Qlik Q®

ISSUE NO.2

ACTIVE
INTELLIGENCE

SEIZING EVERY BUSINESS
MOMENT THROUGH
INFORMED ACTION

# CONTENTS

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Qlik

# Letter from the Editor

Last year we launched our first Active Intelligence magazine, which focused on defining and demonstrating how organizations can unlock the potential of their data by creating an analytics data pipeline that drives Active Intelligence.

In this second issue, we look more closely at what is involved in becoming an Active Intelligence organization – the processes, culture change and technical steps that are needed to build a more dynamic relationship with data. We delve more deeply into the journeys that organizations have taken to move from traditional, time-consuming, and siloed approaches to data management and analytics, to a world in which context-rich, real-time insights inform smarter decisions and trigger automated actions.

Achieving Active Intelligence combines human and machine capabilities. Professor Hannah Fry, an expert on the mathematics of human behavior, reflects on the vital realization that humans and technology must work in partnership, no more so than when it comes to data, if we are to get the best out of both. We must acknowledge that both have strengths and weaknesses, and that Active Intelligence is achieved when they work in harmony and those strengths are maximized.

To put this into context we asked journalist, author and professor of Information Technology Thomas H. Davenport to talk with business leaders to discuss the data transformation their organizations have undergone and to share their learnings for building a successful analytics data pipeline. Their experience provides valuable insight for any business embarking on that journey.

It is the critical success factors on this journey that our acclaimed contributors explore in greater depth. Professor Sally Eaves highlights some of the key technologies, architecture, change management, process and cultural factors that are required to optimize the path to effectively leveraging an analytics data pipeline to drive Active

# 'Active Intelligence isn't a product. It is an outcome that organizations achieve when continuous, context-rich insights inform better, smarter actions.'

Intelligence. She also identifies how addressing these factors can bring wider benefits by breaking down silos and improving business processes throughout an organization.

It is an important message, which is reiterated by two very different organizations that had very different reasons for embracing a new way of working with data. Mayborn Group, a global baby products brand, wanted to replace outdated manual data management and provide its employees with a single, accurate version of information, while Engage Together was looking for a way to consolidate and share knowledge that different agencies have acquired in the fight to

end human trafficking. Both organizations share the outcomes they've achieved.

Finally, Qlik's Chief Data Officer, Joe DosSantos, interviews Matt Quinn, Chief Technology Officer of online car retailer CarGurus, to discuss the role of data and analytics in the fast-moving world of digital commerce. Active Intelligence isn't a product. It is an outcome that organizations achieve when continuous, context-rich insights inform better, smarter actions. Matt explains how expectations on real-time data have changed over the last five years, and how data is empowering his organization, car dealers and customers to take these more informed actions.

We hope you enjoy reading this issue and that the insights from other organizations shared in the articles provide a blueprint for your own journey toward Active Intelligence. If you would like to find out more about Active Intelligence, feel free to reach out to me with questions or comments. You can find me on LinkedIn here.

**James Fisher**
Chief Product Officer, Qlik

# CONTRIBUTORS

*Combining global academic rigor, industry expertise and journalist credibility, our contributors share their expert opinion on how organizations can achieve a state of Active Intelligence.*

### Professor Hannah Fry
Professor in the Mathematics of Cities, UCL

Hannah Fry is Professor in the Mathematics of Cities at the Centre for Advanced Spatial Analysis at UCL. She is a best-selling author, award-winning science presenter and the host of popular podcasts and television shows. Hannah writes for the New Yorker, and her book Hello World – How to be human in the age of the machine won the 2020 Asimov Prize.

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### Thomas H. Davenport
Professor of IT & Management, Babson College

Thomas H. Davenport is a Distinguished Professor of Information Technology and Management at Babson College, visiting professor at Oxford's Saïd Business School, Fellow of the MIT Initiative for the Digital Economy, and senior advisor to Deloitte's AI practice. He writes for Harvard Business Review, Sloan Management Review, Forbes, and the Wall Street Journal.

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### Professor Sally Eaves
Senior Policy Advisor, Global Foundation for Cyber Studies and Research

Professor Sally Eaves is Senior Policy Advisor and Chair of the Cyber Trust at the Global Foundation for Cyber Studies and Research. She is also CEO of Aspirational Futures, which enhances inclusion, sustainability and diversity in education and technology. Her new book, Tech for Good, will be published this year.

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### Juan Martinez
Senior Editor, Harvard Business Review

Juan Martinez is a Senior Editor at Harvard Business Review. His writing and commentary have been featured on ESPN, Esquire, Harvard Business Review, NBC News, Fox Business, Entrepreneur, Reuters TV, Publishers Weekly, ClickZ, and ZDNet. He has a masters degree in creative writing from Columbia University and a bachelors degree from Bard College.

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### Matt Quinn
Chief Technology Officer, CarGurus

Matt Quinn joined CarGurus as Chief Technology Officer in January 2022, having worked in the Boston technology scene for over 25 years. Formerly Vice President of Engineering at small business referral network Alignable, he's also led large development teams at Vistaprint, Amazon and Audible. He holds a Master's of Science in Management from Emmanuel College and a B.A. in Mathematics and Computer Science from the College of the Holy Cross.

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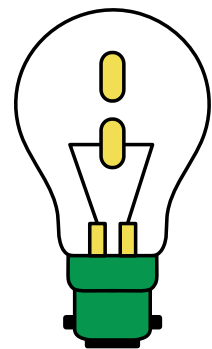
*Professor Hannah Fry* examines the benefits of bringing together the best of humans and machine automation

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# The HUMAN TOUCH

We live in a world of data. Many aspects of our lives depend on it. Yet, many people are challenged by data literacy, unable to decipher the meaning hidden in plain sight. Meanwhile, machine automation is advancing at a rapid pace, so too is the public mistrust in AI and algorithmic decision-making. Humans and machines each make their own mistakes, but together they complement each other's strengths. It's time we rethink our approach to human vs machines to achieve the best of both worlds. Let's look at a few scenarios.
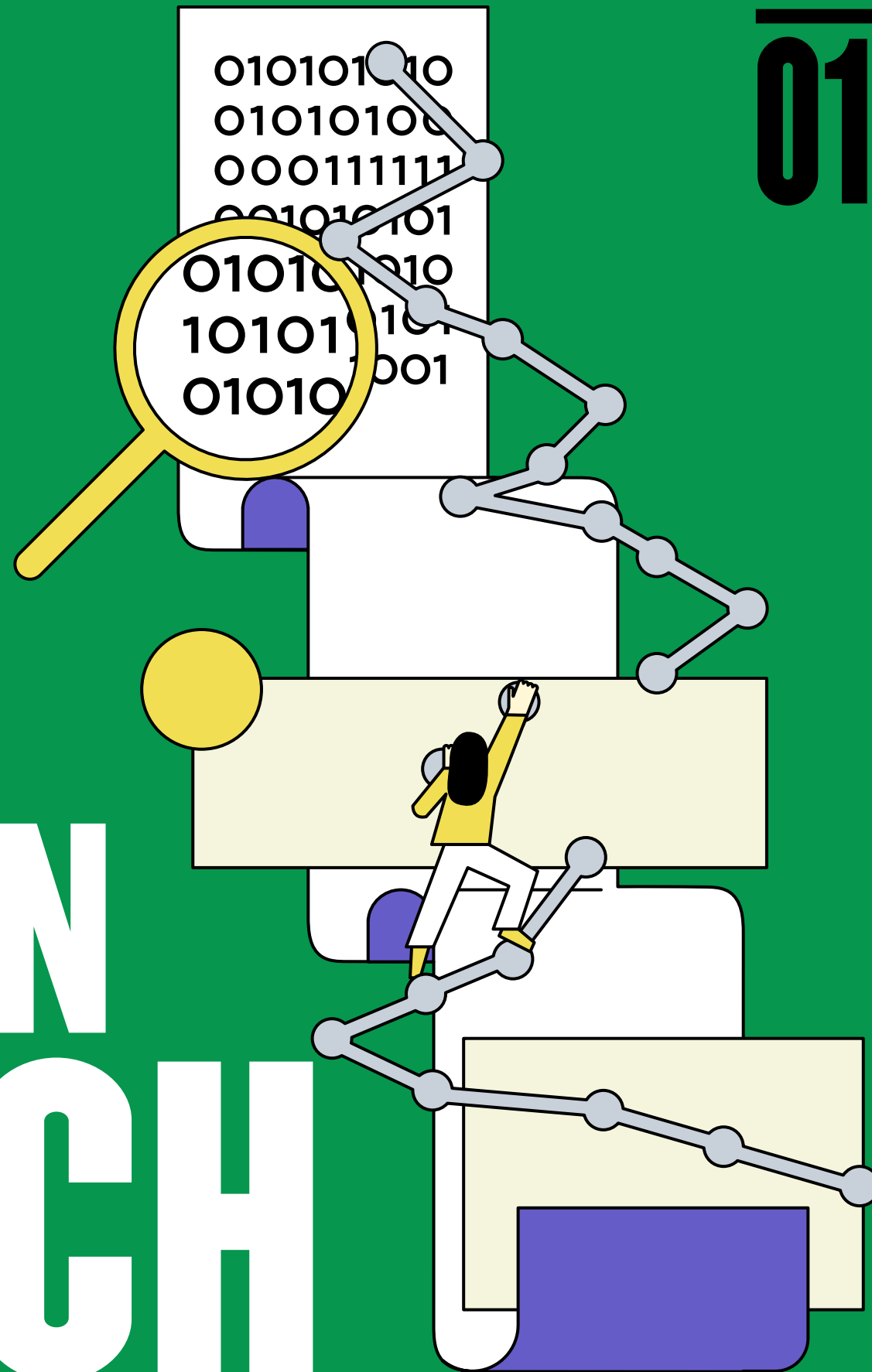
In 2005 an 80-year-old man checked himself into the urgent care clinic of a big city hospital. We'll call him Peter (not his real name). He had a fever and a serious cough, but the doctors were optimistic that his pneumonia was manageable. The staff took him up to a ward to be given intravenous antibiotics.

At the same time, just a few curtains down the same corridor, another patient arrived. This man, a diabetic, had a nasty skin infection and he too needed to be admitted. The doctor ordered a fingerstick test to check his glucose levels and he was sent up to a ward.

In the confusion of a busy walk-in center full of people needing attention, a duplicate of Peter's barcoded wristband ended up on the diabetic man's wrist. So, when his glucose results were ready, they were automatically (and erroneously) uploaded to Peter's electronic medical notes.

Meanwhile, over on the other ward where the real Peter lay, an intern doctor noticed his gigantically high blood sugar reading. She began to write up an equally gigantic order of 10 units of insulin – the correct thing
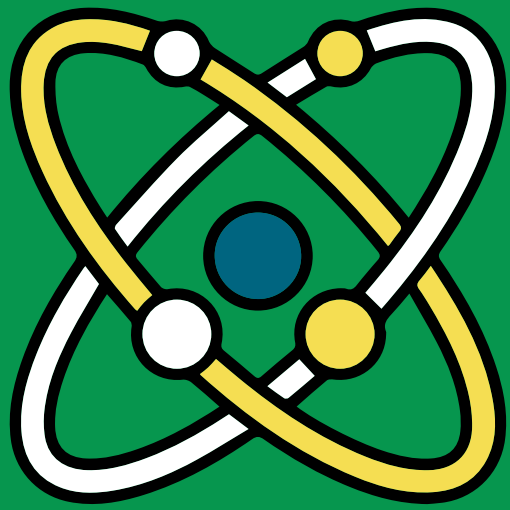
> **❛Combining human and machine capabilities can create a sharper focus to how we view the world around us. ❜**

to do, based on the test result. Little did she know that in Peter's perfectly normal, non-diabetic bloodstream, that would have been enough to drop him into a coma, and would almost certainly become fatal.

But something gave the resident doctor pause. Peter wasn't listed as a diabetic, he had no symptoms of diabetes, and there was no reason for him to have suddenly become hypoglycemic. Knowing the magnitude of the decision to administer the drugs, she re-ran the test, and saved Peter's life in the process. Humans making the final decision was essential to a good outcome in this case.

Automation, when used naively and combined with non-validated data, can have the pernicious effect of weakening human vigilance. But human instincts also have a habit of letting us down. Half a century earlier, a young Danny Kahneman was charged by the Israeli army to decide which new recruits would become successful military commanders. He set about observing them while they performed a difficult group activity – using a plank of wood to get everyone over a wall without touching it – watching to see who showed natural signs of leadership. With Kahneman convinced that he had done an excellent job of assessing their abilities, the recruits were sent off to perform their roles as fighter pilots, armored units, and infantry soldiers.

But then Kahneman decided he should validate his predictions. Checking back to see how the 'stars' had performed in officer training, he found they had often been woefully disappointing. Meanwhile, some of the recruits he had labelled as inadequate went on to excel.

His assessments, based on all the nuance and experience of human judgement, had proved to be totally worthless.

Kahneman subsequently tried to come up with an objective way to measure the characteristics he thought might be relevant for military success. He wrote a list of the things he thought should be important – pride, sense of duty, capacity for independent thought and so on – and devised a questionnaire to quantify each characteristic. It was a sincere attempt to strip away the psychological biases in human decision-making, and in doing so he hit upon a system that actually worked, one that is still used by the Israeli army today.

All the evidence in the intervening decades backs up Kahneman's findings: humans are a mess of indecision, bias, presuppositions, mood, stress, fatigue, and mistakes. An automated process might not be perfect, but letting people have a final say will likely lead to more errors, not less. In a world where we struggle to understand data effectively, combining human and machine capabilities can create a sharper focus to how we view the world around us and clearly see the opportunities it presents to us.

So how do you square the two? How do you choose between humans, who excel at their understanding of context and nuance but cannot make consistent decisions, and automated processes, which are far better at being objective but don't understand the decisions they're making?

The answer comes in recognizing that, while humans and machines are flawed, they are flawed in different

# ❝ We live in a world where data is relevant to everything and is everywhere.❞



ways. When it comes to combining them, you could start, naively, by thinking about the technology first, and expect human operators to fill in the gaps of what the system can't yet do. Or (better) you can do things the other way around.

The contrast between the technology-first and human-first approaches is well illustrated by the development of driverless cars in the last few years. Humans aren't very good at paying attention for long periods of time, and driverless cars with human monitors have struggled to live up to their early promise. Meanwhile, collision avoidance systems – which largely use much of the same technology – are a good example of building a system around the human, allowing the driver to remain alert and in control, but stepping in as an emergency backup when the driver has missed something or fails to react under pressure.

A partnership can go further, by freeing up the cognitive load on the human while still allowing them to sense check the results and take context and nuance into account. Think of sat nav systems that offer users three options to choose from, thus reducing the risk of a system directing people to drive off cliffs or out into the ocean (both of which really happened with earlier systems).

We live in a world where data is relevant to everything and everywhere. Looking at how we use it, how we work with data to drive action and positive change is a great place to start. This is the version of the approach to automation that I'm hoping to see more of going forward.

**1** Be clear on the outcome you want (e.g., forecast accuracy)

**2** List the relevant activities that humans are bad at (e.g., consistency)

**3** List the relevant activities that machines are bad at (e.g., nuance)

**4** Look to automate the parts of the process where machines outperform humans

**5** Think hard about the possible ways things could go wrong

**6** Validate performance against your objective

**7** Iterate

The time for the rhetoric of humans vs machines has passed. Instead, we need to move toward a future where we focus on exploiting each other's strengths and embracing each other's weaknesses, and aim to create better partnerships between humans and machines.

**B**usiness intelligence and analytics, an area I've been researching and consulting on for several decades, has always had several frustrating elements. First, it's been too hard to use. Only a small percentage of most companies' employees know how to find, analyze, and interpret data. And, because it requires specialized skills, we have ended up with centralized business intelligence and analytics groups that are often unresponsive to business users.

# Becoming an Active Intelligence Organization



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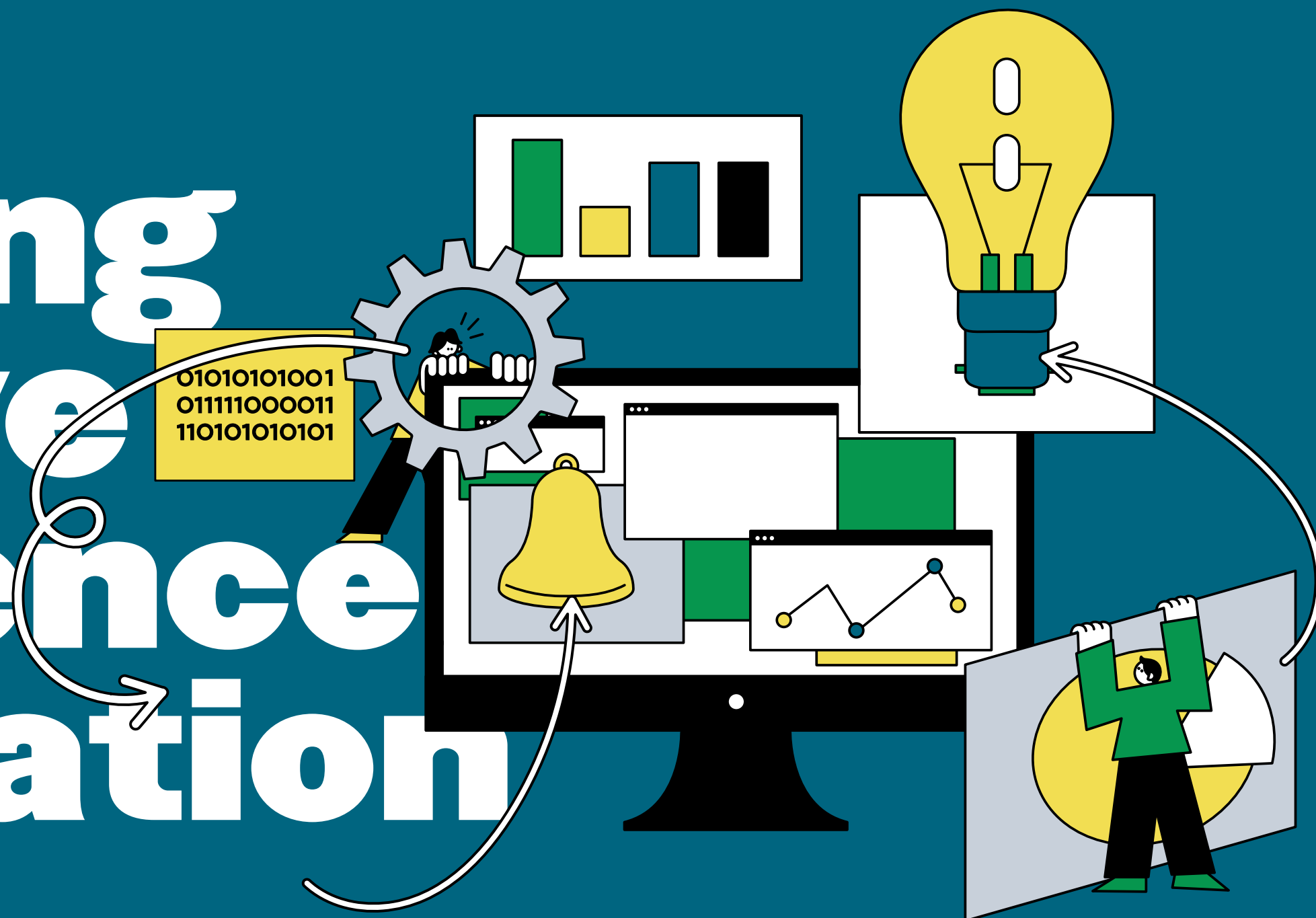
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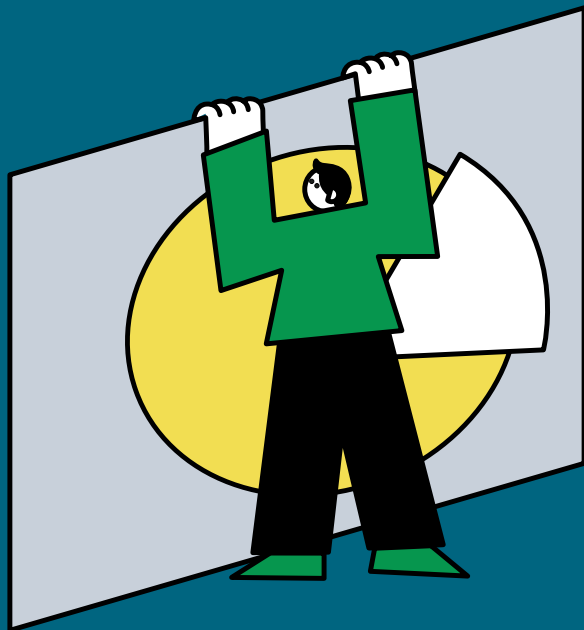


Another problem is that preparing data for analysis has always taken too long and required too much human intervention. In most firms at least 80% of analyst and data scientist effort goes into data manipulation when it should be going into insight generation. An additional issue has been that making data-driven decisions and acting on them are voluntary acts by managers. Many executives may not employ analytics, even when they are readily available, simply because of their habits or preferences for intuitive decisions.

I am pleased to report that there is, at last, a new way of working with data that holds the solution to these time-honored constraints: Active Intelligence. Qlik is helping organizations democratize data and gain in-the-moment awareness about every aspect of their business. Suddenly, in a digital economy where agility is essential, data has become an asset that can be freed, accessed, understood, and acted upon throughout a business — not just to support it but to transform it.

A great example is Greene Tweed & Co., a privately held manufacturing firm that is making extensive use of data extraction and automation capabilities to help it achieve Active Intelligence. The company makes high-performance thermoplastics, composites, and engineered materials for applications that demand high reliability, such as brake seals for commercial aircraft. In such businesses, high quality data and high quality products go hand in hand, so the company has recently embarked on a data-driven transformation.

Greene Tweed has built an analytics data pipeline with Qlik to extract data from SAP and Internet of Things (IoT) devices, then store it in the cloud, enabling analysis

of important product quality data in real time. It has also adopted predictive analytics to forecast demand and revenue. It is achieving predictive analytics forecasts for up to 90 days with more than 95% accuracy, and is now exploring predictive maintenance algorithms for factory machines. David Hufnagle, Greene Tweed's Manager of Enterprise Data and Analytics, says the company's data latency has been dramatically reduced, and the culture and behaviors of employees are rapidly becoming more data driven.

CSC ServiceWorks is also undergoing a digital transformation. The company, which was established in 1946, is the largest provider of common laundry services in the US and owns more than a million laundry devices. CSC's business, once standalone and analog, is now highly interconnected and digital. Brad Paine, CSC's Chief Digital Officer, says the company has a holistic approach to integrated data and datasets: "We run data across the entire enterprise, integrating IoT data with transactional systems – our customer data, customer service tools, and service operations."

Qlik is at the core of a wide variety of analytics use cases at CSC that have transformed the business. Data on machine collections is used to optimize the routing of collectors, and data on machine failures is used to route and manage service technicians. This has enabled the company to eliminate 15% of service truck maintenance visits because they were not needed, saving between $2 and $3 million a year. Decisions about where to invest capital in new laundry machines are optimized with data, and CSC can now perform real-time revenue analysis from its connected machines, when there was previously a 30-day lag. The company can also see

consumer analytics and engagement data, such as users per machine, users per property, and average spend per user.

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> We run data across the entire enterprise, integrating IoT data with transactional systems, saving between $2 and $3 million a year. ❞
>
> *Brad Paine*,
> Chief Digital Officer, CSC

CSC is even experimenting with automated decision-making. One application involves dynamic pricing decisions for laundry services based on water temperature, size of load, cost of electricity by time of day, etc. That type of data-driven, real-time decision couldn't possibly be made quickly enough by humans. I expect to see many more automated decisions within companies in the future, particularly repetitive, tactical decisions like pricing. In almost every case I have observed of automated and dynamic pricing decisions in companies, margins have improved substantially.

Both CSC and Greene Tweed, as well as many other companies, are increasingly using data integration and analytics tools together to empower 'citizen data scientists' in their businesses. Across its operations and engineering teams, Greene Tweed has a motivated and capable group using Qlik. CSC had, until recently, the

classic centralized team that created standard reports, as Paine notes: "You had to submit a request, then get back a report weeks or months later. It wasn't dynamic, and if you wanted to further analyze the data you had to load it into Excel." That slow and unresponsive process won't work in CSC's current culture, says Paine: "We want teams to find new insights to change the business, and a culture of people who explore the data and act on the insights. We can't be constrained by a central group."

It would be difficult to overestimate the impact that real-time data from the IoT and connected machines – and the ability to easily store and analyze that data – are having on business. Active Intelligence is much more than a technology change, it is driving operational transformation and changing business models in companies like Greene Tweed, CSC, and many others I have encountered. Companies are adopting new technologies and changing their operations and cultures simultaneously to get real-time data insights. The cycle time of businesses is faster; repetitive decisions are being automated and improved; and business users are controlling their own destinies. Companies and their employees are now truly moving into a new data-driven world.

*Professor Sally Eaves* explains the importance of building an agile approach to insights and decision-making to inform smarter actions in a constantly changing world

# RIGHT HERE RIGHT NOW

There's a reason the term 'trust your gut' is popular. It celebrates our instinctive nature and the strength of intuition. But it also comes with a good dose of uncertainty which, in a market that requires quick, confident decision-making, means that 'gut feel' on its own simply isn't enough.

In fact, decision-making within business today is being profoundly influenced by the advance of digital technologies – think cloud computing – driven by trends such as technology convergence, shifts in consumer and employee behavior, and evolving expectations around experience, personalization, trust, purpose, and security.

The real differentiator here is how quickly – and confidently – can an organization turn its raw data into data insights to take more informed actions. This process is increasingly augmented by the flourishing partnership between humans and machines. And this unique ability to leverage data is exactly what businesses need as they navigate and look to succeed in social, economic and market conditions that change quite literally while we sleep. The need to have the right data available to the right role whenever and wherever that may be, in near real-time – enabled by an agile analytics data pipeline, as I previously discussed in the first Active Intelligence magazine – has never mattered more.

James Fisher, Chief Product Officer at Qlik, sums it up perfectly: "Analytics should no longer be a destination; they should go to users wherever they are in their job."

But what is empowering this data-fueled decision-making; what do businesses need to do to achieve it; and what can they benefit from once they've attained it?

# ❝ Analytics should no longer be a destination, they should go to users wherever they are in their job. ❞

*James Fisher*,
Chief Product
Officer, Qlik

We owe much to cloud computing and its acceleration for the role that data plays in decision-making today. Multi-cloud platforms and the decoupling of storage and compute have catalyzed connectivity, productivity, and innovation through data. It's thanks to the cloud's inherent elasticity and scalability that we have harnessed the next generation of data warehouses and lakes.

Ultimately, the cloud is making more data available. It's also made it more shareable, enhancing agility and scalability alongside communication, collaboration, and cohesiveness. Whether data is stored on premise, in the cloud, or in a hybrid model, it can now be accessed and used where, when, and how we need it to find key insights, make decisions and accelerate time to value.

Helping people get to the right data quickly and to make informed decisions with confidence, however, remains an ongoing challenge for many organizations. All that said, the cloud isn't the whole solution. There are still issues within many businesses around distributed, siloed, variable and fragmented data, migration disruptions, and a general lack of visibility and integration. This is why a comprehensive data integration strategy is so important for companies today.

With cloud as its backbone, the data strategy needs to be underpinned by a flexible architecture that supports agility as well as strong governance. It also needs to include investment in process, culture, and skills. There's no point in spending tons of money on the infrastructure if your people can't find it, can't use it, or don't trust it.

As Dan Potter, VP of Product Marketing at Qlik says: "Functional teams like sales, marketing and HR understand their data and requirements better than anyone. Collaboration with IT helps facilitate the systems and data they need with the trust provided through automated governance and control. Governance and control are vital. Having visibility to all workflows and processes, including external

❝ Data engineering helps the rest of the business build and manage data systems that they need, and put in automated governance and control to support their goals.

*Dan Potter*,
VP of Product Marketing, Qlik

❞

systems, helps break down silos to optimize flow and experience without reducing governance, residency, or encapsulation. Additionally, agile change management supports agile enterprise, particularly automation of systems like data warehouses and lakes, which generates the necessary code and documentation to manage the entire lifecycle, and provides resiliency when source systems change (otherwise known as schema drift).

And the role of automation in enabling data-driven decision-making should not be underestimated. Businesses now have the capacity and tools to automate as much as possible, empowered by metadata and machine learning. Real-time information from multiple sources can be made accessible using AI to drive insights conducted directly within business applications. Automation can trigger actions on behalf of the user while they remain 'in the loop' and active in the process. For example, customer service managers can reduce customer churn by triggering automated offers for similar items to the ones shoppers are trying to purchase when they go out of stock. This is the flourishing

> ❝We always want to keep the human in the loop for any data-generated insights.❞
>
> *Mike Potter,*
> Chief Technology Officer, Qlik

relationship between human and machine in action that I mentioned in my article for the previous Active Intelligence Magazine.

Talking with Mike Potter, Chief Technology Officer at Qlik, he says it's important to "emphasize augmentation, because we always want to keep the human in the loop." He adds: "When you think about data generating insights, and then add collaborative capabilities, you can have a human contextual discussion in decision-making."

But what is the impact of all of this on technology, infrastructure, and business strategies?

The 'gut feel' becomes informed action – not just for business leaders, but for anyone across the business who interacts with, or could benefit from, a better relationship with data. By serving up data and analytics in a way that becomes readily consumable, with more relevant insights and simpler interfaces, IT can empower the entire organization to make data driven actions. Working under a flexible and governed framework, business users can quickly get to the information they need, and generate meaningful insights in-the-moment.

In practice, this informed action looks like in-store decision-making beyond managers to associates across 650+ outlets for global retailer Urban Outfitters. With Qlik, the business was able to integrate previously fragmented reporting to create dashboards that offer visibility across all aspects of individual stores' KPIs. That's fresh data every two minutes.

It also looks like the ability to quickly visualize issues and improve store performance for over 100 area development managers (ADMs) at Samsung. Using Qlik, there is no more cumbersome Excel reporting. Through geofencing, Samsung's mobile app shows ADMs the locations they visit, saving two hours per week and increasing visit efficiency by 20%. It's no wonder 90% of its ADMs now use the app regularly.

As both examples show, decision-making isn't something that is confined to the boardroom or weekly meetings. It's something that needs to take place on-the-ground, in-the-moment, by multiple job roles. To create that agility, organizations need to leverage the scale and power of the cloud alongside data and analytics, underpinned by automation and AI, data mesh architectures, continuous integration and continuous deployment (CI/CD) change management, process, culture, and (up)skilling.

It's about closing the gap between what is happening in the business right now and the information and the insights available. Get that right – become an Active Intelligence organization – and businesses will boost innovation, accelerate value, and sharpen their competitive edge.

# 04

# ENGAGE TOGETHER: TACKLING HUMAN TRAFFICKING

Organizations fighting modern slavery are using data analytics to co-ordinate vital prevention strategies, as *Thomas H. Davenport* explains



**F**ew law-abiding people would disagree that human trafficking is a critical social problem. This criminal activity involves forced, fraudulent or coerced labor, debt repayment, warfighting, sexual exploitation, or organ donation. In 2020 in the United States alone there were over 10,000 reported incidents of human trafficking and almost 17,000 reported victims – and the actual numbers are likely to be much higher. This modern form of slavery exists around the globe, with an estimated 40 million victims. In addition, it disproportionately affects women and children.

Human trafficking is a difficult problem to address or even quantify in detail. Some, though not the majority of, human trafficking involves moving people across international borders, and many incidents are perpetrated by family members or intimate partners. In order to address the issue, it needs to be brought out of the shadows, with granular, local information about the extent of the problem, who is suffering from it, and who is fighting it.

Bringing trafficking and attempts to curtail it out into the open is the primary activity of Engage Together, a nonprofit organization led by human rights lawyer Ashleigh Chapman. Since 2014, Engage Together has been working to identify local-level gaps in preventing and reducing human trafficking. Chapman says: "Human trafficking is a complex issue requiring comprehensive strategies. People were guessing about how best to address it. We needed to change the perspective to identifying what's already being done and what isn't."

# ❝Human trafficking is a complex issue requiring comprehensive strategies.❞

*Ashleigh Chapman*
President and CEO, Engage Together

Engage Together focuses on illuminating trafficking prevention and remediation data points in communities, with the goal of helping their leaders understand and address the problem. When the organization began working with communities, Chapman says that on average it took 18 months to simply unearth what efforts were taking place. She wanted it to take 18 minutes, so that Engage Together and its partners could spend far more time on actually solving the problem. This set her on a mission.

Working with volunteered advice from large companies like Deloitte and Anthem, Engage Together developed a plan for speeding up the process. The first part was to facilitate data gathering using an online survey that would go to multiple participants in a community – universities, doctors, dentists, homeless shelters, etc. Respondents now require only 17 minutes on average to complete the survey and describe what they are doing to address trafficking.

The second part of the plan was to visualize all the relevant data and make it broadly accessible to stakeholders. The goal was to communicate where communities are strong, where gaps need to be addressed, and who is at the table and who isn't. The staff and volunteers had a vision of a comprehensive dashboard of trafficking resources. But, says Chapman: "This was a brilliant solution in principle, but we struggled with it in practice. The data, much of which was external and in different formats, was difficult to load. And people found it difficult to understand and use the tools we initially chose to load, analyze, and display the data – until Qlik came on board."

Engage Together became acquainted with Qlik when it began working with Pomerol Partners, a multinational data analytics and visualization consulting firm and Qlik implementation partner. With donated licenses from Qlik's Corporate Responsibility program, Engage Together and Pomerol were able to create an application that serves up customized dashboards for each community. Chapman enthuses: "Within 90 days we had the visualization we dreamed of."

Each dashboard assesses and maps community resources relative to human trafficking. Using the dashboard, community resources can overcome the silos and fragmentation that previously characterized anti-trafficking programs, unifying their efforts and initiatives. The displayed information relates to such diverse interventions as prevention, rescue and exit, temporary shelter, survivor aftercare, legislative reform, training, outreach, and more. Engage Together uses Qlik analytics and reporting to distribute customized reports and embedded visualizations to each community.

The data comes from a variety of sources, including community survey responses, crime statistics, foster care statistics and homeless person counts. Before Qlik, loading the data into the system was a time-consuming process. Now, the data loads happen automatically (with some quality control reviews to ensure that formats or source locations haven't changed) and are updated in near real-time. These improvements have allowed Engage Together to move through a process: from data gathering, to rendering visualizations, to insights and plans, and finally to the most important component – taking action.
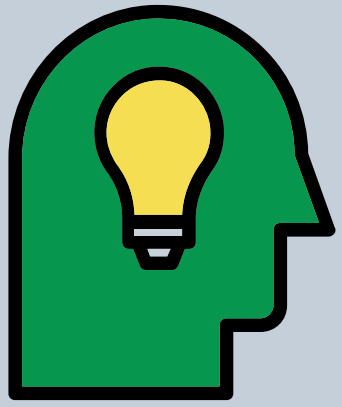
# 'Within 90 days we had the visualization we dreamed of.'

The dashboards allow community and state leaders to see clearly where their current strengths lie and any gaps in their anti-trafficking efforts – from programmatic and demographic to geographic. These insights are driving program improvements as local nonprofits and organizations re-align their services to fill gaps. They're also impacting legislative reforms in the communities where the reality of human trafficking's presence hits home, with the dashboards highlighting vulnerabilities in systems of care that need to be shored up through legislation or funding priorities.

Beyond illuminating gaps in programs, the dashboards also showcase gaps in multi-sector engagement within communities. For example, when Engage Together began working with the state of Kansas, around 25 different organizations had some involvement with addressing human trafficking issues. The research and data-gathering process uncovered hundreds more, many of which sponsored duplicated efforts. With the dashboards, visualizations, and reports from Qlik, the different entities can now see each other, refine and combine their efforts, and bring new partners to the

table. In direct response to the insights the dashboards provided, local Rotary Clubs rallied to learn about the gaps in program and service needs in their city. Following a six month deep-dive into the data with local leaders serving victims and survivors, they developed an action plan to engage all local Rotary Clubs across the area to help meet needs and fill gaps.

Similarly, in Wyoming, the dashboards revealed that over 87% of the anti-trafficking effort across the entire state was being carried out by nonprofits and government agencies, while there was almost no engagement from other sectors, such as faith-based, businesses, education, civic clubs, foundations and healthcare. As Cara Chambers, Director of the Division of Victim Services Office of the Wyoming Attorney General explains: "Although we are just in the initial phases of seeing what this data can do for us, we are beyond excited for its potential. This program is dynamic and comprehensive and easily portable. I see our task force being able to leverage this information to develop policy and solicit private sector engagement that has, as of yet, not been easily achieved."

> 'Now we can extend our reach into many more communities and help many more victims.
>
> **Ashleigh Chapman,**
> President and CEO, Engage Together'

From Chapman's perspective, the information provided through Qlik, its partners and her advisors has made an incredible difference in Engage Together's ability to accomplish its mission. "We've been incredibly fortunate to have these great minds and great tools to provide visibility into the human trafficking problem and the solutions available for it," she says. "Now we can extend our reach into many more communities and help many more victims. And we can bring many different types of organizations to the table to strengthen community action, support survivors, and prevent it in the first place by protecting those most vulnerable in each of our communities."

# MAYBORN GROUP: REMOVING THE BOTTLENECK

Data consolidation and integration turned the maker of Tommee Tippee baby bottles into an analytics powerhouse, says *Juan Martinez*

G lobal baby products retailer Mayborn Group knew it needed a better way to manage data. The executive team at the UK-based company, which employs more than 1,200 people worldwide, wanted employees to transition from managing information within Excel spreadsheets to a globally aligned, analytics-friendly approach to information management.

Prior to forming a partnership with Qlik in 2018, Mayborn Group's data management was manual, time-intensive, and expensive. Data was collected, but it wasn't shared throughout the organization, it wasn't used to make critical enterprise-wide decisions, and reporting was handled at a regional level and then aggregated manually. This approach resulted in duplication of efforts and painfully slow processes. "As with a lot of organizations, we were silo-based," says Dave Elliott, Global Data and Analytics Manager at Mayborn Group. "There was a lot of manual and locked data wrangling, and users would scramble to find information from various sources. That needed to change."

# ❝ We worked in silos, with a lot of manual and locked data wrangling. That needed to change. ❞

*Dave Elliott*,
Global Data and Analytics Manager,
Mayborn Group

To start, Mayborn implemented Qlik Sense to deliver analytics across a group of 100 users. The team began by examining core business functions, such as sales and commercial finance, where it hoped to consolidate data, build analytics data pipelines with Qlik, and govern the data so that everyone could make use of a single, accurate version of information.

Elliott and his team knew that if raw data could be taken from wherever it resides, freed from the silos in which it is typically locked, and made analytics-ready, it could be structured in a way that technical novices would find useful. The next step would be adding business context to the data. At that point, not only would the data be ready for analysis, but also users from other departments would be able to generate actionable insights and develop automatable data processes.

The team quickly realized that the Qlik technology would be powerful enough to help accomplish their goals, but getting everyone at the company to contribute to – and use – the platform would require some handholding. As is the case with most digital transformations, data literacy was a barrier to adoption. It required upskilling and a mindset shift. Mayborn Group's data and analytics team formed support groups for its regional teams and business units to help them report data in a uniform way across the enterprise, and conducted workshops to help users understand potential use cases. As users became more familiar and comfortable with the system, Elliott's team gradually increased adoption.

Once data-gathering efforts had been standardized, and business users were comfortable with Qlik, Mayborn began consolidating electronic point-of-sale (EPOS)

data from global retailers. The company wanted to consolidate inventory data, sales data, buying-pattern information, and more, with its own internal data. The process wasn't as simple as importing spreadsheets. Retailers would send sales data based on their own product codes rather than Mayborn's, which meant Mayborn first had to map and consolidate the data, then bring it into a central governed process. Thanks to Qlik, the data only had to be mapped once. Reports were automatically fed into the system, and the information was readable and actionable in a way it never would have been if Mayborn's team of data analysts had to manually consolidate, map, and evaluate the information.

"That's a huge efficiency gain," says Elliott. "It provides us with quick and easy access to hundreds of millions of rows of data. And it gives us the ability to slice and dice the data in any way we need to."

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❝

We achieved huge efficiency and the ability to slice and dice the data in any way we need do.

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Mayborn Group's marketing team can now analyze EPOS data and compare it to market share data to see how the company is performing against its competitors and determine which products are making an impact on market share. Although Elliott can't calculate the

# "The data and analytics management team is now the first port-of-call for users."

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amount of time Mayborn saved, days of labor for 20 to 30 people have been turned into a process that is automatically updated.

However, the journey hasn't ended there. In 2019 Mayborn Group began selling direct-to-consumer (DTC), launching an e-commerce site in the UK that not only brought the company closer to its customers but also enabled analysts to gather a treasure trove of new, personalized data. Transactional data from the DTC website is automatically fed into Qlik Sense, where analysts can view individual purchase behavior. If a dad orders a Tommee Tippee Superstar Sippee weaning cup for his four-month-old, for example, Mayborn knows that in a year, the same dad will likely need a No Knock cup for the child, and can market to the father accordingly.

The Qlik Data Integration portfolio allows Mayborn to combine data from every source in an automated and easily governable way. Regardless of where it originates or how it enters the system, information is pulled into a central data warehouse, standardized, and then disseminated across additional platforms, such as Mayborn's email marketing platform Adobe Campaign. Without Qlik, the data input and campaign initiation would have been a manual process. Instead, marketers are freed up to focus on personalized and automated customer outreach, and analysts can focus on predictive analytics rather than churning data. These efficiencies will continue to create value for Mayborn as it extends its DTC sales in the US, Australia and France. And, through expanded use cases, Elliott is hoping to develop additional granular-level metrics, such as demand planning and forecast accuracy.

"Instead of business units owning bits of data, or data platforms, the data management team takes the responsibility of owning the data and bringing that into a central hub," Elliott explains. "We have decreased the cost of acquiring, collecting, and managing data and, in essence, we are enabling data-as-a-service for users from other departments."

To support Qlik adoption and the overarching data strategy, Mayborn continues to upskill its global community with an ongoing data literacy program. The company is creating a site within its communication platform where users can engage with the Mayborn analytics community, providing regular updates in relation to app developments, releases, and content. The goal is to unite Mayborn analytics users, regardless of their business unit, as a global organization, so they can collaborate and share experiences.

"As a business and as a data team, we weren't looking to have an army of database systems and we weren't looking to have an army of resources managing data on a day-to-day basis," Elliott says. "We wanted something that would empower our teams without adding a huge amount of overhead. The data and analytics management team is now the first port-of-call for users. We don't have to ask if they need help with anything. They come to us and tell us what it is they're trying to accomplish and we're usually able to help. Qlik makes this possible at every turn."

# 06

*Joe DosSantos* speaks to *Matt Quinn*, CTO of CarGurus, about the car dealer's digital transformation journey

# CARGURUS: DELIVERING GREAT DEALS WITH DATA AND ANALYTICS

Joe DosSantos

Matt Quinn

Q&A

# Q1

**JOE:** First, tell us a bit about CarGurus and the CarGurus business model.

## A. MATT:

Founded in 2006, [CarGurus](#) was originally created as a place for consumers to review cars, before pivoting to become a marketplace that takes an inventory from our member dealers to list on our site and help customers find a great deal. Fueling our initial growth and IPO, the marketplace provides a transparent shopping experience to customers via IMV (Instant Market Value) that tells the customer how good the deal is on the cars in their search.

In the past few years, the company has evolved even further and added a portfolio of products that covers the entire spectrum of car buying, from dealer wholesale transactions to consumer retail online car purchases and financing. Our acquisition of CarOffer in 2021 allowed us to move into the wholesale market, providing dealers with the capability to acquire inventory through an automated wholesale matrix that includes bidding and logistics. We also recently released Digital Deal, a solution that allows consumers to jump-start the car-buying process online – completing steps like search, deposit, and financing – before completing their purchase in the dealership.

# Q2

**JOE:** With CarGurus being a digital first company, you must rely on data and analytics to support your interactions with the customer. How do you leverage data and analytics in your business model?

## A. MATT:

We rely on data and analytics heavily to benefit both our customers and our dealers. Our IMV calculation uses a multivariate regression that includes a proprietary set of variables to determine the right price for the vehicle and show a customer if they are getting a good deal. This transparency helps us build trust with our shoppers by virtue of our good, better, best deal search rankings, powered by complex and highly refined statistical analysis of dozens of factors. We are constantly refining this algorithm to provide more transparency.

Given our history and traffic, we have one of the largest first-party automotive datasets in North America. This allows us to provide our dealers with significant insights to drive their business. We use this data, along with a modern data technology stack, to provide near real-time insights to dealers. One example is our Market Intelligence tool which shows supply and demand within a geography for different cars. This could allow a regional dealer to move cars to locations where demand for a particular car is higher, or an independent dealer to submit bids into CarOffer for cars that are higher demand in their zip code. Regardless of the size of the dealer, these tools provide insights dealers can't acquire elsewhere, and our data stack allows us to deliver this information almost instantly.

# Q3

**JOE:** With digital commerce moving so quickly, I would think that getting timely data would be key to influencing customer and prospect decision-making. How have expectations on real-time data changed over the past five years with respect to data for the customer and data for the employee?

## A. MATT:

There has been a sea change in expectations for real-time data in the past five years. In the same way I take for granted that my mobile phone should now have hundreds of gigabytes of storage — a concept that was unheard of years ago when I first started programming — now customers of our analysis and dashboards expect real-time results on massive computational analytics that previously would take hours to execute. Delivering results almost instantly enables our sales team to make the most well-informed decisions possible on the right products to offer a dealer. It enables our employees to evaluate the results of an A/B test faster and subsequently release a better customer experience to users sooner. And it benefits our customers because we can provide them with real-time recommendations for cars they might like based on prior searches. Our mission is to "give people the power to reach their destination", and these real-time results help our dealers, employees, and customers do just that.

# Q4

**JOE:** What types of analytics are required for your customers and your business to make the best decisions?

## A. MATT:

There are several ways we use data to drive results. As mentioned, our dealer customers gain tremendous insights from our data. One example is our Lead Intelligence product, which provides dealers with valuable insights on their new and engaged customer leads for prioritization, boosting sales conversion and potential revenue. We're effectively placing a lead analytics capability directly in the hands of our dealers that allows them to sort, filter, and arrange their leads based on numerous parameters.

# Q5

**JOE:** One of the key concepts of Active Intelligence is that not only are you providing data and analytics to the business, but you are driving action as a result. What are some examples of customer and employee actions that you are looking to drive in your digital experience?

## A. MATT:

Ultimately, we want any consumer shopping on our site to find a great deal on a car. Our IMV and sorting algorithms within our search results help to drive this by providing transparent and high-quality search results to customers on inventory – allowing them to quickly find the best deal on the car they want in seconds.

Internally, our analytics teams are creating gold standard reports on critical data needed to run the business as well as performing complex, ad-hoc queries that answer specific questions pertinent to a relevant effort. Our data stack and governance seek to maximize our analysts' throughput by virtue of data transformations that provide the data they need to get the answers they want, when they want them.

# Q6

**JOE:** What's next on CarGurus' innovation journey?

## A. MATT:

The pandemic has highlighted customers' desire to shop from the privacy of their homes, and we have already added new products that allow them to get financing or sell an existing vehicle online. Instant Max Cash Offer, our solution for selling your car online, provides the best offer from thousands of dealers across the country.

We are committed to becoming increasingly data-driven — to bring real-time analytics and transparency to consumers and dealers to create the best, most transparent marketplace for buying and selling, resulting in value for us and them.

*Thank you to key members of our data team for informing many of my answers: Alex Kotsakis, Jessamine Bleiler, and Ivan Ceraj.*
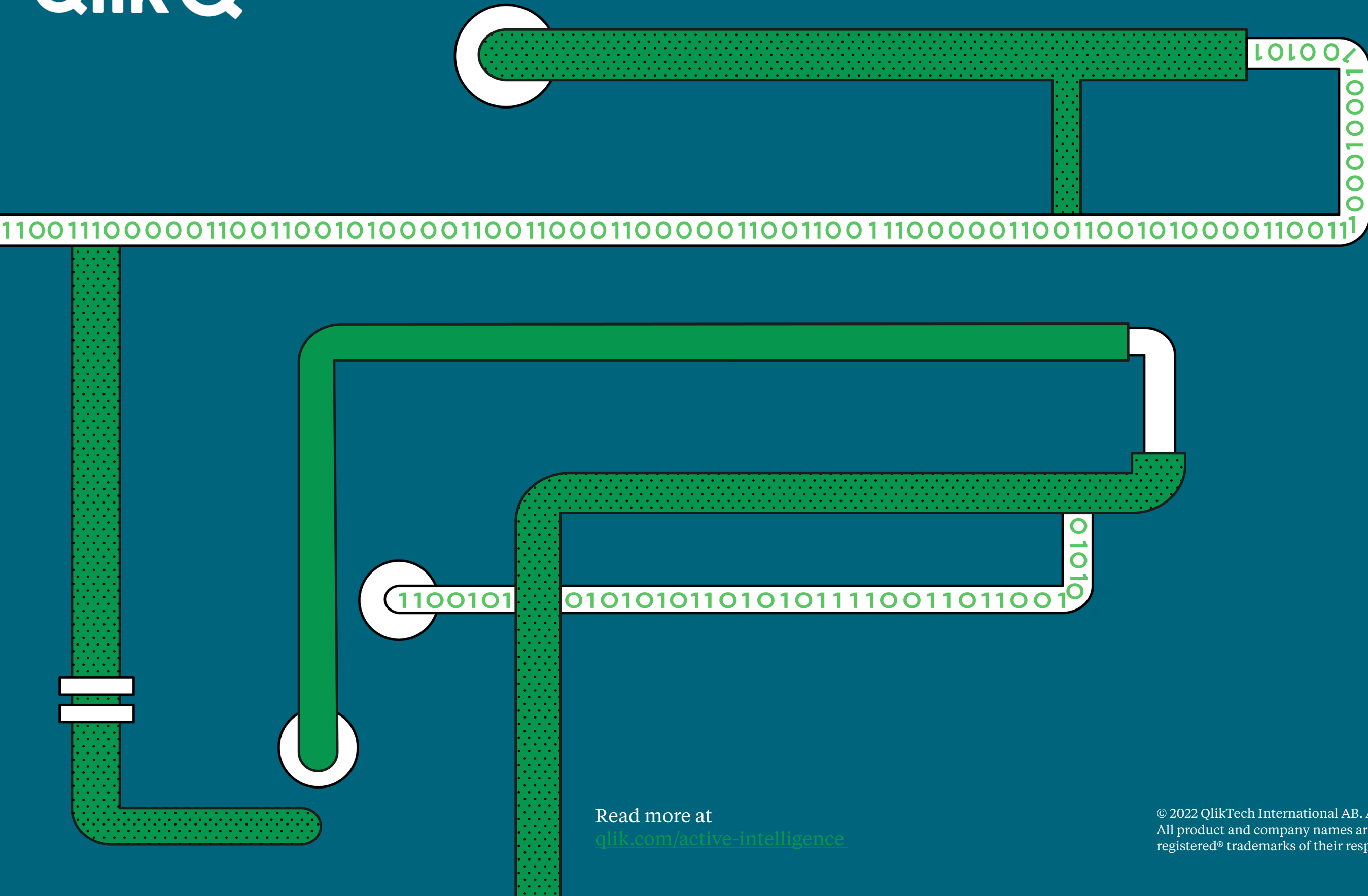
Qlik

Read more at
qlik.com/active-intelligence