

**CELENT**



# **ABN AMRO: KYC INVESTIGATIONS**

**WINNER OF CELENT MODEL RISK MANAGER 2022 AWARD FOR DATA, ANALYTICS, AND AI**

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# CASE STUDY AT A GLANCE

ABN AMRO is the winner of the Celent Model Risk Manager 2022 Award in the category Data, Analytics, and AI. They are being recognized for deploying Quantexa’s Contextual Decision Intelligence platform, which significantly enhances the intelligence and efficiency for complex KYC investigations.

This solution enriches KYC/CDD practices by identifying and tracking disclosed and undisclosed beneficial owners (including ultimate beneficial owners, UBOs) and their associations and facilitates efficient customer risk evaluations and due diligence reviews. It also optimizes financial crime detection and investigation by graphically displaying identified networks in an interactive manner and highlighting risks for investigators.

FINANCIAL INSTITUTION	ABN AMRO
INITIATIVE	Automating KYC Investigations
SYNOPSIS	ABN AMRO deployed a cutting-edge capability powered by entity resolution and network analytics to resolve its corporate client entities and find hierarchies, networks, and connections that help detect financial crime risks for the bank.
TIMELINES	<ul style="list-style-type: none"> <li>• October 2019: PoC initiation.</li> <li>• December 2019: Technical delivery of PoC.</li> <li>• Q1 2020: PoC completion.</li> <li>• December 2020: Soft go-live.</li> <li>• June 2021: Go-live of UI.</li> </ul>
KEY BENEFITS	<ul style="list-style-type: none"> <li>• The system provides KYC analysts with access to an extensive set of internal and external data for improved review and decision-making.</li> <li>• The solution reduced the need for manual labor by increasing automation, which led to greater efficiency and productivity.</li> <li>• By reducing the need for repeated requests and outreach to the bank’s clients for KYC information and documents, this project helps in improving customer experience.</li> </ul>

KEY VENDORS

Quantexa ([quantexa.com](http://quantexa.com))

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# CELENT PERSPECTIVE

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KYC investigations are among the most inefficient yet risky parts of banks' financial crime compliance operations. Especially for a bank's corporate clients, assessing subsidiaries, shareholders, beneficial owners, and corporate structures are particularly cumbersome and time-consuming due to lack of quality data and automated workflows. Financial criminals exploit this weakness, maximize obfuscation, and evade detection by weaving complex networks of shell companies and corporate structures.

A key challenge in corporate KYC is the rudimentary technology at work, which struggles to deal with different types of data, marry a bank's internal data sets with external data sources, and analyze the data automatically and holistically. Next-generation technologies leveraging entity resolution and network analysis bring about a paradigm change here by powering contextual, automated, and intelligent identification of risky individuals, entities, and transactions, and visually revealing their connections and networks.

ABN AMRO's initiative to implement such next-generation techniques in its KYC investigation process is therefore evidence of the bank's innovativeness in ushering in generational change in its KYC technology. It is impressive that the backbone of this project was developed based on the platform provided by the vendor Quantexa, a relative newcomer in this space. While some banks have started working with new fintech and regtech players, in most cases Celent has seen such initiatives involve significant cocreation or codevelopment of the project technology, with the bank playing a significant role in shaping the platform development. From that perspective, it is remarkable to note that this project needed little customization of Quantexa's platform, indicating high maturity of both the bank and vendor to quickly deploy a next-generation solution in a highly scrutinized part of the bank's operations. In that context, it should also be noted that the development time and costs of the project were greatly reduced by reusing ABN AMRO's existing investments in Azure Data Lake Storage.

In this project, the bank started with a high emphasis on improving data quality as it recognized effective KYC analysis starts with quality data. However, as Celent has discussed, banks' data is frequently messy, with multiple records for a single party, name variants, address issues, typos, inaccuracies, and omissions, and it is often fragmented and siloed across disparate systems and business lines. ABN AMRO's use of Quantexa's entity resolution was targeted at solving the fundamental data challenge and geared toward improving data quality first.

The bank went beyond just improving data quality by applying Quantexa's network generation capabilities, which are critical to detect complex connections and networks which may contain hidden risks. Network analysis and its dynamic visual

investigation capabilities are a new paradigm in financial crime compliance and can transform the investigation process by making it simpler, intuitive, and intelligent. As seen from the project's outcome, the combination of entity resolution and network analysis significantly improved efficiency and effectiveness of complex KYC investigations for ABN AMRO.

With the foundations of better data and intelligent networks in place, it is impressive to note ABN AMRO's plans to build on the project's success and enhance its value by expanding its scope and application. Its plan of adding new data sources and rolling this platform out to newer teams will add incremental value to this project, while its plans to feed the context-enriched data and transactional information into other investigations such as AML can be transformative. Last but not the least, this solution also makes it possible for the bank to adopt a continuous KYC approach by breaking down barriers between previously siloed financial crime processes.

# DETAILED DESCRIPTION

## Introduction

ABN AMRO Bank N.V. is a Dutch bank with headquarters in Amsterdam. The bank is a product of a long history of mergers and acquisitions that date back to 1765. In 1991, Algemene Bank Nederland (ABN) and AMRO Bank (itself the result of a merger of the Amsterdamsche Bank and the Rotterdamsche Bank in the 1960s) agreed to merge to create ABN AMRO. ABN AMRO has operations in Asia, Australia, the Americas, and other European countries, including Belgium, France, Germany, Greece, Luxembourg, the UK, Norway, and Spain.

**Table 1: ABN AMRO Snapshot**

ABN AMRO	
YEAR FOUNDED	The bank is a product of a long history of mergers and acquisitions that date back to 1765. ABN AMRO was established in 1991 through the merger of Algemene Bank Nederland (ABN) and AMRO Bank.
REVENUE	EUR2.25 billion (2020)
ASSETS	EUR396 billion (December 2020)
GEOGRAPHICAL PRESENCE	Headquartered in the Netherlands, ABN AMRO has operations in Asia, Australia, the Americas, and other European countries, including Belgium, France, Germany, Greece, Luxembourg, the UK, Norway, and Spain.
EMPLOYEES	Over 19,000

Source: ABN AMRO

Banks around the world continue to struggle with complexities and inefficiencies in the know-your-customer (KYC) process, particularly for their corporate clients, who can have several subsidiaries, beneficial owners and hierarchies, business lines, and regional operations. Performing due diligence on a bank’s corporate clients to assess their financial crime risk has become a highly manual, inefficient, and ineffective process for many banks due to severe limitations of first-generation technology systems used in KYC. ABN AMRO therefore deployed a next-generation KYC

investigation tool, provided by the vendor Quantexa, to overcome the challenges and make its KYC investigation process more intelligent, efficient, and effective.

## Opportunity

Banks around the world are exploring ways to improve automation and streamline KYC processes with the goal of improving internal business efficiency, strengthening regulatory compliance, and enhancing client experience. The business need for ABN AMRO in embarking on this initiative was to improve on a variety of aspects, namely:

- **Know your customer (KYC):** ABN AMRO employs thousands of KYC staff, who must spend significant time and effort on the KYC investigation process. Through this initiative, the bank sought to reduce manual data-gathering efforts by providing employees with the tools needed to make faster and more efficient decisions at scale.
- **Operational costs:** Analyzing vast volume of disparate data requires many labor-intensive processes. Through this initiative, ABN AMRO sought to reduce time spent on gathering data, understanding it, and trying to differentiate between legitimate and potentially suspicious activities. It also wanted to allow its KYC investigators to use their time and resources more effectively by automating processes and to enable them to focus on genuinely risky customers and transactions.
- **Compliance:** It is a regulatory requirement for ABN AMRO to understand who exactly they are doing business with. But the extensive volume of data and the bank's highly complex nature mean finding connections among parties and transactions can be challenging. ABN AMRO wanted to bring together the bank's extensive data on a single platform, connect the dots within that data, and construct a global view of parties, transactions, and interrelated associations; this would allow the bank to generate a holistic view of parties and counterparties and reduce their chances of missing risk. For ABN AMRO, the desired outcome when embarking on this initiative was to better understand the connections between the companies they serve and improve data quality. By combining internal data with external data, and grouping companies into hierarchies, the firm would be able to better understand the relationships between them.
- **Client experience:** ABN AMRO wanted to reduce friction and improve the overall client experience by minimizing outreach to its clients for KYC information and documents.

Executive sponsors for this project were Robin de Jongh, Head of Detecting Financial Crime; and Nancy Schot-Steketee, Detecting Financial Crime Grid Owner.

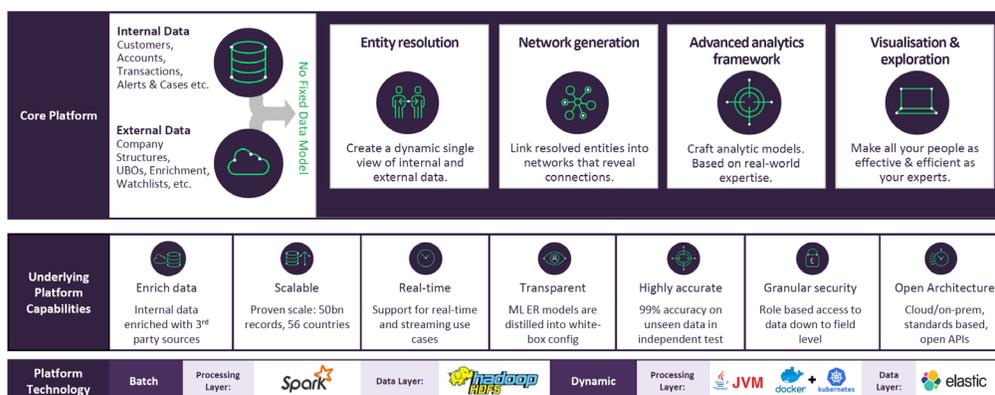
## Solution

ABN AMRO first worked with the vendor Quantexa on developing a proof of concept (PoC) that served as a launchpad for the eventual solution. This PoC was created for KYC onboarding, also referred to as “New Client Take-On.” The scope of the PoC involved assessing the solution’s capabilities along the following dimensions:

- Capacity to process large data volumes.
- Ability to ingest various data sources.
- Ability to assess potential risk associated with customer data.
- Identification of legal hierarchies for corporate clients.

The core of the solution is built on Quantexa’s Contextual Decision Intelligence (CDI) platform. CDI is Quantexa’s approach to financial crime data that enables user firms to connect multiple internal and external data sets to provide a single view of customers enriched with intelligence about the relationships between people, organizations, and places. It is a modular, integrated platform that scales across applications providing users with a connected view of their data for single or multiple use cases, such as KYC, transaction monitoring, anti-fraud, trade monitoring, and so on.

**Figure 1: Quantexa’s Contextual Decision Intelligence Platform (CDI)**



Source: Quantexa

The CDI platform utilizes entity resolution and network generation to continuously evaluate each customer and their financial crime risk throughout the customer lifecycle. It connects billions of internal and external data points to create context—entity graphs that reflect the real world, enriched with intelligence about the network of relationships. The following are the key features of the CDI platform.

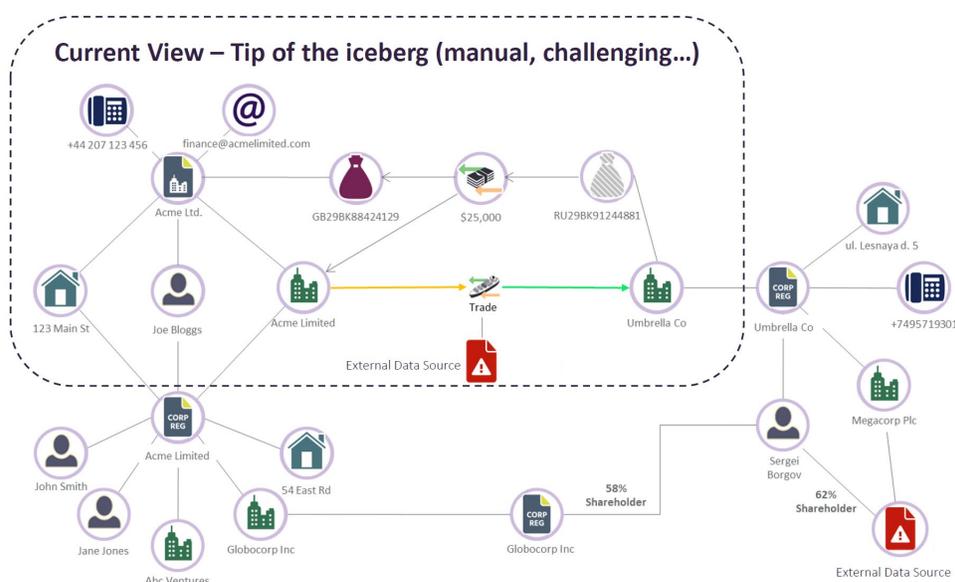
**Single view of data through entity resolution.** Entity resolution technology can connect data across internal and external data sources and generate a single holistic party (often a customer) profile or view. By constructing fuller, richer, and more consistent customer views, entity resolution can enable more streamlined KYC,

customer due diligence (CDD) processes, greater operational efficiencies, and more effective allocation of resources to more complex and higher-risk activities. Further, resolved entities can help create additional contextual intelligence advantageous for smarter and faster profiling, segmentation, and decision-making.

**Making data meaningful through network generation.** Through their ability to ingest and analyze vast amounts of data, often in real time, network link analysis/network-generation technologies can find relationships and connections—often unknown or hidden—among parties, accounts, and transactions, and graphically display them in user-friendly and easily digestible images and diagrams. Relationships can be connected through data items such as shared addresses, telephone numbers, and company associations, and payment flows and other transactions can be linked across common legal hierarchies or business groups. The ability to construct and refresh network linkages in real time or near-real time is an increasingly essential component to keeping up with the pace of financial crime. By providing enhanced intelligence and additional context, network link analysis/network generation tools can:

- Enrich KYC/CDD practices by identifying and tracking underlying beneficial owners and their associations, and facilitate customer risk evaluations and due diligence reviews.
- Optimize financial crime detection and investigation, especially of complex AML typologies used to catch the most sophisticated criminals, by graphically displaying identified networks in an interactive manner and highlighting risks for investigators.

**Figure 2: Identification of Hidden Risks Powered by Entities and Networks**



Source: Quantexa

**Dynamic segmentation powered by AI and advanced analytics.** Legacy KYC systems typically assign customer risk scores based on information gathered at the time of onboarding, and they modify those scores only upon the triggering of certain rules-based criteria. Using new advanced analytics and machine learning data-clustering technology, dynamic segmentation can analyze customer behavior and dynamically create risk-based segments depending on that analysis. As customer financial and transactional profiles change, these segments will evolve. Dynamic segmentation techniques enable more proactive, risk-based, and customer-centric approaches to KYC/CDD, ongoing monitoring, and financial crime detection.

Advanced analytics models can help banks maximize the value of their data and make more informed and consistent decisions faster. Through iterative optimization, advanced analytics and machine learning models can run across a large volume of data to sharpen risk recognition, hone customer monitoring, detect financial crime red flags, and minimize false-positive alerts. As more data is processed, more intelligence is fed back into the models, and detection can become smarter, driving a more accurate focus on true suspicious activity. Advanced analytics can also enhance rules and scoring algorithms within existing monitoring platforms.

### **Vendor Selection**

At the outset, ABN AMRO conducted a vendor selection process and shortlisted Quantexa for this project. During the PoC, Quantexa demonstrated that their technology was able to address ABN AMRO's challenges that were in scope of the PoC. The bank particularly liked the fact that the CDI platform combines both entity resolution and network analytics, and found that to be a powerful proposition. The bank was also impressed by the fact that the platform can be used by the analysts in the user interface, and can be used in a batch mode to produce data and information for other financial crime detection systems.

### **Implementation and Timeline**

As an initial step in 2019, Quantexa created a PoC that served as a launchpad for future engagements and collaboration. The team that worked on the PoC was made up of one person from ABN AMRO, four (two developers and two solutions engineers) from Quantexa, and two from the professional services firm Synechron.

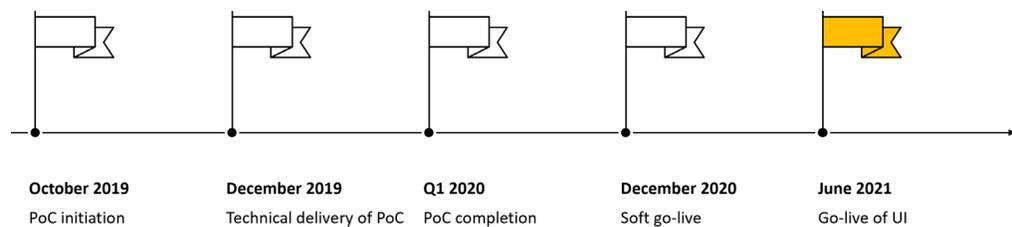
After the PoC phase, the team expanded to the current setup of three people from ABN AMRO, six from TCS, four from Quantexa (team lead, architect, KYC product owner, customer success manager), and three from Synechron.

After creating the PoC, Quantexa handed implementation over to Synechron (joint delivery team). Synechron led the project from initial introduction, training staff on delivery, and managing the initiative. The output of this exercise involved identifying client structures, which refers to finding linkages between ABN AMRO's customers to conduct a KYC review. Due to the global pandemic, the installation was done remotely by Quantexa and Synechron.

Following are the key milestones and timeline for the project:

- October 2019: Project initiation.
- December 2019: Installation of the platform for initial PoC to assess if the platform can fulfill ABN AMRO's requirements.
- Q1 2020: Delivery of PoC with the internal client database and worldwide company registry data sets and execution of entity resolution on them.
- December 2020: Go-live in a production environment starting with testing with a small group of users.
- June 2021: Go-live with the application's UI to a specific group of analysts.

**Figure 3: Timeline**



Source: ABN AMRO

The project did not require much customization as the core Quantexa CDI platform was inherently capable of using ABN AMRO's native data formats and schemas in batch and real time data pipelines without the need to write custom mappings. Particularly relevant to this deployment included an early access release of Quantexa to leverage the latest versions of the Spark ecosystem in ABN AMRO's Azure environment, and a new feature that makes visual understanding of relationships easier. Various services used in this project include Microsoft Azure (Cloud), elastic search, entity resolution, network generation, and AI and machine learning.

## Results

ABN AMRO reports a multitude of benefits in their KYC investigation process following this initiative.

- **Access to extensive data sets.** The system works with millions of customer accounts and 30 million accounts from a commercial data provider, providing KYC analysts with access to an extensive set of internal and external data for improved review and decision-making.
- **Productivity enhancement.** The solution reduced the need for manual labor by increasing automation, which led to greater efficiency and productivity. It resulted in an increase in efficiency in building client hierarchy, allowing ABN AMRO to do more effective and efficient KYC reviews. The bank found that for more complex KYC investigations, investigators now spend less effort to

understand the data on clients and context. As a result, KYC activities now cost less time and effort, which means it frees up time to focus on genuine criminals.

- **Detect hidden risks.** The PoC proved the solution could provide a 360-degree view of customers and detect hidden risk. It also found previously unknown connections between businesses and supported more thorough KYC investigations and review. By dynamically analyzing data from a multitude of sources, this solution breaks down barriers between previously siloed processes and supports a continuous KYC approach.
- **Improved customer experience.** By reducing the need for repeated requests and outreach to the bank's clients for KYC information and documents, this project also helps in reducing friction along the client lifecycle and thereby improving customer experience.

## Key Factors for Success

This project leveraged and reused ABN AMRO's existing investments in Azure Data Lake Storage (ADLS), which significantly reduced costs and DevOps time. Batch processing and ETL for ABN AMRO leverages Azure Databricks (ADB) using the Spark framework. Databricks was the preferred platform for data engineers in teams at ABN AMRO, so developing entity resolution and network generation on ADB greatly increased accessibility and maintainability for the bank.

Despite the installation being done remotely due to the global pandemic, the excellent collaboration and communication between teams meant this was a successful installation resulting in speedy productivity enhancement.

## Lessons Learned

Since the project involves dealing with sensitive client information from both internal and external sources, ABN AMRO and its technology partners devoted significant attention and resources to ensure this project and the bank are compliant with all relevant data privacy-related legislation. For the project team, this meant a significant challenge in adhering to all ABN AMRO policies regarding software/platform security and following the appropriate processes to obtain approval from the data owners to make use of the data. In this, the bank leveraged the expertise of ABN AMRO departments such as the "Privacy Office" and "CISO."

## The Way Forward

Among ABN AMRO's many plans to further enhance the value of this project, a key focus is to onboard new data sources. Currently, the solution uses the bank's client database, company registry, client transaction details, and offshore data leaks. The bank is in the process of adding other risk information relevant for financial crime such as interrogation information, external sources like sanctioned entities and watchlists, and other contextual sources.

Another focus area is rolling out this user interface to a wider group of KYC and financial crime compliance analysts. The bank wants to add risk scoring on resolved entities and networks and use them in other capabilities within financial crime. Another plan is to bring in risk identification and interpretation logic to further aid investigators and automate parts of their activities.

As this platform brings together internal and external data from across the enterprise to better serve the firm's KYC teams, ABN AMRO's Data Scientists and Innovation teams will take advantage of this context-enriched data along with their own expertise and models to build risk models and scores as well as solve different use cases across the bank. The bank will use the Quantexa CDI output in their internal 'Feature Store' within the data platform. Following this, they seek to explore how other teams can use this context-enriched data and transactional information for their own investigations, starting with AML.

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