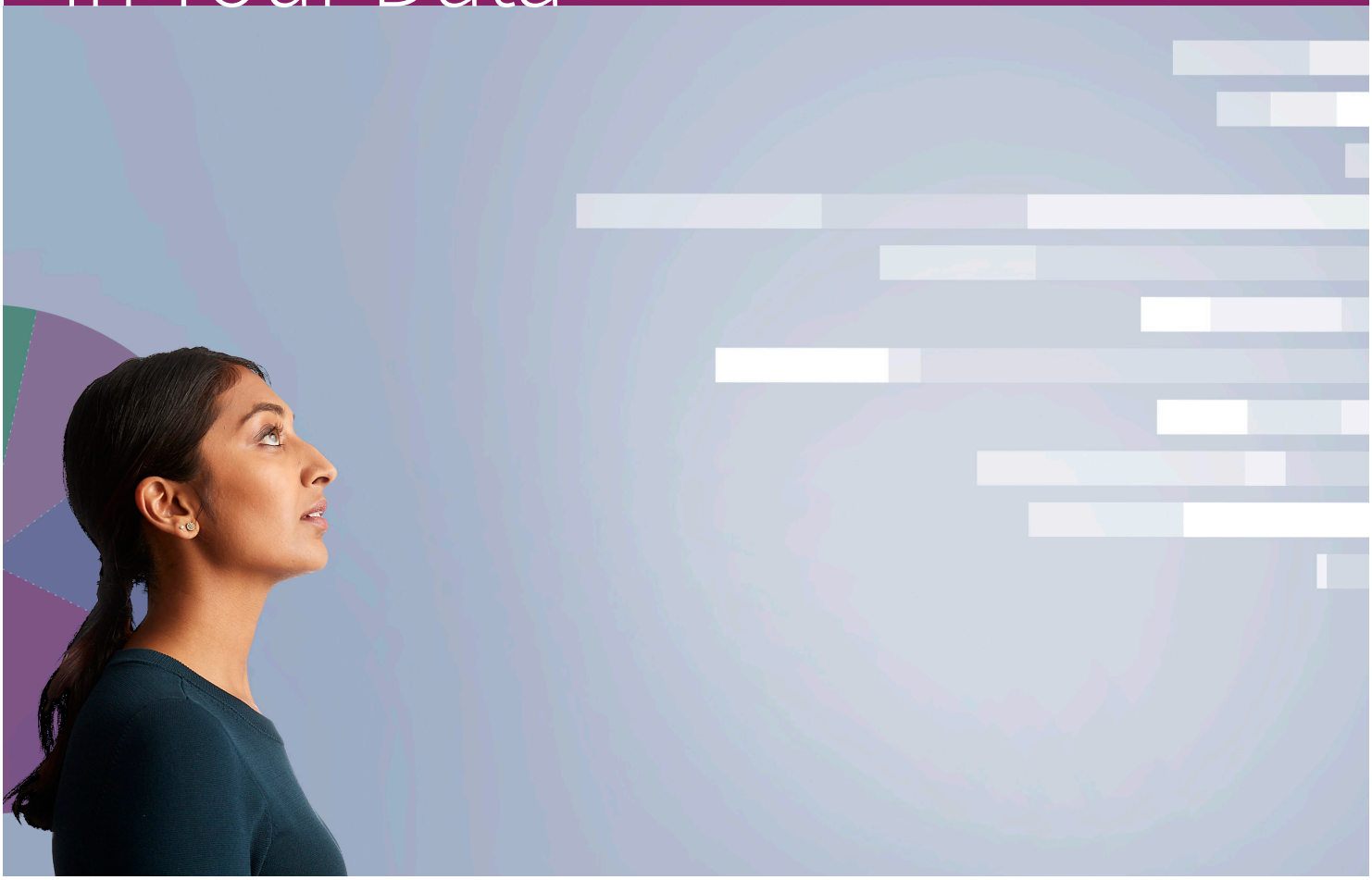
3rd-Generation Business Intelligence:

Unlocking All the Possibility in Your Data

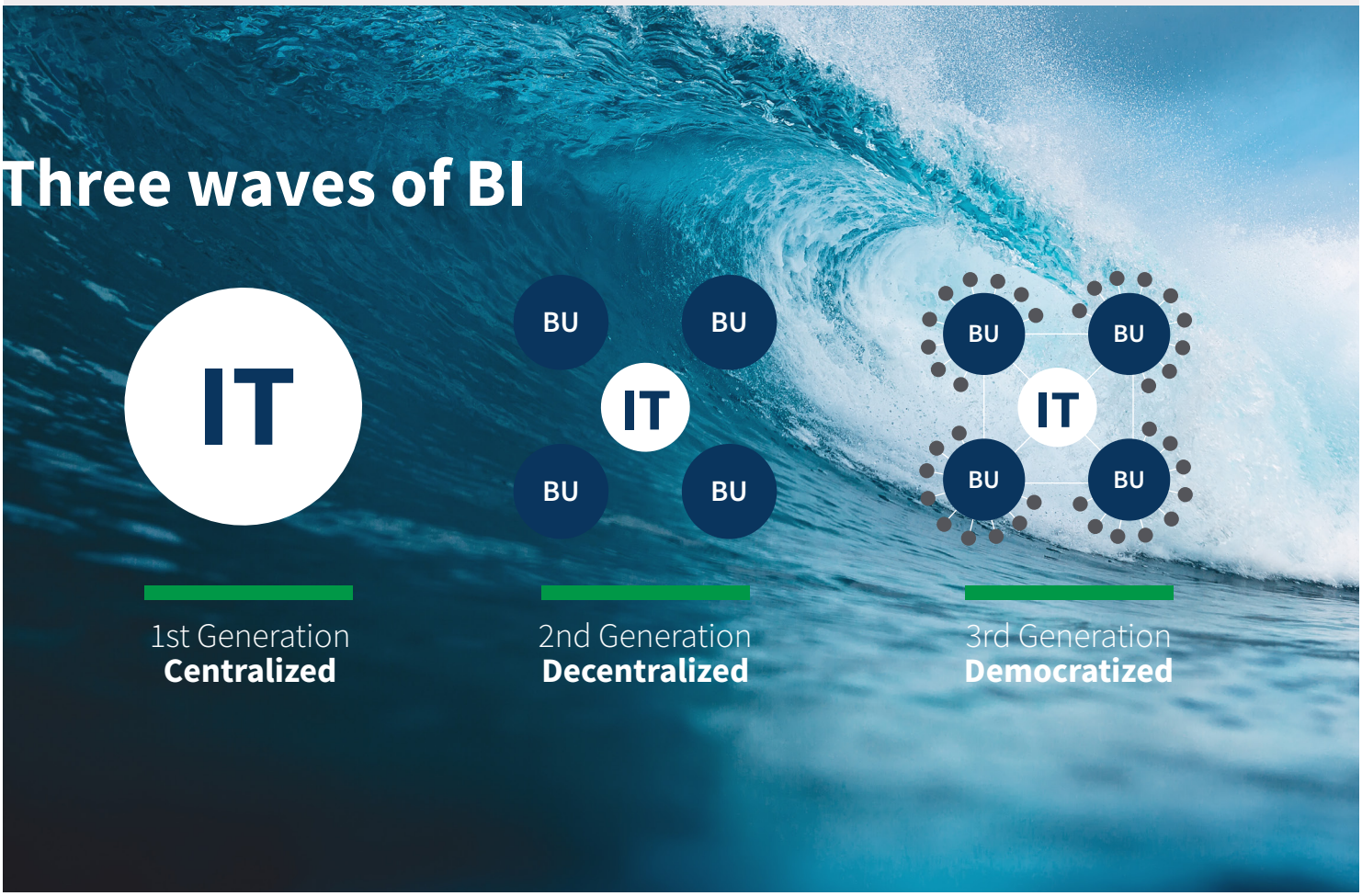


The Promise of Business Intelligence, Delivered at Last

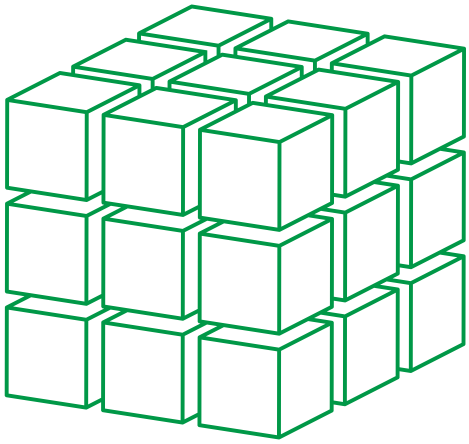
Every business trying to compete and win needs intelligence – about their customers, suppliers, products, partners, and markets. Over the decades, the pursuit of that intelligence has gone by different names, including Decision Support Systems, Management Information Systems, Business Performance Management, Data Discovery, Data Visualization – all describing the general desire for Business Intelligence (BI).

No matter what it's called, the challenge has always been the same: How can businesses analyze data to make discoveries that lead to competitive edge?

It's a noble goal. But the attempt to get there has been filled with complexity and plagued by disappointment. Along the way, each generation of BI has come a little closer to fulfilling the promise. It wasn't until now, with the third generation of BI, that we have the potential to spread the power of analytics to every business user in the enterprise – and finally unlock all the value in data.



1st-Generation BI: **Centralized**



Early approaches to BI involved complex technology stacks that analyzed multi-dimensional data sets – or OLAP data cubes.

These cubes were often managed by a central team inside the IT department, and the focus was usually on structured data stored in traditional systems of record.

What did this look like in practice? If a business manager wanted to learn something from their data, they would formulate a question – for example, "How did our last campaign impact sales within each region?" They'd submit the question to a data analyst, who would use advanced skills to create a query for the analytical software. Finally, often weeks later, the analyst would return to the business manager with a response in the form of a static report.

In this centralized model of BI, advanced computing capabilities had made it possible to analyze multi-dimensional data sets. But the process was slow, complex, and dependent on the few people who had the skills to build queries. At best, analytics were only reaching approximately 25% of the workforce in any given business.

The Ask/Wait/Answer Cycle

That wasn't the only problem. Any given question would usually result in an answer – but that answer almost inevitably raised more questions. Take the example above, where the question was "How did our last marketing campaign impact sales within each region?" The answer might be that sales increased in some regions and decreased in others. That's interesting – but it's not useful without more information. Now the business manager has a new list of questions: How are customer demographics different within each region? How is our sales staff performing within each region? And so on. Unfortunately, in 1st-gen BI, getting those answers took time – far too much time to be useful.

In first-generation BI solutions,
the cycle of inquiry looked like this:

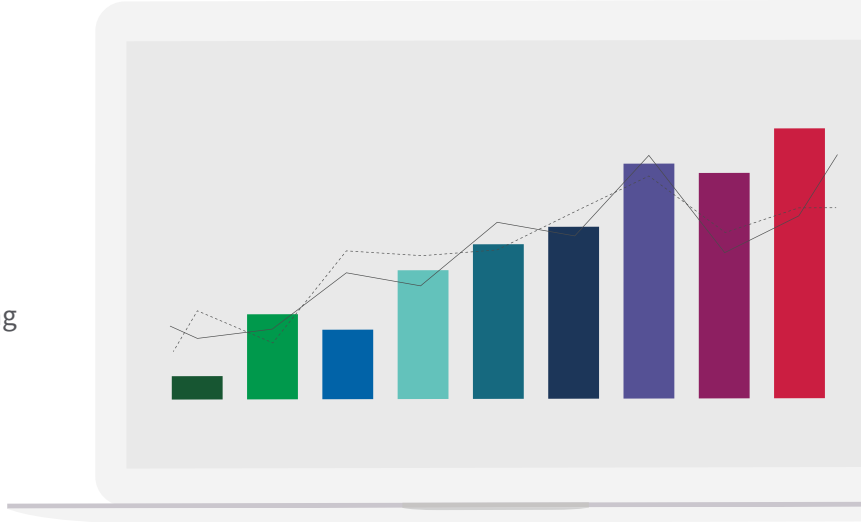
It took so long that business users gave up trying to get the big picture. Instead, they became dependent on static reports that provided minimal "intelligence" and disappointing value. **Something had to change.**

2nd-Generation BI:
Decentralized

The second wave of BI, pioneered by Qlik®, created a new category – user-driven BI. Qlik removed complexity in four ways:

- Eliminated the technical stack
- Added user-friendly methods of preparing and loading data
- Developed intuitive, visual ways for users to interact with data
- Created the one-of-a-kind Associative Engine, which allows all users - even unskilled users - to freely explore their data, pivot in any direction, and discover all the connections within it

This radically different approach spread the benefits of BI from a few specialists in IT to many users throughout the business. Over time, it evolved into an ever-more intuitive model for making discoveries within data and visualizing the data in ways everyone could understand and use.



The Challenge of Governance

During this wave of BI, the technology gained the capacity to analyze more and more types of data – including unstructured data, social data, and even personal datasets managed in Excel spreadsheets. This introduced a problem: the chaos of multiple, duplicate, or untrustworthy data sources. After all, even the most sophisticated analytics can't be accurate if the data is compromised. Most vendors ignored this problem, leaving the customer to figure it out. At Qlik, we emphasized the need for trustworthy data from the beginning, developing a secure, governed structure to deliver more reliable analysis.

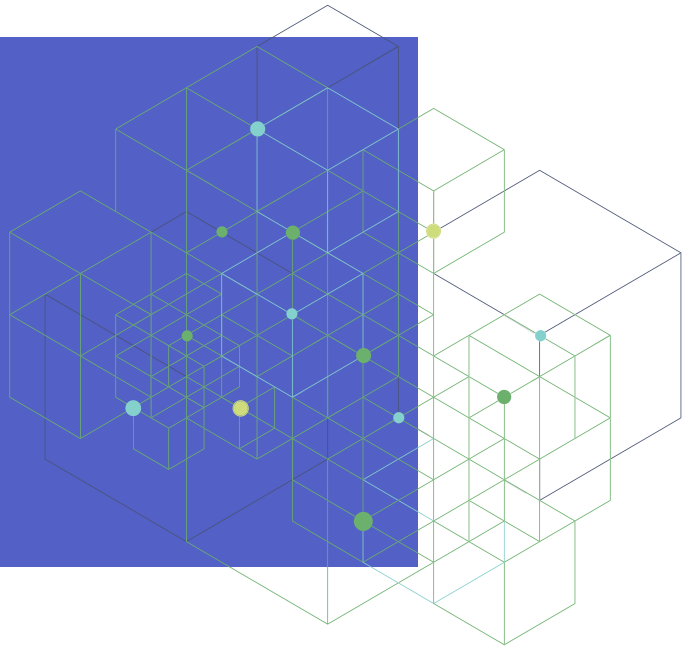
A New Role: Business Analyst

Second-gen BI also gave rise to a new role, the Business Analyst. These specialists create sophisticated applications for supporting key business processes, first doing the heavy lifting and then sharing interactive dashboards for team members to explore within the context of a given area. In this way, 2nd-gen BI has been more broadly applied than 1st-gen, reaching an estimated 25 – 50% of employees. But that still leaves approximately 50 – 75% of the workforce to rely on gut-feel, intuition, and past experience.

A Persistent Barrier: Data Literacy

What's the single biggest obstacle blocking BI from extending to the entire organization? The workforce has fallen behind in data literacy, or the ability to read, work with, analyze, and argue with data. A global study conducted by Qlik in 2017/2018 showed that only 24% of business decision-makers consider themselves to be data-literate.[1]

Data is the foundation of the digital economy, and every business user should know how to work with it. Otherwise, data will continue to remain untapped, with most of its value left on the table – and businesses won't be able to lead, or even compete.



[1]The research was conducted by Censuswide on behalf of Qlik. The research surveyed 7,377 business decision-makers (junior managers and above). Respondents across Europe, Asia and the US. Research was carried out between August 2017 – February 2018. Censuswide abides by and employs members of the Market Research Society which is based on the ESOMAR principles.

3rd-Generation BI:
Democratized

The promise of simply and quickly visualizing data in 2nd-generation BI tools is hitting its limits.

Now we need to bridge the gap between today's scattershot use of analytics and the massive increase in value that will occur when every person in a business is empowered to make discoveries within data.

To make that happen, we need an entirely new way of thinking about how we manage data, deploy analytics, and improve data literacy – a radically democratic approach that spreads analytics to every corner of the organization. That's how businesses will achieve Data-Driven Digital Transformation – and lead the way in their industries.

Digital Transformation: Data is the Real Driver

Digital Transformation is a hot topic. Organizations of all sizes and types are trying to take advantage of digital technology to reinvent the way they do business. But while digitization is erasing boundaries between businesses and their suppliers, partners, and customers, it's the application of analytics that will streamline and enhance these relationships. When you make all the available data accessible to your workforce – and give everyone the power to explore it – you have more potential than ever to anticipate and meet customer needs, identify and capitalize on new opportunities, and transform how things are done.

How do we truly democratize analytics? Many vendors in the BI industry believe that Artificial Intelligence (AI) is the answer. As a result, they're adding machine-learning capabilities to their 2nd-gen tools, enhancing and automating data analysis. But that alone can't help an organization reach Data-Driven Digital Transformation.

Qlik's 3rd-Generation BI:
A Comprehensive Platform Approach

Everyone can agree that data is a strategic asset, containing tremendous potential value. The point of analytics is to unlock that value by delivering the insights that drive transformation – and ultimately competitive edge. To empower everyone in your business to get those insights, Qlik's vision and roadmap is based on a three-pronged, platform approach:

Democratization of Data

All data, and any combination of data, is accessible to all users through governed, analytics-ready, enterprise-wide information catalogs.

Associative Indexing (x) Augmented Intelligence = AI^2

Building on our unique Associative Technology, the Qlik Cognitive Engine finds and highlights new insights for users to investigate as they explore their data, accelerating discoveries and increasing data literacy and trust.

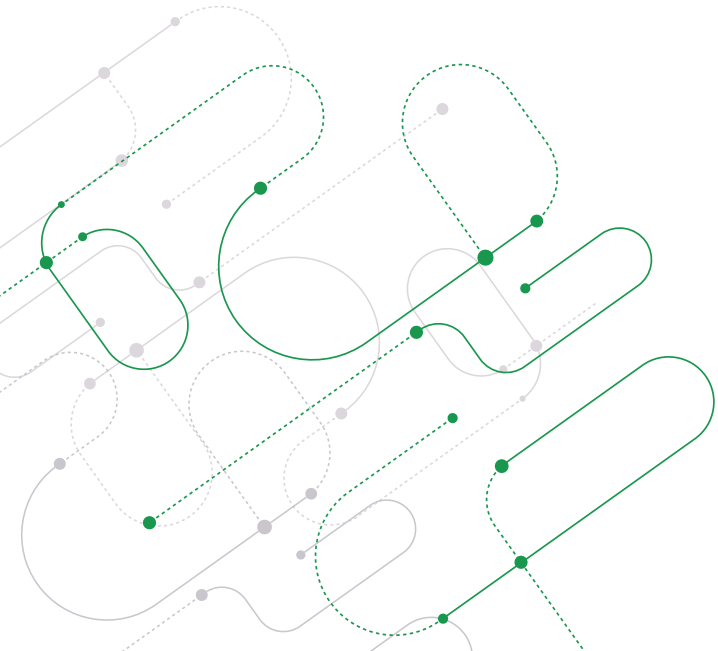
Embedded Analytics from the Edge to the C-Suite

Analytics is no longer a destination and becomes a part of all decision-making, entering the streams of daily business processes through embedded analytics. This applies to both human decision-making and machine decision-making in areas like IoT and automation.

Democratization of Data

When you're trying to solve a complex problem, it helps to look at it from multiple viewpoints. When you're trying to solve a complex business problem, it helps to examine multiple data sets, from multiple sources, to see how they're related. To do that, business users need to dive into all potentially relevant data and explore freely – without compromising the data.

Most analytics vendors require data to be moved into a central repository, like a data warehouse or lake. But most enterprises manage to get only about a fifth of their structured data into those repositories. What about the rest? What about all the new data sources coming online? And what about the unstructured data sources at the edges of the enterprise?



A Better Way to Handle Data

At Qlik, we take a different approach. We enable you to create an enterprise-wide data schema that fully integrates all your data, from any source, regardless of how big it is or where it's stored. This schema keeps access to all of your data centralized, governed, and analysis-ready for the full range of use cases.

We don't force you to move the data, either. Instead, using Qlik's Associative Big Data Indexing Engine™, you create meta-data and indexes that represent the data. Our patented Associative Technology maps all associations among all the data, preparing it for analysis.

With Qlik, data sets that represent common or unique combinations of sources can be managed, secured, and accessed through enterprise catalogs – and used immediately for many different types of analysis. Since all users have access to the same catalogs, analyses are consistent, and users gain trust in their results. And of course, all of this is done in a highly governed environment that adheres to security policies and is compliant with regulations like GDPR.

Associative Indexing (x) Augmented Intelligence = AI²

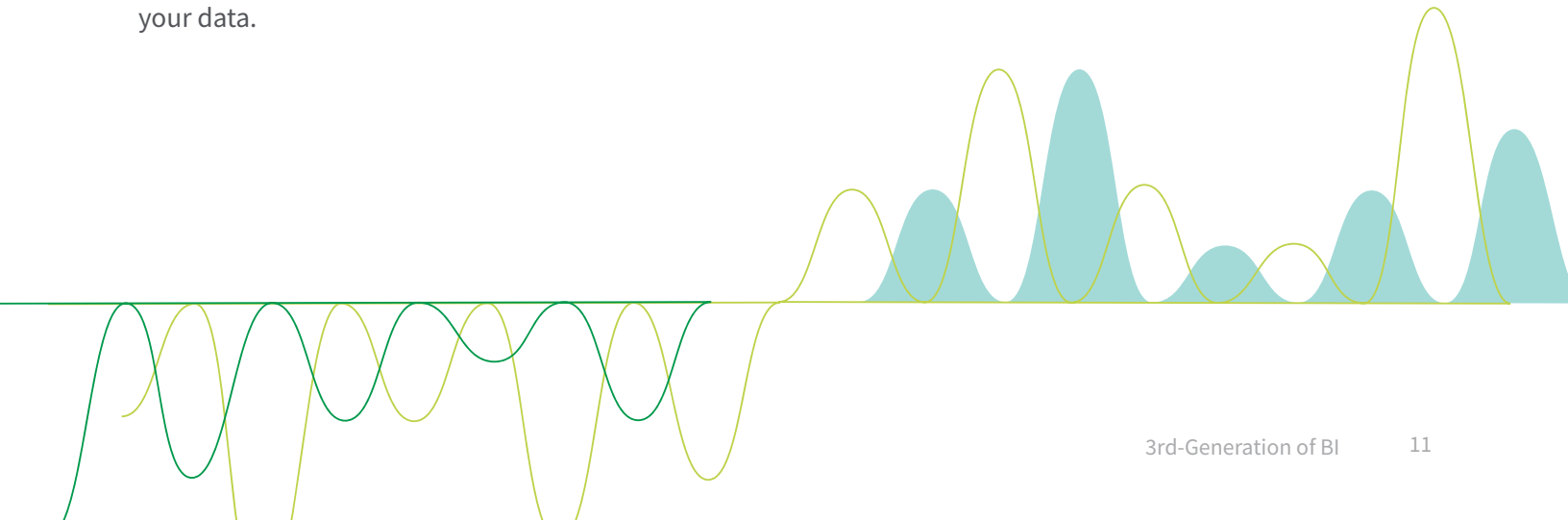
AI²: Machine Learning Meets Human Intuition

Our approach to Augmented Intelligence builds on our unique Associative Indexing technology, combining human interactions with machine-identified patterns. As users navigate through their data, the application suggests new ways of looking at it, highlighting insights to explore further. It's a bit like adding x-ray vision, showing the user connections they wouldn't otherwise have seen.

Our shorthand for this combination of our Associative Index with Augmented Intelligence is AI². AI² elevates data literacy, speeds time to insight, and simplifies the complexity of advanced analytical use cases. The human » machine » human interaction makes powerful analyses available to even broader audiences, finally eliminating the bottlenecks of relying on data scientists or business analysts. It's the breakthrough we've been waiting for, and it's an approach that extracts the most value possible from your data.

Augmented Intelligence can't work without two essential ingredients: access to the complete enterprise data schema, and the indexing of all known associations across the data values. The Qlik platform is built on both of those ingredients. And when we add the Qlik Cognitive Engine, which is accessed through visual and natural-language UI, our unique advantage is clear.

The interaction of these three technologies brings useful, relevant, and transformative discoveries to the surface more quickly, and it accelerates your journey from data to transformation:
Data » Information » Insights » Action.



Embedded Analytics from the Edge to the C-Suite

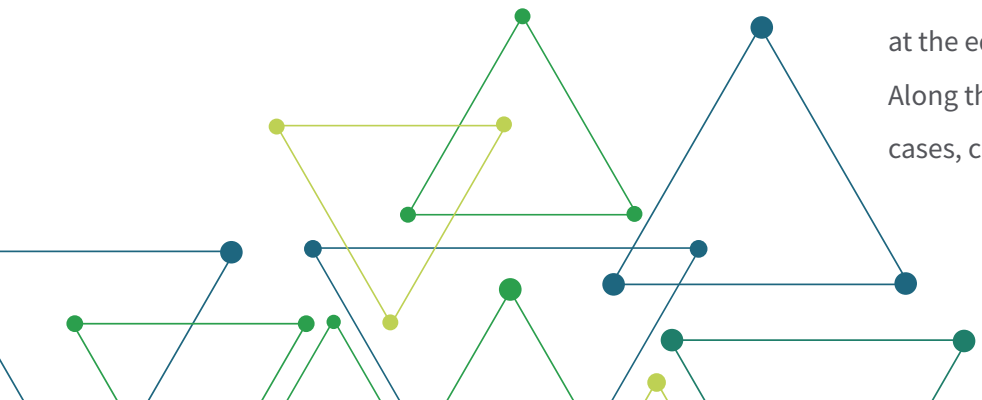
In earlier generations of BI, the outcome is typically a report, dashboard, or analytical application separate from the business tools that make insights actionable. In this model, analytics are a destination, not a vehicle.

And while there are good examples of actionable analytics in B2C environments – for example, next-best-offer optimization – these have typically been missing in employee-facing BI. When employees want to be data-driven, they have to:

1. Know which report or dashboard to pull up
2. Understand how to interact with the data
3. Figure out what data means for them
4. Determine what action to take

As a result, analytics are used only occasionally in decision-making, leaving far too much value undiscovered in the data.

These two problems – analytics as a destination, and the underuse of analytics in decision-making – have to be addressed.



Laying the Groundwork for Pervasive Analytics

Qlik was the first BI company to develop an analytical environment on top of a scalable, open, and extensible platform that can be deployed across a range of environments – from enterprise servers to public cloud infrastructure to edge devices and IoT applications. We took this approach because we know how much more valuable it is to embed analytics where decisions are made.

Our micro-services- and container-based architecture is the foundation that brings analytic workloads, at scale, to IoT and edge devices. Using the same APIs that Qlik engineers used to develop Qlik Sense®, developers can embed analytics directly into operational applications and processes. Similarly, using Qlik Core®, developers can embed and deploy analytics at the edge to analyze, filter, and promote interesting data points and patterns.

Qlik's platform is designed to bring analytics to every team, process, and application in your business, from the newest hire to the CEO and from the devices at the edge of your network to your core technology. Along the way, it supports unique and valuable use cases, closing the gap between data and action.

Qlik – Leading the 3rd Generation of BI

At Qlik, we've always had a uniquely democratic view of analytics. We were founded on the notion that the true promise of data would be realized only when every business user could interact with it, making the discoveries that lead to the business outcomes that drive competitive edge. We have the vision and the foundation to deliver the 3rd generation of BI, and the approach to make that vision a reality for your business, enabling you to truly **lead with data.**

About Qlik

Qlik is on a mission to create a data-literate world, where everyone can use data to solve their most challenging problems. Only Qlik's end-to-end data management and analytics platform brings together all of an organization's data from any source, enabling people at any skill level to use their curiosity to uncover new insights. Companies use Qlik to see more deeply into customer behavior, reinvent business processes, discover new revenue streams, and balance risk and reward. Headquartered in King of Prussia, Pennsylvania, Qlik does business in more than 100 countries with over 48,000 customers around the world.

qlik.com