data," said O'Connor. "Whether it's our own business, or one of our 12,000 customers worldwide, we're proud to power organizations with the accurate, consistent and contextual data needed to make confident decisions and drive successful outcomes."

# PROMETRIC



Philip Poletti  
Vice President, Channel Operations

Baltimore, MD

Assessment, Education

## BUSINESS CHALLENGE

The assessment industry historically offered services only through brick-and-mortar storefronts called test centers. During the early stages of the COVID-19 pandemic, these centers had to operate according to government-imposed restrictions. A fringe technology within the industry at the time, offering licensure and certification exams remotely, became the only viable contingency. The challenge was scaling that remote solution 1,000 times while simultaneously reopening 450+ global brick-and-mortar test centers after a 1.5-month closure.

## ANALYTICS SOLUTION

For reopening test centers, Prometric leveraged external data to understand the occupancy rates in which the company could operate and which customers could be served (some governments only allowed essential services) and layered that with internal data such as customer bookings and staffing levels. The data was disparate, live and ever-changing. In parallel to reopening the test centers, Prometric had to scale its remote assessment solution at a pace never imagined. A proven analytics leader in the business was assigned to build the data infrastructure needed to scale and run the program. This included building, on the fly, dashboards and reports of the end-to-end customer experience. This utilized SQL, Tableau, PowerBI and internal databases to be able to view any part of the customer journey.

## IMPACT

Test centers progressively reopened throughout 2020 in a phased approach. It took nearly one year for all centers to reopen and operate for full occupancy and customer base. The remote assessment line of business grew from serving less than 2,000 test takers a year pre-COVID to over 11,000 per month immediately after COVID restrictions began. Since then, Prometric has tripled its growth, a testament to the foundation of the quick work by the analytics team. Other notable advancements in performance include the introduction of workforce management tools, improved capacity management and end-to-end successful testing metrics that transformed the business by highlighting areas in need of improvement initiatives.

# QLIK



Mike Capone  
Chief Executive Officer

King of Prussia, PA

Software: Data, Analytics, AI

## BUSINESS CHALLENGE

The past few years created an unprecedented range of challenges for Qlik's customers, from worker shortages and supply chain disruptions to inflation and geopolitical conflict. These customers partnered with Qlik to modernize their approach to data, especially through the cloud. Working with Qlik, these organizations can now access, transform and activate their information for real-time decision-making, helping them navigate any unexpected disruptions while still running their core business operations and taking advantage of new market opportunities.

## ANALYTICS SOLUTION

Qlik's end-to-end data and analytics platform gives customers a best-in-class approach to turning raw information into actionable data. Qlik's solutions fuel real-time decisions and predictive analytics, leveraging AI and natural language to enhance every aspect of business across industries — from supply chain management to finances, retail operations and health care. Examples include:

- HARMAN, a division of Samsung Electronics, uses Qlik to both manage its own business while incorporating Qlik capabilities into its revenue-generating offerings from its digital transformation solutions team.
- Honda is using Qlik company-wide for value creation, including areas such as carrying out root-cause analysis of sales situations, analyzing the occurrence of quality problems and reducing production costs.
- Airbus now has complete visibility into its entire supply chain through Qlik to manage the procurement and inventory of tens of thousands of parts for its aircraft production process.

Insights through Qlik enable over 40,000 companies to react quickly to unexpected events while thriving in a challenging environment.

## IMPACT

Qlik has seen double-digit growth in its cloud business, improved net retention by 5 percent and increased net promoter scores to record levels.

# REALTOR.COM



realtor.com®

Ben Litvinas  
Senior Vice President,  
Data Science and Analytics

Santa Clara, CA

Real Estate, Internet

## BUSINESS CHALLENGE

Realtor.com is one of the nation's most popular home search destinations, with more than 100 million users visiting the site each month. With hundreds of thousands of property listings, it is also a data-driven organization, but the company grappled with operationalizing machine learning algorithms at scale. While the product team was focused on developing features that used complex algorithms, the company initially lacked a cultural mindset to leverage and utilize machine learning algorithms as building blocks to provide more personalized consumer experiences.

As part of a company-wide initiative to understand site users on a deeper level, the marketing team enlisted the data science team's help. The marketing team created a list of 30 different predictive dimensions that they wanted to identify for each site visitor. To deliver on this request, the data science team would need to develop many algorithms. Typically, it would take several months to complete each model, making the total time to complete the project too long to be viable. This was the impetus to develop an acceleration framework, an internal project that leverages advanced data science and machine learning techniques, processes and tooling to create automated and scalable workflows for the data science team to access, aggregate and explore data. It also enabled the team to utilize that data to develop production-ready machine learning models exceptionally quickly.

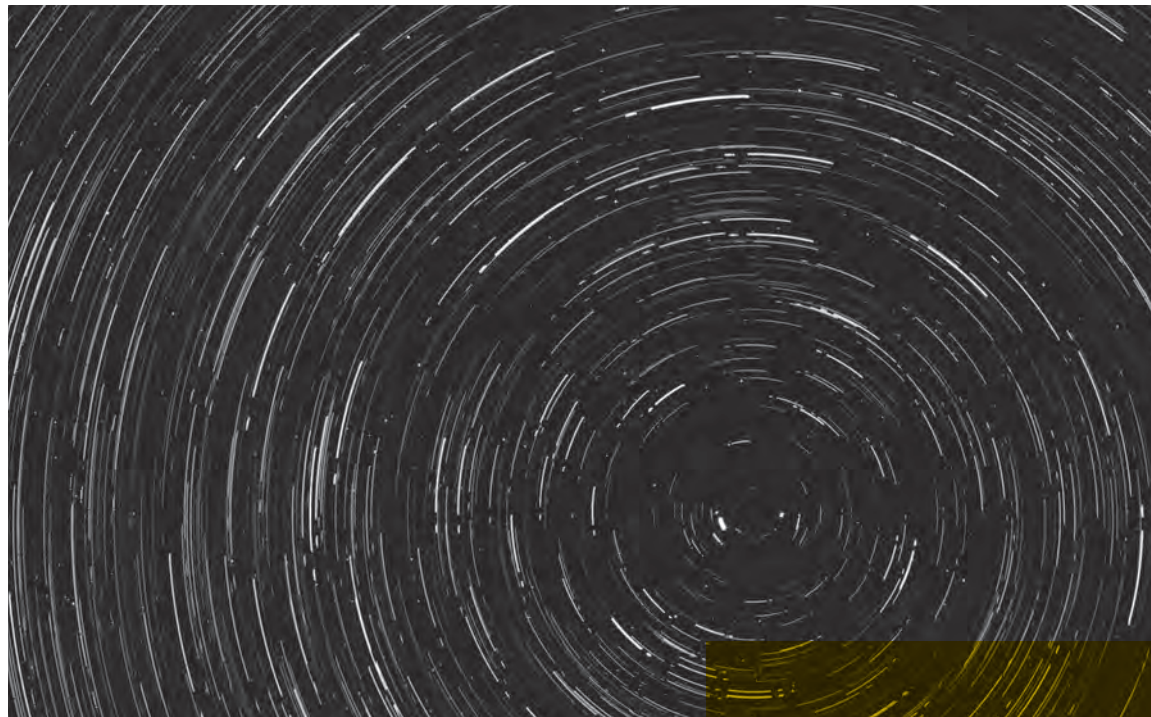
## ANALYTICS SOLUTION

The growth of the ecosystem of tools and shared best practices to build machine learning systems enabled this project to take shape. These advancements have helped make even small teams productive at scale. The output of the project was twofold — first, the team created a standardized access framework for data from multiple cloud platforms that manifests itself as a Python library that any data scientist can easily access. Second, the initiative created a standardized process, infrastructure and tooling for deploying machine learning algorithms in a directed acyclic graph such that they become automated, scalable and simple.

## IMPACT

The biggest advantages of the migration to the acceleration framework are time savings and increased collaboration. The team has shaved off months from the time it takes to build a productionized machine learning model, and at the same time, improved the overall collaboration of the data science organization with other departments within the company — most notably impacting the speed of the business.

# RKVST



**RKVST**

Rusty Cumpston  
Chief Executive Officer

Santa Clara, CA

Software Technology

## BUSINESS CHALLENGE

How do you know what data to trust? In the age of AI and the rapid creation of more digital content that lacks verifiable proof of origin, integrity and lineage, new ways to authenticate data are needed to reduce digital supply chain and AI safety risks that are increasing due to fraudulent data, fake data and misinformation. While organizations have become adept at authenticating people and devices for network access, the sheer volume of data exchanged daily requires a new approach to verify and validate its provenance. Everything from operating data to invoices and images to firmware updates needs to be authenticated before being relied on for decision-making. Current models require manual processes to validate third party digital content and don't scale to meet today's digital challenge.

## ANALYTICS SOLUTION

RKVST provides a standards-based, open and interoperable platform to add provenance and authenticity records to any data — images, videos, documents, AI datasets and other digital artifacts that can be instantly verified. The RKVST Open API can be easily added into any application to automate the process of provenance tracking and verification. RKVST includes a blockchain backend for immutability and transparency and an extensive set of features for provenance data management, including access controls and compliance policies.

## IMPACT

RKVST makes it easy to know what data to trust and eliminates the costly, time-consuming manual processes that are employed today. One example where RKVST has demonstrated such savings is in nuclear waste tracking. Real-time traceability and auditability of multi-party supply chain data resulted in 90 percent greater data accuracy and 55 percent process improvements and allowed 25 percent of processes to be automated, enabling fast remediation of issues and increasing the rate of waste material processed — providing an estimated 25 years of operational savings.

# RSLT



rslt

Shira Witelson  
Founder and Chief Executive Officer

New York, NY

Advertising and Machine  
Learning Technology

## BUSINESS CHALLENGE

Advertisers and media buying agencies are facing a major challenge. They need to accurately and safely measure the effectiveness of each of their television commercials. The current approaches available on the market are severely deficient. These methods include:

1. Measuring the impressions of each program where the commercial was aired. However, this approach fails to provide an accurate estimate of the number of people who converted after seeing the commercial.
2. Using a call to action, such as displaying phone numbers in the commercial. Unfortunately, this method does not account for individuals who visit the brand's website.
3. Analyzing the impact of TV advertising by leveraging device IDs embedded in Smart TVs. These companies collect IDs that can be linked to viewers' personally identifiable information (PII). These practices are intrusive and not only put consumers' personal information at risk but also damage a brand's reputation.

## ANALYTICS SOLUTION

RSLT provides a different approach to delivering accurate and safe advertising insights. Without using any trackers — just machine learning and first-party data — the company measures how many online engagements and conversions are driven by each TV and radio commercial. The RSLT TV solution offers campaign performance analytics along with comprehensive insights at the day, daypart, network, program, genre and creative levels. The company also forecasts advertising fatigue to keep campaigns fully optimized.

## IMPACT

One example of impact: A strategy team at a Los Angeles-based advertising agency wanted to know whether, in addition to calls, its client's TV commercials drive web traffic to the client's English-language landing site from Spanish-language ads. With the RSLT TV solution, the agency uncovered that on average, one Spanish-language commercial results in one Hispanic landing and three English landings. The agency was also able to determine that for every 1,000 Hispanic direct response TV leads, 41 percent are English online-filled forms, 7 percent are Spanish online-filled forms and 52 percent are inbound calls.

# SAN FRANCISCO INTERNATIONAL AIRPORT



San Francisco  
International  
Airport

Eunice Au-Yeung  
Principal Data Services Engineer

San Francisco, CA

Government, Transportation

## BUSINESS CHALLENGE

San Francisco International Airport (SFO) implemented various measures to enhance taxi operations, aiming to optimize supply, reduce wait times for passengers and drivers, and enable drivers to serve fares in the city when not at the airport. The key objective was to reduce the number of taxis in the holding lot, freeing up parking slots for public use and increasing parking revenue.

## ANALYTICS SOLUTION

SFO has developed an in-house solution called Taxi Virtual Queue (TaxiVQ). This digitally managed waiting list allowed taxi drivers to reserve their spot when supply was needed, optimizing resource utilization. Staff in the holding lot efficiently managed the supply based on real-time demand data. Operational data is collected and analyzed, enabling SFO to optimize taxi demand and supply by analyzing peak conditions and adjusting accordingly. Historical data was utilized to forecast future demand patterns, and daily operational profiles were created. Key performance indicators (KPIs) — such as number of drivers and wait time in the holding lot, driver trips per day and driver participation — were monitored using the collected data.

The analytics insights yielded positive outcomes. Drivers earned more money by increasing the number of trips from the airport, as they could service additional fares downtown while waiting to be called in from the virtual queue. This attracted more taxi drivers to participate in the program.

## IMPACT

KPI dashboards demonstrated a 70 percent reduction in the number of taxis waiting in the holding lot and over 80 percent decrease in the time spent there. Taxi operators received more than 60 percent of their daily fares from the airport, allowing SFO to recover 75 percent of the taxi parking slots, which were repurposed for public parking, resulting in increased parking revenue. By leveraging historical data and effectively managing taxi supply, SFO improved taxi operations at the airport, ensuring passenger demand was adequately met.

# SEE TURTLES



Alexander Robillard, PhD  
Research Collaborator

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Nonprofit

## BUSINESS CHALLENGE

Hawksbills are a critically endangered species, hunted to the edge of extinction for their colorful shell. Their shells (aka “tortoiseshell”) are made into jewelry and other products that are frequently sold to travelers in markets across tropical regions around the world. Tourists are not typically aware that they are purchasing an illegal wildlife product. Reporting by SEE Turtles conservatively estimates that more than 45,000 individual products have been for sale worldwide since 2017. Although trained experts are able to visually identify tortoiseshell, the majority of identification is done via expensive or destructive means of testing. In short, this is a global issue that can only be addressed through the deployment of fast, cost effective and accurate tools for tortoiseshell documentation.

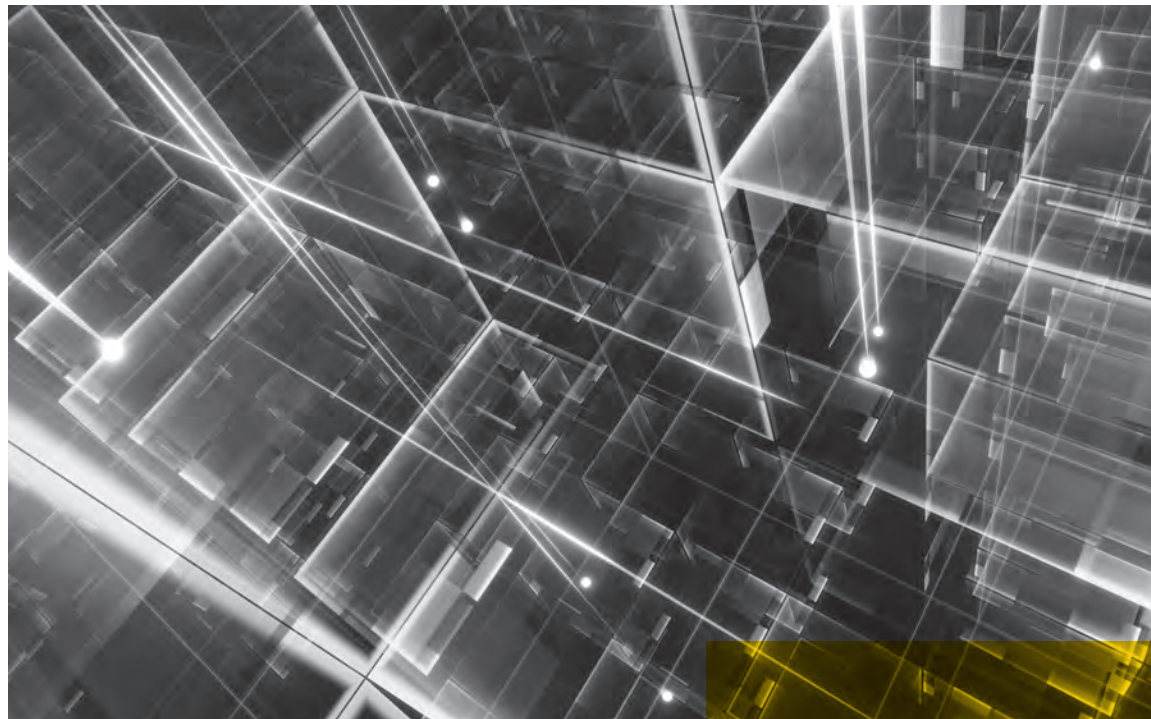
## ANALYTICS SOLUTION

To address this challenge, SEE Turtles developed a machine learning application called SEE Shell. This groundbreaking application is very simple: take a photo of a product you think could be tortoiseshell with the app, and it will tell you instantly if it is real tortoiseshell or something else with a high degree of accuracy. By using the app, users will be able to avoid buying tortoiseshell products while contributing valuable data to studying the trade and identifying hotspots.

## IMPACT

SEE Shell is a groundbreaking application for sea turtle conservation. When benchmarked against a test set, SEE Shell was able to obtain a maximum accuracy of 90.3 percent. Since June 2021, the application has collected over 3,200 reports. More than 1,500 people in 23 countries around the world have downloaded the app to date. Workshops for training government officials and conservation professionals to utilize the application have occurred around the world. It is SEE Shell’s goal to continue to expand this powerful application’s abilities, bringing it to a wider audience while continuing to combat the illegal trade of sea turtles everywhere.

# SERVICENOW



**servicenow**®

Vijay Kotu  
Senior Vice President, Analytics

Santa Clara, CA

Enterprise Software

## BUSINESS CHALLENGE

ServiceNow leaders and their teams previously relied on a siloed portfolio of dashboards to monitor and manage their businesses, and there was no single source of truth for critical company metrics. In the absence of a unified view of company operations, valuable signals about the company's day-to-day performance were delayed in reaching the CEO and top leaders, and the C-suite lacked focus on a single set of vital enterprise metrics to make real-time decisions. CEO Bill McDermott issued a challenge: to create one central place to view business-critical insights.

## ANALYTICS SOLUTION

Using ServiceNow's own intelligent platform and product suite, the data and analytics team developed a control tower for the digital business, providing a single-pane view of systems, processes and performance across every company function, from sales, marketing and customer support to finance, legal and HR. The solution answered questions about what happened, what is happening, what could happen and what should happen. This real-time view of every activity taking place in the company accelerated time to action, surfacing emerging issues with enough notice to drive resolutions and reduce risk, and increasing focus across the C-suite on the metrics that matter most.

## IMPACT

The CEO and C-suite control tower is now leaders' most-utilized management tool and is essential for delivering ServiceNow's industry-leading renewal rates (98 percent) and expanding the operating margin. Further development of this concept has yielded applications that can be downloaded for free from the company's app store and implemented by ServiceNow customers. The data and analytics team has consulted with hundreds of current and potential customers to help them develop and deploy their own versions of the company's solution, meaning that the control tower for digital transformation isn't just running ServiceNow — it's helping to drive success among a growing number of its valued customers.

# SIMPLETIRE



Adley Amzovski  
Vice President, Analytics

Philadelphia, PA

Technology, Tires

## BUSINESS CHALLENGE

Confronted with the challenges of the pandemic and supply chain disruptions, SimpleTire, an online tire tech platform, needed to strike a balance between maintaining its business margins and ensuring prompt deliveries — particularly in an industry traditionally dominated by physical stores. The company's answer was a groundbreaking performance index powered by machine learning.

## ANALYTICS SOLUTION

The performance index ranks suppliers for each order based on their predicted delivery performance. By integrating historical data, static variables and carrier-related metrics, the model can select the most efficient supplier for each order. The model seamlessly fits into the existing infrastructure; operates in several modes, such as velocity, margin and customer satisfaction; and self-adjusts daily with new data.

## IMPACT

The results have been extraordinary. Deliveries for distances under 100 miles improved by 2 percent, with only a minimal impact on margins. Customer satisfaction greatly benefited, with on-time deliveries well above industry standards, arriving either on the same day or the next at well above 90 percent. This boost in service level has driven higher conversion rates and increased customer lifetime value, clearly demonstrating a growing trust in SimpleTire's online services.

# TRAVELERS



Stephanie Mortimer  
Vice President, Decision Science

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Insurance

## BUSINESS CHALLENGE

Travelers Personal Insurance is focused on delivering value in the eyes of the customer. Across the enterprise, employees were invited to join an analytical business challenge to understand the impact of an insurance experience, such as a claim or coverage change, on customer loyalty and actions. Participants were asked to explore customer data and test their Think Customer hypothesis. This adventure deepens the company's understanding of the impacts of customer experience on insurance performance, which will help grow Travelers' competitive advantage and strengthen its data culture.

## ANALYTICS SOLUTION

To complement its advanced product and claim data and analytics acumen, Travelers has invested in a superior cloud infrastructure to store legacy data elements and new data such as master data management, real time events, voice of customer feedback and servicing channel details. The company is focused on expanding the application of data and analytics beyond just managing risk — including using it to build great experiences for customers and agents and driving productivity in the way Travelers' teams work. Advancing analytics to insights starts with high quality, accessible, multi-faceted data assets. The company's customer and operations exploration data were curated and transformed into an analytical consumption layer to encourage exploration with a focus on end-to-end customer insights.

## IMPACT

Travelers' community responded positively to the Think Customer challenge. Employees engaged easily with front-facing technologies that accessed the analytical data asset in Snowflake. Descriptive insights narrating typical customer journeys were shared, as well as exploring patterns and correlations to describe why events took place. These efforts help to advance analytics within Travelers and better enable customer analytics, such as assessing the financial value of customer loyalty. These new perspectives lead to new questions and insights to be part of the transform agenda at Travelers Personal Insurance and to be the best at protecting what people value most.

# VERADIGM



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and General Manager, Life Sciences

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Health Care Technology

## BUSINESS CHALLENGE

The vaccines that helped curtail the COVID-19 pandemic included a wide range of challenges and the need for analytics. The accelerated approval process left patients and regulators with long-term safety questions, including potential vaccine-associated myocarditis questions, such as: *How common is it? How severe is it?* Securing answers to these questions is challenging due to the low incidence of myocarditis and poor clinical coding data with few of the cases reported accurately.

## ANALYTICS SOLUTION

Veradigm has fostered a collaboration with the American College of Cardiology and Moderna to tackle vaccine-associated myocarditis head-on. This effort has required assembling a collection of real-world data from multiple sources to construct a patient's complete health care journey with potential vaccine-associated myocarditis. This requires incorporating multiple disparate data sources and bringing all elements together into a single data easy-to-use platform by leveraging passive and active data collection. On this digital platform, a panel of cardiologists can interrogate the data, communicate with the primary managing health care practitioner and gather additional insights.

## IMPACT

Veradigm's comprehensive solution to characterizing vaccine-associated myocarditis is a valuable resource for answering questions about vaccine-associated myocarditis and launching new research, along with testing future hypotheses. This is a scientific advancement and novel application of analytics to myocarditis and is a substantial step forward in evaluating the benefits and risks of COVID-19 vaccination efforts. This analytic platform can serve as a basis for additional work concerning COVID-19 vaccine safety and better understanding the underlying disease.

# VERISK MARKETING SOLUTIONS



Scott Lohbauer  
Data Science Manager

Conshohocken, PA

Marketing Technology

## BUSINESS CHALLENGE

In the last three years, the Verisk Marketing Solutions (VMS) business unit was formed through the acquisition of Jornaya, a leader in real-time behavioral data and marketing intelligence, and Infutor, a major consumer identity resolution and intelligence provider. As a result, the VMS data science team had a slew of challenges, from integrating all new data-driven products to creating new ones utilizing novel data sources, economies of scale, big data and cutting-edge tools.

## ANALYTICS SOLUTION

Through the acquisitions, VMS gained access to novel sources of consumer intelligence and an unprecedented scale of data, allowing for supercharged identity resolution, data enrichment and in-market signal products, all of which are based on complex data science and machine learning. The data science team developed an enhanced deterministic identity resolution algorithm using graph machine learning and big data to ensure that clients get the most relevant information about their consumers. Additionally, the data science team rebuilt the event classification machine learning pipeline responsible for categorizing all incoming consumer shopping signals using Amazon EMR with Apache Spark, Amazon Web Services and hundreds of millions of incoming records daily.

## IMPACT

The synergy of previously disparate data sources and advanced data science practices resulted in a significantly positive impact across all existing products. VMS' identity resolution capabilities have seen increased match rates with higher accuracy. The company's event classification models are consistently categorizing hundreds of millions of consumer shopping signals with high precision daily and are resistant to data drift. The data science team at VMS has also developed new data products to market in collaboration with strategy, product and sales teams by bringing data from previously separate companies together.

# VERIZON



**verizon**<sup>v</sup>

Venkat Rangan Gangavaram  
Director of Analytics and Insights

Basking Ridge, NJ

Technology,  
Communications

## BUSINESS CHALLENGE

Commercial leaders needed efficient end-to-end processes and tools for faster scenario planning and accurately forecasting outcomes, along with associated financials. Business-as-usual methods deployed traditional tools that did not effectively capture signals from changing market conditions, had limited ability to address complex scenarios and “what-ifs,” had longer planning cycles and yielded suboptimal solutions that were driving up costs. The business users needed more advanced capabilities with efficient financial planning and decision management tools for driving their go-to-market strategy.

## ANALYTICS SOLUTION

The analytics and insights team embarked on a multi-year journey to embed in-house-developed, AI-driven “Challenger Models” for business users to augment current methods and accomplish the following:

- Develop automated and interactive planning tools that leveraged the historical relationship between multiple drivers to generate granular outcomes and forecasts.
- Generate “what-ifs” and multiple scenarios to evaluate optimal solutions to test a go-to-market strategy.
- Begin automated business case generation, along with full-blown financials for a quicker end-to-end decision process.
- Create full suite of business intelligence products to aid in demystifying AI outputs and provide confidence to decision-makers.

## IMPACT

The AI-based scenario planning and forecasting tool has been running as a “Challenger Model” for over a year and is providing multi-fold benefits versus business-as-usual methods, such as:

- Efficient planning cycles: There has been an 80 percent reduction in turnaround time from automated forecasts.
- Improved accuracy: Results are closer to reality based on a 12-month mean absolute percentage error.
- Enhanced complexity: The tool addresses complexity by generating granular forecasts across more than 10,000 combinations.
- Adaptability: The tool integrates new data sources and drivers to identify complicated relationships.
- Investment analysis and “what-ifs”: The tool is able to quickly identify and test win-win-win solutions.
- Eliminated silos: The tool allows data from disparate sources to be assimilated for AI.
- Successful adoption: The tool has resulted in change management and transformation due to cultural shift in driving AI adoption.

# WAKE COUNTY



Bonnie Brown, PhD  
Chief Data Officer

Raleigh, NC

Government

## BUSINESS CHALLENGE

The HR department managed employee information requests through a series of extracts and spreadsheets with limited access to data from the source systems. Due to the manual nature of the process, the frequency of data sharing was limited, making it challenging for other departments to access employee information. Directives supporting diversity, equity and inclusion and data-driven decision-making further pushed the need for access to more data in a timely fashion.

## ANALYTICS SOLUTION

HR and the data and analytics team partnered to define a set of key metrics by starting with a department director dashboard, including calculations and sources. From the dashboard wish list, data and analytics teams developed an HR data pipeline from multiple source systems. They designed a data warehouse and modeling solution that provided the foundation for a new HR enterprise dataset. This became the single source for dashboards and reports associated with HR metrics, from recruitment through retirement. The first HR metrics dashboard developed provided department heads with critical information about their staff and recruitment processes, including current employees, historical trends and comparisons to county-level metrics. Row-level security ensured that departments could only see their data.

## IMPACT

Department heads have described the dashboard as their one-stop shop for employee information that informs decisions regarding salaries, staffing, recruitment and succession planning. This single source for HR information provides a summary in easy-to-use graphics. Results are filterable to allow quick glances or more in-depth HR data analysis. As adoption has grown, so have the attributes and analysis available. Next, the dashboard will be shared with other management levels and will include more relevant information to provide a 360-degree view of employees and foster the next level of HR analytics based not just on what has happened, but bridging into what could be through data-driven decision-making.



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“I was looking for the story behind the story.”

André Wagner '21  
 AMAZON WEB SERVICES, STRATEGIST,  
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