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Implementing Qlik Sense to Support Global Clinical Trial Operations at Merck

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There was a time when business moved at the speed of lumbering guesses. More accurately, perhaps, it moved according to the gut feelings of the leadership. But while this method worked for a few companies, over the years many went the way of the typewriter. That's because making good decisions in an ever-changing environment is difficult. Since difficulty often leads to stress, business leaders pushed for data for organizational reasons.

However, like the ideas of flying cars and a pill to cure all diseases, the practical reality is more difficult than the concept. Information is collected in a variety of ways. Marketing surveys, product reviews, and population data may provide useful information to a company executive. But each of those sources may use different terms and data organization methods. For the information to be useful to the end user, it must first be reorganized and curated.

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As business intelligence (BI) professionals, we know the power behind data-based decisions. We want all of our teammates and customers to actively seek the kind of data they need to make smarter decisions. However, people who don't analyze data for a living always seem to underestimate the work that goes into making raw data useful. That can be frustrating for both the end user and the BI staff.

For a number of years, many organizations were stuck in this cycle. Since professionals wanted data to make smarter decisions, organizations collected data. But the biggest challenge is how to make that data meaningful and drive actionable decisions when appropriate. The analysis and reporting process can be so cumbersome and slow that it prevents BI from reaching its full organization-wide potential.

A Leader in Improving Lives

As many of you know, [Merck](#) is one of the largest pharmaceutical companies in the world. Our organization's history can be traced back to 1668 with the purchase of a drug store by the Merck family. Since then, the company has evolved into an international industry leader.

Merck is dedicated to innovative medicines, vaccines, and animal health products. We lead a research-intensive effort to develop cutting-edge solutions to human problems. This vision of saving and improving lives through research brings Merck directly in line with the power of data-driven decision making. That is where I come into the picture.

I lead a team called Metrics, Analytics, and Performance (MAP) within the Global Clinical Trial Operations (GCTO) group at Merck. My educational background includes a Ph.D. in microbiology, and I have two decades of experience in pharma and biotech. My responsibilities at Merck include bench-marking, performance analytics, and reporting across the GCTO group. Since clinical trials are a huge part of pharmacological product development, the metrics and KPI processes are vital to our success.

Our Guiding Principles

The GCTO unit is charged with overseeing and conducting all operations around clinical studies. We make sure that everything happens on time, to plan, and within performance goals. Our clinical studies are often global, vary in size, and cover many therapeutic areas and indications. These studies are, of course, performed against the backdrop of unmet medical need.

We never commit significant resources to develop products without a demand. That means we need to get our medicines to the patient as quickly as possible. That reality is especially pertinent now that the entire world is working to tackle COVID-19. In an average year, we oversee 260 late-stage clinical development studies, 130 joint venture studies, 12,000 active site hospitals, and more than 39,000 patients.

Once the study information has arrived, the database is “locked” to maintain integrity, and the data is analyzed, documented and submitted to regulatory agencies. The sheer range and size of studies—complemented with the regulatory oversight—create a huge challenge. We have to receive a wide variety of data in a timely and efficient manner.

Delivering Data

Our challenge has never been about not having enough data. The problem was that we had too many dashboards and reports for that data. Users would regularly raise a business question but have no idea which dashboard provided the best answer.

It wasn't just a problem of searching for the right data source. We saw a lot of variation in how people viewed the data. Many of the dashboards used different metrics and definitions, and our goal was to avoid ambiguity in those definitions and duplication in terms of individual efforts.

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Add the ongoing problems with usability and performance issues, and suddenly mountains of data become nearly useless. The only thing more frustrating than not having any data to power your decisions is being handed a pile of data that still can't help you decide.

Given the importance of bringing our products to the bedside in a timely manner, we had to find a way to monitor our portfolio, studies, and processes effectively. That's when we found [Qlik](#).

Introducing MAP View and NPrinting

In June 2019, we created a strategy that would take privacy into account, yet provided the user with the information necessary to carry out their roles. Since this was our first experience with Qlik, we started with two smaller apps in September for around 100 users each. The first app was Portfolio, which provided an overview of our active studies, sites, and subjects. Global, the second app, was a snapshot of our global footprint and how it has evolved over time.

A few months later in January 2020, we accomplished our next milestone of rolling out [Qlik NPrinting](#). NPrinting is an unparalleled tool that we now use to generate on-demand data reports based on specific criteria. While the earlier apps were important steps, NPrinting was really our first attempt at providing the data access solution Merck needed.

We are immensely impressed with the performance and usability of NPrinting. One of our main methods of using the platform is our Site Health Check. We work with a number of partners to monitor our clinical sites around the world. We're providing these sites with information that tracks their progress and performance across several aspects of the clinical trial.

A recent survey indicated that 76% of the sites did not receive feedback regarding the study performance. As a result, we are developing the Site Health Check to provide truly ongoing feedback based on a set of performance metrics. Our Clinical Research Associates (CRAs), will deliver the Site Health Check report to the sites, and use the mobile app when necessary for detailed information or insight.

Making this process continuous will lead to more productive discussions with site staff regarding metrics and performance. Finally, including the Qlik mobile app means the CRA and site staff can examine the data in depth outside the office.

We now have 13 apps up and running. We are still adding/modifying apps as needed and have a user base of approximately 2k users around the world and growing.

The COVID-19 Case for Qlik Sense

Considering world events, identifying a vaccine to prevent or treat a COVID-19 infection was of utmost importance from a development standpoint. We adopted a "no patients left behind" approach to our clinical trials and are incredibly happy with the power Qlik Sense provides as we attempt to grasp the speed of the pandemic.

Having Qlik in place prior to the pandemic meant we had a working tool to allow immediate data communication between the trial sites and Merck. Because the virus moves fast, we love having the ability to get real-time site data. That allows us to adjust resources toward monitoring those sites that may be more heavily impacted.

We can't afford to let patient safety or protocol standards lapse because a certain site is overwhelmed. While the COVID-19 trials are ongoing, we can already see these features will be useful in future natural disasters.

Prepared for the Future

Most of us in BI remember a time when IT owned the entire process. But because business leaders needed ongoing access to data, many organizations pushed for the decentralization of data analysis. They knew that moving to a data-driven organization meant everyone must have access to data relevant to their role. Merck required time to determine how best to govern access to the data in a structured, organized manner.

During the COVID-19 pandemic, we were able to create and test a viable self-governed platform for data analytics. That is due in large part to Qlik's unique in-memory and [QVD storage capabilities](#). Giving everyone access allowed us to create a truly agile approach and let the apps evolve naturally. That is perhaps where the biggest surprise arrived.

We knew that our data analysis operation would evolve once it was decentralized, but we were a bit unprepared for the tremendous level of power it presented to our clinical operations. Seemingly overnight, we migrated from relying on static check-ins where we shared data to being a company where data is the lifeblood of our operations. Colleagues across our company were now able to tell stories with meaningful visuals. They could use near real-time reports to identify and communicate strengths and opportunities in ways that were simply not possible before.

Integrating Qlik tools into our operations provided Merck with the best of both worlds. People who want data now have easy access. The resulting change in culture has been so significant that we now require users to take training in development practices and change management. We've seen that the degree of data literacy varies by person, so we're also in the process of developing more personalized data literacy training.

We have taken the first steps toward being truly data driven, and this change arrived at the perfect moment in world history. Qlik gives us an extremely quick reaction time so that we can deliver analytics and insights to users around the globe. That places us all in a better position to help save and improve human lives.

Want to learn more about Merck's journey? Watch my 2021 QlikWorld Online presentation [here](#).

About Qlik

Qlik's vision is a data-literate world, where everyone can use data and analytics to improve decision-making and solve their most challenging problems. Qlik provides an end-to-end, real-time data integration and analytics cloud platform to close the gaps between data, insights and action. By transforming data into active intelligence, businesses can drive better decisions, improve revenue and profitability, and optimize customer relationships. Qlik does business in more than 100 countries and serves over 50,000 customers around the world. [Qlik.com](https://www.qlik.com)