

CELENT

QUODD QX DIGITAL PLATFORM

Automating Workflows for Global Pricing and Reference Data

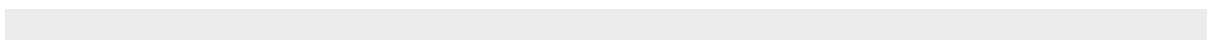
Ashley Longabaugh and Chris Bendtsen
Celent Wealth Management

December 11, 2024

This report was commissioned by QUODD Financial Information Services (“QUODD”), which asked Celent to design and execute a Celent study on its behalf. The analysis and conclusions are Celent’s alone, and QUODD had no editorial control over report contents.

CONTENTS

Executive Summary	3
Introduction	4
QUODD Company Overview	4
Global Pricing and Reference Data: Market Opportunity and Competitive Landscape	5
Evolution of Pricing and Reference Data	6
Overview of the QX Digital Platform	7
Digital Experience: QX Lookup	8
Digital Experience & Bulk Query Automation: QX Query	10
Programmatic Access: QX Automate	11
Key Partners	12
QX Digital Platform Use Cases, Client Examples, and Impact	14
QX Digital Platform Use Cases	14
Client Examples	16
Client Impact	18
Celent Perspective	20
Usability	20
Data Ingestion	20
Accessibility	21
What Differentiates QX Digital Platform?	21
To Consider	23
Lessons Learned	23
Path Forward	24



EXECUTIVE SUMMARY

QUODD QX Digital Platform is a leading platform designed to automate workflows for global pricing and reference data, catering to the needs of over 1,900 financial institutions, including banks, wealth managers, asset managers, and fintech companies. This paper, authored by Celent's Wealth Management practice, dives into QUODD's innovative solutions that streamline back-office operations, enhance data accessibility, and improve overall efficiency in managing financial data.

The QX Digital Platform stands out in the competitive landscape of financial market data providers by offering two core capabilities:

- 1) **Automated Delivery of Global Pricing and Reference Data:** QUODD provides a turnkey platform that integrates automated API delivery, ensuring clients have seamless access to essential market data across all asset classes.
- 2) **Customization of Data and File Formats:** The platform allows for tailored data solutions that align with clients' operational workflows, enabling them to customize queries and reports to meet specific business needs.

As the demand for reliable and efficient data solutions grows, QUODD's QX Digital Platform addresses critical challenges faced by back-office teams, including usability, data ingestion, and accessibility. By leveraging cloud-native infrastructure and user-centric design, QUODD empowers clients to automate complex processes, reduce manual errors, and enhance decision-making capabilities.

The paper also highlights real-world use cases demonstrating the impact of QX Digital Platform on client operations, showcasing significant improvements in efficiency, cost reduction, and data accuracy. Notable client examples illustrate how QUODD has transformed traditional workflows, enabling faster asset setup, streamlined security master maintenance, and enhanced price verification processes.

QUODD QX Digital Platform represents an advancement in the financial data landscape, offering innovative solutions that not only meet current market demands but also position clients for future success. As QUODD continues to evolve its platform, it remains committed to enhancing user experience and expanding its data offerings, ensuring that financial professionals are equipped with the tools necessary to thrive in an increasingly complex market environment.

INTRODUCTION

QUODD is a global financial market data and content provider. QUODD provides on-demand market data to over 1,900 institutions across the financial services industry, including banks and trusts, wealth managers, asset managers, asset servicers, fintech trading applications, and more.

This Celent-written paper focuses on QUODD's back office solutions for global pricing and reference data. QUODD's QX Digital Platform provides clients with access to security pricing, reference data, corporate actions, and analytics across all asset classes. The purpose of this paper is to highlight the differentiating features of QX Digital Platform within its market. Celent notes two of its core differentiating features and capabilities:

- 1) **Delivery** of global pricing and reference data: turnkey platform access plus automated API delivery
- 2) **Customization** of data and file formats to match operational workflows

QUODD Company Overview

QUODD is a financial market data company providing streaming market data solutions and end-of-day pricing, reference, and corporate actions solutions to financial institutions and technology providers. QUODD was founded in 1999 and acquired in 2019 by Newspring Holdings as part of their market data strategy and combined with VMS (Vertical Management Systems) a previous acquisition of Newspring. In 2023, Newspring acquired Xignite, a market data API provider, to expand its cloud-native solutions to add more than 500 market data APIs and collapsed all the businesses under the QUODD logo.

Table 1: QUODD Company Overview

Company name	QUODD Financial Information Services
Description	Global provider of financial market data on demand, including end-of-day, real time, and historical market data
Geographic presence	Global, with HQ in Jersey City, New Jersey
Solutions	QX Digital Platform: turnkey experience with automated workflows for global pricing and reference data QX Marketplace: programmatic access via APIs and data feeds to a comprehensive content catalog
Data coverage	Fixed income, options, bonds, exchange listed instruments, equities, indices, exchange traded products, futures, and funds
Client segments	Banking and wealth management, platform providers, asset servicing, insurance and retirement, institutional asset management, broker dealers and advisory, wealthtech, risk and analytics, fintechs, startups, and financial media
Named clients	Addepar, Alliance Global Partners, Charles River, Fi-Tek, Gryphon Fund Group, FXLoader, The Motley Fool, Orion, Solactive, Wealthfront
Key stats	<ul style="list-style-type: none"> • 1,900+ clients • 150+ market data sources • 71k equities, 125k mutual funds, 12k ETFs, 116k indices, 3.5 million fixed income/credit instruments, 2.1 million options/option futures, 57k futures, 27k FX pairs, 900 crypto coins
Technology and key partners	Cloud-based infrastructure run on AWS S&P Global Market Intelligence for bond pricing and liquidity data Other market data providers: CFRA, EDI, FactSet, and Nasdaq

Source: QUODD

Global Pricing and Reference Data: Market Opportunity and Competitive Landscape

Financial market data will be a \$40 billion total addressable market in 2025 according to Burton-Taylor International Consulting. The market comprises real time and trading data; pricing, reference, and valuations data; portfolio management and analytics; research; and news. Global pricing, reference, and valuations data—QX Digital Platform’s domain—is the fastest-growing segment.

Global pricing, reference, and valuations data involve stocks and funds, fixed income and credit, futures and options, indices and benchmarks, foreign exchange, crypto, and more. This is roughly a \$12 billion market serving back

office operational teams at financial institutions (e.g., asset management, capital markets, wealth advisory) and financial technology/solution providers (e.g., bank trust and core platforms, asset servicing, and custody).

QUODD operates in a competitive landscape as one of the few prominent pricing and reference data providers globally, alongside major players such as Bloomberg, London Stock Exchange Group (LSEG), Intercontinental Exchange (ICE), and FactSet. In the current market, many clients recognize the benefits of having a secondary data source for various reasons, such as validation and verification, accommodating different workflows, dissatisfaction with their existing provider, and ensuring regulatory compliance. This has led to an increase in demand for multiple providers.

Evolution of Pricing and Reference Data

Historically, pricing and reference data were accessed via terminals and custom scripts, with providers running these scripts and sending data files to clients. However, this process has evolved—partly due to the increase in remote work during the COVID-19 pandemic—into self-service online portals. Clients now use these portals to query the pricing and reference data they require, but the evolution has reached a standstill. These portals are not designed for scheduling and sharing data, meaning they were not optimized for workflows. That is, until now.

The evolution of pricing and reference data has led to QUODD's QX Digital Platform, which provides an online portal combined with the automated delivery of customized, workflow-based queries via APIs. QX Digital Platform checks all the boxes addressing the needs of modern organizations:

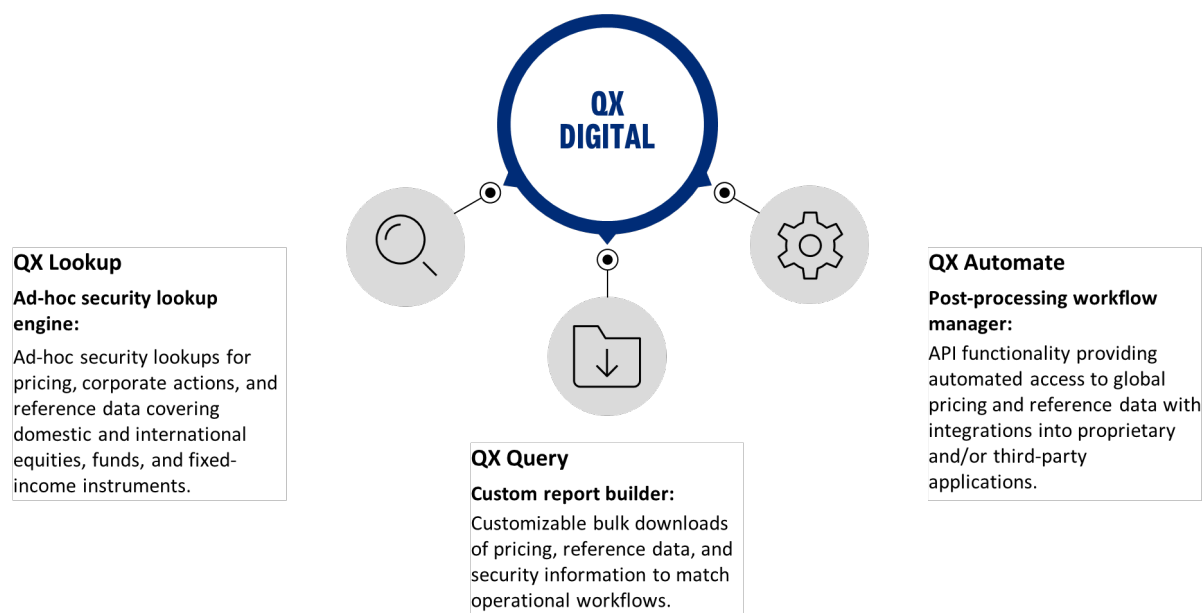
- Cloud-native infrastructure
- User-centric digital experience
- API-driven data access
- Workflow automation

The market data industry continues to move toward on-demand data, customized delivery models, and workflow-based user experiences. The QX Digital Platform was purposely built for all three.

OVERVIEW OF THE QX DIGITAL PLATFORM

The QX Digital Platform provides online access to global security pricing, reference data, corporate actions, and analytics (i.e., a digital experience) combined with automated delivery through APIs (i.e., programmatic access). The platform serves back office operational teams by providing them with end-of-day pricing and reference data to match their workflows. There are three components of QX Digital Platform:

Figure 1: QUODD’s QX Digital Platform



Source: QUODD, Celent analysis

- 1) **QX Lookup:** allows users to perform *ad hoc* security lookups for pricing, corporate actions, and reference data covering domestic and international equities, funds, and fixed-income instruments.
- 2) **QX Query:** enables users to customize queries to save as templates and match operational workflows for *bulk downloads*. Data downloads include adjusted and unadjusted pricing, reference data, and descriptive information on all global securities.

- 3) **QX Automate:** *API functionality* providing automated access to global pricing and reference data with integrations into proprietary and/or third party applications.

Table 2: QX Digital Platform Global Pricing and Reference Data—Features and Functionality

Digital Experience: QX Lookup and Query	<ul style="list-style-type: none"> • On-demand portal interface • Ad hoc lookups (QX Lookup) • Bulk reports (QX Query) • Comprehensive coverage of asset classes, identifiers, information, and data • Customization of identifiers and data fields • <i>Calculators (e.g., fixed income pricing, paydowns, accruals)*</i> • Exception reporting • Delivery for workflows (dynamic, end-of-day processing, ability for sharing and controls)
Programmatic Delivery: QX Automate	<ul style="list-style-type: none"> • <i>Dynamic workflow manager*</i> • <i>Automated delivery of custom datasets via APIs*</i> • <i>File format adapter that converts data files from QUODD formats to clients' formats*</i>

**Note: Innovation highlights that are differentiated from competing market data providers. See Celent Perspective section for more details.*

Source: QUODD, Celent analysis

Digital Experience: QX Lookup

QUODD's online portal for global pricing and reference data is designed to provide users with efficient access to a range of financial information through two distinct functionalities: QX Lookup and QX Query. The difference between the two is that QX Lookup is for ad hoc lookups and QX Query is for bulk downloads and reports.

Global Coverage: Both QX Lookup and QX Query offer comprehensive global coverage across various asset classes including equities, fixed income, derivatives, commodities, and more. They provide access to essential identifiers such as ISINs, CUSIPs, and other security information, ensuring that users can find the data they need for a wide array of financial instruments.

QX Lookup

Purpose: QX Lookup is designed for ad hoc lookups, allowing users to quickly search for specific securities or data points as needed.

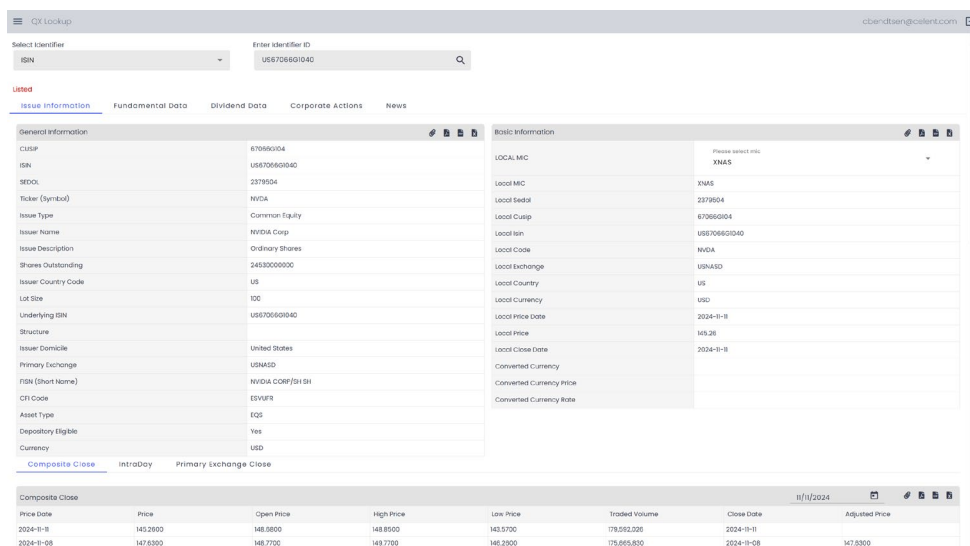
Clients use QX Lookup to find information on individual securities, usually for research and one-off tasks. Users can search for a security via name, ticker symbol, or several identifiers (e.g., CUSIP, ISIN, SEDOL). Instrument types include

equities, ETFs, indices, options and futures, corporate bonds, municipal bonds, and more. The lookup information provided gives a comprehensive view of:

- Issue information and end-of-day pricing data
- Fundamental security data (e.g., market cap, earnings per share, GICS, bond pricing)
- Paydown and accrual information (for bonds)
- Dividend data
- Corporate actions
- News

Functionality: This feature is ideal for users who require immediate access to information without the need for extensive data retrieval. It enables users to input specific queries and receive instant results, making it a valuable tool for back office operational teams who need quick answers.

Figure 2: QX Lookup Issue Information and Pricing Data



Source: QUODD

QX Lookup features two types of calculators for municipal and corporate bonds: a paydown calculator and an accrual calculator. Both calculators are helpful in determining the value of a client’s portfolio. Paydown calculators are used to determine the amount of principal owed on a bond. Accrual calculators are used to determine the accrued interest of a bond. Users can toggle buy or sell and type in the dollar amount, trade and settle dates, and price to determine the calculated accrued interest.

Not many other competitors offer similar paydown and accrual calculators, and in fact the lack of calculators is an industry-wide issue. Where QUODD stands out is the ability to automate these calculators in bulk for regular reporting via QX Query and QX Automate. Clients can also input their own values to be used for calculators and reporting—a differentiating feature for QUODD.

User Experience and Flexibility: The distinction between QX Lookup and QX Query enhances the user experience by providing tailored solutions for different data access needs. Users can choose the appropriate tool based on whether they require quick, individual data points or extensive datasets via reports.

Digital Experience & Bulk Query Automation: QX Query

QX Query

Purpose: QX Query is tailored for bulk downloads and generating reports. Note: QX Query includes programmatic access.

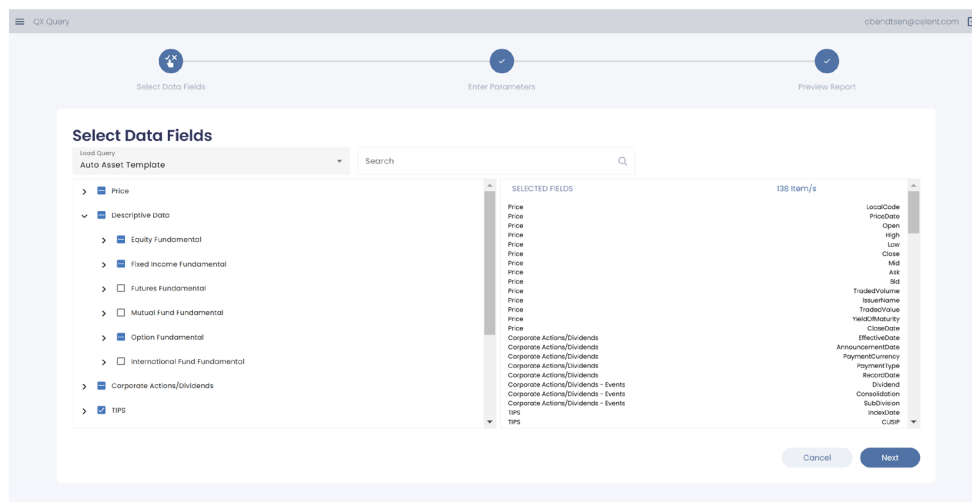
Functionality: This feature is useful for clients who need to extract large volumes of data for analysis, reporting, or integration into their own systems. Users can specify parameters for their queries, allowing them to download comprehensive datasets that can be used for deeper analysis or operational purposes.

QX Query is a custom report builder that automates everything available in QX Lookup to be done in bulk. For example, users can create a bulk report with pricing data and other information for a list of CUSIPs (or any other identifiers) to be pulled on demand at the end of every day. Instead of receiving a preset file type, clients can design their own files based on preferred data fields and format. In other words, users create their own custom universe of fields or asset master files.

The QX Query process starts with selecting data fields. Users can create a custom dataset from over 600 data fields, including price, descriptive data, corporate actions/dividends, bond factor and cashflow, bond schedule and redemption, and more. Fixed income and corporate actions/dividends are among the most heavily used data fields. QX Query also allows users to drag and drop the order of the data fields and even import their own files with a list of identifiers and data fields. One common function that clients use QX Query for is to create customized exception reporting, where clients can bring workflow automation into exception management. In this way, QUODD can handle finding the clients' exceptions for them and help them resolve them quickly.

The next step is to select report parameters, either for a single date or date range. Finally, users can view a preview of the report before saving and submitting to run. These custom reports can be saved and pulled into workflows at a regular schedule. Through its dynamic report builder, end-of-day processing, and functionality for sharing and controls, QX Query is designed for clients' workflows and is therefore the centerpiece of the QX Digital Platform offering.

Figure 3: QX Query Custom Data Field Selection



Source: QUODD

While QX Query is novel from a workflow and customization standpoint, what is innovative from a technology perspective is the ability to automate the delivery process and integrate report data into clients’ existing applications. This can be done through QX Digital Platform’s third pillar, QX Automate.

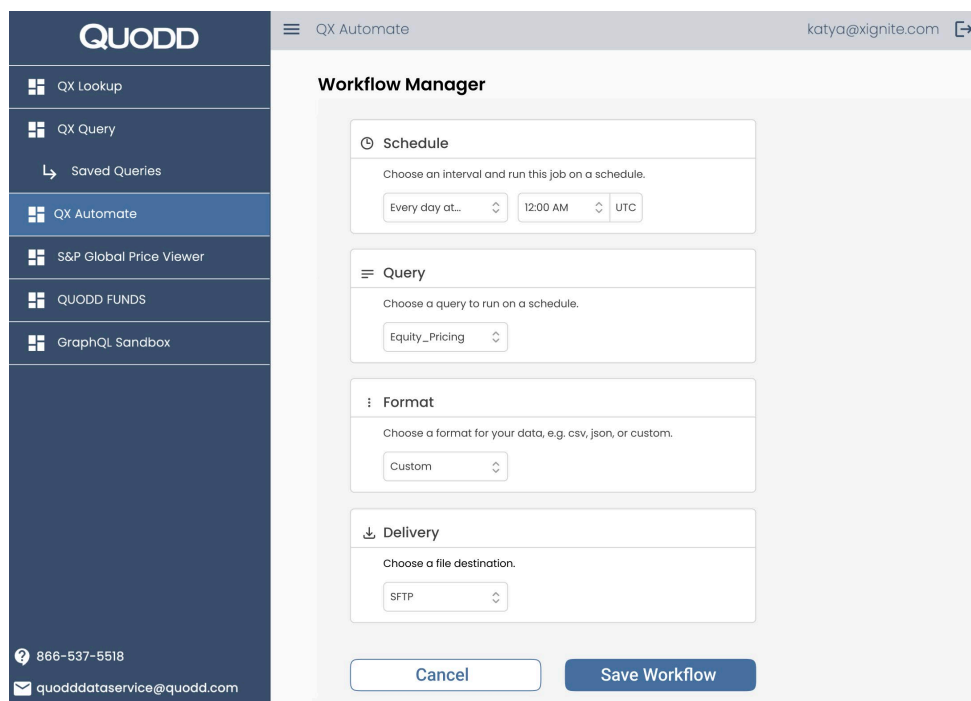
Programmatic Access: QX Automate

QX Automate is the programmatic delivery of custom pricing and reference data reports via API. The solution pushes reports directly into a client’s existing applications (proprietary or third party) at a regular schedule, often at the end of every day. Just as everything done in QX Lookup can be customized in bulk with QX Query, everything in both QX Lookup and Query can also be programmatically connected in QX Automate. QX Automate offers:

- A one-stop shop for multiple data sets
- The entire QUODD content library available to pull down in bulk
- The ability to connect and integrate workflows with enterprise-grade processes
- Entitlements to track usage by institution and their end customers
- Scheduling of jobs with on-demand request response for intra-day needs

QX Automate is essentially a post-processing workflow manager. Users can define their workflow by customizing triggers, job/activity scheduling, and data fields via QX Query, as well as the file format by which they wish to ingest the data. QX Automate can even support calculated data fields submitted by clients (e.g., the QX Query calculators). Future functionality currently in development includes automating exception handling and intelligent routing.

Figure 4: QX Automate Workflow Manager Diagram (Coming Soon to the QX Digital Portal)



Source: QUODD

By virtue of technology reducing the friction of integrating and onboarding new sources of data on a self-service, on-demand, and connected basis, the QX Automate module delivers an elevated experience, enabling customization and integration at the same time; and because QUODD is cloud-native with a modern tech stack, they can build faster and respond to customer requirements with more agility and transparency.

The lack of standardization of file formats is a common pain point with global pricing and reference data today. Other data providers have their own unique data field formats that clients have been tied to for years, making it extremely difficult to add a new provider or switch providers. QX Automate solves for this problem through its automated file adapter functionality, which converts the formatting from QUODD/QX Query to a client’s defined formatting with no extra lift on the development side from engineers. QX Automate enables dynamic, user-defined workflow automation—a valuable proposition in the world of pricing and reference data today. Read on to the Use Cases and Impact section below to learn more about the use of QX Automate in practice.

Key Partners

QUODD’s QX Digital Platform is strengthened by key partnerships with industry-leading organizations, enabling the platform to deliver robust and comprehensive financial data solutions. QUODD’s key partnerships powering the QX Digital Platform include:

- **AWS (Amazon Web Services):** The QX Digital Platform is built on AWS cloud infrastructure, leveraging the scalability, reliability, and security of the AWS cloud. This partnership ensures that the platform can handle large volumes of data and provide a seamless user experience.
- **S&P Global Market Intelligence:** S&P Global Market Intelligence provides financial market data and analytics. Through their partnership, S&P Global Market Intelligence supplies QX Digital Platform with pricing and liquidity data for various asset classes, including corporate and sovereign bonds, municipal bonds, and securitized products. This collaboration enhances the platform's coverage and accuracy of bond-related data.
- **Other Market Data Providers:** QUODD has established partnerships with other leading market data providers to further enrich the QX Digital Platform. These partners include **CFRA, EDI, FactSet, and Nasdaq**. By integrating data from these providers, QX Digital Platform expands its coverage across different financial instruments, markets, and analytics, ensuring that users have access to a wide range of high-quality data.
 - **CFRA:** CFRA is a provider of independent investment research, offering insights and analytics on stocks, ETFs, mutual funds, and other investment products. Their partnership with QUODD brings CFRA's research and data into the QX Digital Platform, enhancing its analytical capabilities.
 - **EDI (Exchange Data International):** EDI specializes in providing reference and corporate actions data for global securities. Through their partnership, EDI contributes to the QX Digital Platform by supplying accurate and timely reference data, ensuring comprehensive coverage of securities across different markets.
 - **FactSet:** FactSet is a provider of financial data and analytics, offering a wide range of solutions for investment professionals. By partnering with FactSet, QUODD integrates their extensive data offerings into the QX Digital Platform, providing users with access to a wealth of financial information and analytical tools.
 - **Nasdaq:** Nasdaq is a global provider of trading, clearing, and market technology solutions. Through their partnership, Nasdaq contributes to the QX Digital Platform by providing market data and insights.

QX DIGITAL PLATFORM USE CASES, CLIENT EXAMPLES, AND IMPACT

Having detailed the features and functionality of QX Digital Platform above, this section explores how clients utilize the platform in real-world scenarios and the advantages they gain from the automation of pricing and reference data. There are four main use cases spanning QX Lookup, QX Query, and QX Automate:

1. New asset setup
2. Price verification and tolerance checks
3. Security master maintenance
4. Securities valuation

QX Digital Platform Use Cases

New Asset Setup

Clients use QX Digital Platform to retrieve information on newly issued securities (e.g., debt instruments) so they can set them up and classify them in their systems. This is especially common for banks and trade desks, and still a manual process for many today. One of the most time-consuming tasks involved in the asset setup workflow is collecting all the required descriptive data; this process is critical because accurate and comprehensive descriptive data is essential for effective asset management, trading, and compliance. QX Query helps to automate this process.

Users can go into QX Query and choose what assets they need to set up (e.g., CUSIPs) or upload their own list of new instruments. Users choose the basic information they need to pull that defines a security in their systems (e.g., asset class, prospectus objectives, or accruals) and run a report via a customizable template with everything in the format and order they need it in. The template can then be shared across operational teams to more efficiently handle incoming requests throughout the day. QUODD clients report that QX Digital Platform's seamless login, data completeness, and search capabilities make asset setup three to four times faster than legacy workflows. This timely security set up into the firm's security master ensures that they are ready for immediate use.

Evaluated Pricing

S&P Global Market Intelligence supplies QX Digital Platform with pricing and liquidity data for fixed income asset classes. QX Digital Platform integrates directly with the S&P bond reference data API.

S&P Global Market Intelligence's fixed income evaluation analysts aggregate robust transaction data to generate pricing content, covering almost three million corporate and sovereign bonds, municipal bonds, and securitized products. QX Digital Platform customers leverage all of this as a source for valuing securities.

S&P Global Market Intelligence supplies QX Digital Platform with robust pricing and liquidity data for fixed income asset classes, integrating directly with the S&P bond reference data API. This collaboration enables QX Digital Platform to offer access to comprehensive pricing and reference data, seamlessly incorporated into an extensive content catalog that includes a mix of proprietary and third-party datasets.

This data catalog comprises 150 data sources and 250 billion data points stored in our data lake. To maximize usability, QX Digital Platform provides several access points:

- QX Marketplace: Individual datasets accessible via various communication methods.
- QX Lookup: Online, on-demand viewing and extraction of data.
- QX Query: Bulk download templates available ad hoc or programmatically.
- QX Automate: Programmatic access to multi-asset class data, enabling seamless integration into third-party applications.

Users also benefit from embedded proprietary calculators, such as an Accrual & Amortization Tool that generates requisite buy and sell tickets for fixed income instruments. Leveraging content from S&P, QX Digital Platform delivers valuation capabilities that not only match but exceed the functionality available in legacy terminals.

S&P Global Market Intelligence's fixed income evaluation analysts aggregate robust transaction data to generate pricing content, covering nearly three million corporate and sovereign bonds, municipal bonds, and securitized products. This powerful combination empowers QX Digital Platform customers to access high-quality, comprehensive data for valuing securities efficiently and effectively.

Price Verification and Tolerance Checks

Back office operations teams are tasked with tracking price thresholds, reconciling transactions, managing post-trade compliance, and minimizing exception reporting. Clients use QX Digital Platform to run automatic checks on stale prices or prices that are outside of a set tolerance. Bond price verification is a common example. Users can upload a list of instruments, select a price date, and pull bond evaluations from S&P bond evaluators to use QUODD as a source to compare evaluations. If users wish to challenge QUODD's price, they will receive an explanation back within hours with a rationale or even a price amendment. QX Query is also designed to run user-defined securities of interest (SOI) reports that can be templated for automation.

QX Digital Platform's price challenge portal, in partnership with S&P, reduces the time it takes to get an answer for a price challenge from 2 to 3+ days without the use of technology to same-day with QX Digital Platform.

Additionally, clients use QX Digital Platform to verify pricing data for equities, bonds, ETFs, and more at the end of the day to update their clients' holdings.

Security Master Maintenance

QX Digital Platform is utilized for security master maintenance by various back office teams for asset setup and management, fund accounting, valuations, pricing, and security operations. Examples of QX Digital Platform bringing automation to security master management tasks include:

- Proactive notifications regarding upcoming adjustments to security lists
- Timely ex-date information to enhance fund accounting accuracy and efficiency
- Streamlining trade execution and settlement processes
- Ensuring uniform and reliable data across portfolio management, risk analysis, and reporting functions

Clients leverage QX Digital Platform's corporate actions data, events data that affects a security's share and price, and M&A data that changes names and identifiers.

Client Examples

Global Financial Technology Provider's Trust Accounting Unit

A global financial technology provider selected QUODD to be its alternative market data provider for its trust services unit. The firm was using its legacy data provider as its sole source of pricing and reference data for over a decade but started hearing from clients of the need for a secondary data source. This shift reflects a broader trend in the financial industry toward seeking more robust and reliable data solutions.

The client's trust services unit is a trust accounting outsourcing business providing middle and back office support for banks and trust companies. The unit has over 100 clients, is geographically dispersed around the United States, and serves banks and trust companies with multiple technology solutions. The client chose QUODD's QX Digital Platform for multiple use cases, including new security setup, corporate action information, market research, and several other tasks involved with the operations of setting up accounts and managing portfolios.

One of the initial challenges of implementation was that the trust unit's staff had legacy processes they were accustomed to using for years. Their old workflows involved manually searching for individual data points via a terminal, printing off pages and writing down the data and information, and then plugging it all back into their systems. QUODD's support team collaborated with the staff and included them as a part of the implementation process to streamline those manual workflows through the QX Digital Platform experience. For example, the team voiced that they needed customized calculators for one of their end clients,

and QUODD was able to build those calculators within QX Lookup and Query. Throughout the implementation process, it was imperative to the trust unit that QUODD was flexible to ensure no hurdles would be placed in front of their end clients when changing providers.

The migration to QX Digital Platform improved the efficiency of the operations experience, lowered costs for the client by reducing the number of terminals they were paying for, and allowed staff to work remotely, which had a positive impact on the daily experience of the operations group. QUODD's five-year relationship with the client positions it well to become an alternative data source for future projects. The established trust, understanding of client needs, proven performance, and flexibility all contribute to QUODD's positioning as a compelling option for clients seeking reliable data solutions.

Leading Trust Accounting Software Provider

A leading trust accounting software provider serving trust, wealth management, and retirement firms in the US selected QX Digital Platform to be its primary market data provider for end-of-day pricing and reference data. The client leverages QX Digital Platform to integrate digital workflows featuring QX Lookup and QX Query templates for middle and back office teams of its trust and wealth management clients.

The client switched to QUODD as its primary provider for five major reasons:

- Comprehensive market data coverage
- Ease of conversion (e.g., file adapter)
- Flexibility to meet current and future market demands (e.g., cloud-based platform, online portal, and API functionality)
- Exceptional customer service
- Team-based sharing for bulk queries and ad hoc requests

The ease of conversion from the client's previous data provider to QUODD was a key success factor of the implementation process. With QX Digital Platform, the client was able to transition over 100 banks off its legacy provider and onto QUODD in less than 100 days. This transition highlights the effectiveness of QUODD's solutions, the efficiency of the migration process, and QUODD's commitment to client support.

By using QX Query's predefined and customized templates, the trust accounting provider's end clients are now able to streamline processes that previously took hours down to seconds.

Institutional Technology and Managed Services Provider

An institutional technology and managed services provider in North America offering a platform for donor-advised giving chose QX Digital Platform as their data source for end-of-day pricing and reference data. The client's platform deals with the core accounting and books and records of donor-advised funds for charitable investing.

The client used QX Automate’s file adapter functionality to convert data files into a custom format, which allowed them to switch to QUODD from their previous vendor with minimal development or changes to code. The client successfully transitioned in a short timeframe with minimal resources and without requiring any engineering effort.

Client Impact

QX Digital Platform delivers a range of qualitative benefits, including enhanced user experience, improved data accuracy, and faster decision-making, while also providing quantitative success metrics such as time savings and cost reductions. The following table summarizes the key benefits and success metrics realized by actual QX Digital Platform clients. Table 3 on the following page highlights the key benefits and success metrics.

Table 3: QX Digital Platform Key Benefits and Success Metrics

Qualitative Benefits	Quantitative Success Metrics
<ul style="list-style-type: none"> Streamlined operational workflows across new asset setup, price verification and tolerance checks, security master maintenance, and securities valuation. 	<ul style="list-style-type: none"> 3–4X faster new asset setup (aggregated client feedback). Quickened pricing and reference data workflows from hours down to seconds (trust accounting software provider). Reduced time to resolve bond price challenges from 2–3+ days to same day with QX Digital Platform price challenge portal (aggregated client feedback).
<ul style="list-style-type: none"> Ease of onboarding and conversion from legacy providers, processes, and data file formatting. 	<ul style="list-style-type: none"> 100 banks transitioned from their legacy data provider to QUODD in less than 100 days (trust accounting software provider). Switching data providers reduced from months to less than two weeks via QX Automate’s file adapter capabilities (philanthropic technology provider).
<ul style="list-style-type: none"> Cost reduction compared to legacy data providers. 	<ul style="list-style-type: none"> Lowered costs by reducing the number of terminals needed (global financial technology provider).
<ul style="list-style-type: none"> Less maintenance burden through consistency in file formats: QX Digital Platform protects against file changes from underlying source providers, codifying standards and ensuring reliability. 	<ul style="list-style-type: none"> Reduced costs associated with changing file formats, minimizing people and man-hours required during format changes (aggregated client feedback).
<ul style="list-style-type: none"> Fewer interfaces to manage through consolidation: Consolidating third party data into one system reduces complexity and ensures seamless data access. 	<ul style="list-style-type: none"> Reduced costs and man-hours from consolidating interfaces. Eliminated ongoing costs associated with multiple text file integrations (aggregated client feedback).
<ul style="list-style-type: none"> The flexible delivery mechanisms (SFTP, API, other) of QX Digital Platform minimizes manual intervention and IT involvement. 	<ul style="list-style-type: none"> Lowered IT-related costs and saved hours by reducing the frequency of IT requests for pricing and reference data changes (aggregated client feedback).

Source: QUODD

CELENT PERSPECTIVE

The QX Digital Platform provides two core capabilities for automating the operational processes involved with global pricing and reference data:

- 1) Delivery through turnkey platform access and automated APIs
- 2) Customization of data and file formats to match operational workflows

These two core capabilities summarize QUODD's value proposition to clients. Through QX Lookup, QX Query, and QX Automate, QUODD's QX Digital Platform solves for three common problems that back office teams face today when working with pricing and reference data:

Usability

Legacy pricing and reference data providers are not designed for workflows in the same ways that QX Digital Platform is. A usability problem exists where workflows are manual, siloed, difficult to customize, and time-intensive. The lack of integration between siloed workflows can lead to inconsistencies in data and communication, ultimately impacting decision-making and the overall effectiveness of the business.

The ease of use of the QX Digital Platform is a differentiator for certain segments, especially the bank trust space. Clients can use QX Query to customize data fields and file formats to manipulate post-processing data and match their systems and workflows. The calculators available in QX Lookup and QX Query (e.g., paydowns, accruals) along with the ability to create custom calculators for bulk reporting are not widely available with competing data providers. QX Automate's API delivery provides on demand data, customized delivery, and a user experience purpose-built for workflows all in one tool.

Data Ingestion

The process of adding or switching providers of global pricing and reference data has historically been extremely difficult due to the need to match the exact data fields and file formats of legacy providers. These providers use unique data labels and formatting that would normally take months of development work with engineering resources to match for data ingestion. Consequently, organizations often face delays in realizing the benefits of their new data solutions, leading to frustration and potential loss of competitive advantage in a fast-paced market environment.

QX Digital Platform's file adapter automation allows QUODD files to convert to a client's desired formatting without any engineering resources. This technology

drastically lowers the barriers to implementing QUODD as an alternative data provider.

Accessibility

QX Digital Platform's underlying technologies are helping to make global pricing and reference data more easily accessible for the end user. These technologies include:

- A cloud-based infrastructure powering the platform, its easy-to-use online portals, and data-as-a-service
- APIs delivering bulk reports directly to clients' proprietary and third party applications
- A data lake behind the comprehensive content catalog

QX Digital Platform can also support customers who prefer to build their own platform.

What Differentiates QX Digital Platform?

QX Digital Platform's innovation and competitive differentiation in the market for pricing and reference data lies within three of its proprietary tools:

Customized Workflow Automation

QX Digital Platform is purpose-built to match and automate back office workflows. Clients can essentially create a custom workflow (bulk reports, schedule of delivery, formatting of data files) and QX Digital Platform will automate it.

QX Automate provides access to global pricing and reference data via automated API integrations with downstream applications, customized in whatever format clients need to match their workflows. What makes QX Automate so compelling is the ability to:

- Customize bulk reports (via QX Query saved templates)
- Schedule delivery to match end-of-day workflows (via QX Automate's workflow manager)
- Convert file formats to match what clients are used to working with (via file adapter)

QX Automate therefore enables dynamic, user-defined workflow automation—a modern solution improving the efficiency and agility of back office teams that the industry has been missing.

Comprehensive Security Master

QX Digital Platform integrates data from a wide range of trusted partners across Fixed Income, Equities, Mutual Funds, Indices, and Derivatives. Powered by a robust security master, the platform ensures data consistency, accuracy, and reliability across all sources.

QUODD enhances securities reference data with comprehensive enrichment, including diverse identifiers, corporate actions, and ratings, creating a holistic and dependable dataset.

This centralized, reliable single source of truth enables seamless onboarding of new clients while meeting the highest standards of data quality and regulatory compliance.

Clients can bring their own lists of identifiers used with previous data providers for QX Digital Platform to map to its universe. This functionality powers QX Automate's file adapter feature and enables a smoother transition from other data vendors.

QX Digital Platform also tracks relationships and hierarchy between securities (parent company, share classes, etc.) to prevent any issues that may arise from that complexity.

Calculators

The calculators within QX Digital Platform provide users with tools to perform complex financial calculations quickly and accurately. These include paydown calculators to determine asset valuations within a client's portfolio and accrual calculators to find the accrued interest of a bond.

The integrations of these calculators within the QX Digital Platform and QX Query bulk reporting streamline workflows and allow users to derive insights from their data without manual input, spreadsheets, or external software. This functionality also reduces the risk of manual errors.

One of the biggest differentiating factors for QX Digital Platform's calculators is that clients can bring their own values. In this way, clients can customize calculators and bulk reporting to create outputs that match their workflows.

TO CONSIDER

Financial institutions and financial technology providers evaluating QUODD as a primary or secondary source of pricing and reference data should keep in mind a few key considerations. One consideration is that QX Digital Platform is an end-of-day product; it does not use real time data. End of day is the industry standard for pricing and reference data used for books and records, security masters, and reporting. The other consideration is that QX Automate is not currently available within the QX Digital Platform online portal. QX Automate is currently configured by the QUODD support team on behalf of clients, using internal tools. The self-service UI experience is in R&D and is scheduled for release in early Q1.

Lessons Learned

In onboarding new QX Digital Platform clients, QUODD learned two key lessons for successful implementation that can provide helpful context for those considering QUODD's pricing and reference data services:

1. QX Digital Platform clients require customized delivery models. Customized bulk reporting, file formats, downstream API integrations, and calculators have become common requests from new prospects and clients. Since QX Query and QX Automate are purpose-built for customization to match client's unique workflows, QUODD is well-positioned to fulfill these requests.
2. Operational teams are often reluctant to change if they are used to the same processes they have been working with for years. QUODD has found value in collaborating with teams and listening to their inputs when onboarding new clients. QUODD's dedicated service team has realized collaboration is key to establishing new workflows for clients.

PATH FORWARD

Looking ahead, QX Digital Platform is committed to advancing its platform by enhancing the user experience, broadening its data offerings, and utilizing modern technologies to equip financial professionals with the essential tools needed to thrive in a complex market environment. QUODD has several customer-driven projects currently in development, including incorporating a portal interface for QX Automate into the QX Digital Platform, leveraging AI to build third party adapters at a quicker pace, and using AI to expand proprietary datasets. In the shorter term, QUODD is focused on onboarding more clients to benefit from its most advanced tool yet in QX Automate.

COPYRIGHT NOTICE

Copyright 2024 Celent, a division of Oliver Wyman, Inc., which is a wholly owned subsidiary of Marsh & McLennan Companies [NYSE: MMC]. All rights reserved. This report may not be reproduced, copied or redistributed, in whole or in part, in any form or by any means, without the written permission of Celent, a division of Oliver Wyman ("Celent") and Celent accepts no liability whatsoever for the actions of third parties in this respect. Celent and any third party content providers whose content is included in this report are the sole copyright owners of the content in this report. Any third party content in this report has been included by Celent with the permission of the relevant content owner. Any use of this report by any third party is strictly prohibited without a license expressly granted by Celent. Any use of third party content included in this report is strictly prohibited without the express permission of the relevant content owner. This report is not intended for general circulation, nor is it to be used, reproduced, copied, quoted or distributed by third parties for any purpose other than those that may be set forth herein without the prior written permission of Celent. Neither all nor any part of the contents of this report, or any opinions expressed herein, shall be disseminated to the public through advertising media, public relations, news media, sales media, mail, direct transmittal, or any other public means of communications, without the prior written consent of Celent. Any violation of Celent's rights in this report will be enforced to the fullest extent of the law, including the pursuit of monetary damages and injunctive relief in the event of any breach of the foregoing restrictions.

This report is not a substitute for tailored professional advice on how a specific financial institution should execute its strategy. This report is not investment advice and should not be relied on for such advice or as a substitute for consultation with professional accountants, tax, legal or financial advisers. Celent has made every effort to use reliable, up-to-date, and comprehensive information and analysis, but all information is provided without warranty of any kind, express or implied. Information furnished by others, upon which all or portions of this report are based, is believed to be reliable but has not been verified, and no warranty is given as to the accuracy of such information. Public information and industry and statistical data are from sources we deem to be reliable; however, we make no representation as to the accuracy or completeness of such information and have accepted the information without further verification.

Celent disclaims any responsibility to update the information or conclusions in this report. Celent accepts no liability for any loss arising from any action taken or refrained from as a result of information contained in this report or any reports or sources of information referred to herein, or for any consequential, special or similar damages even if advised of the possibility of such damages.

There are no third party beneficiaries with respect to this report, and we accept no liability to any third party. The opinions expressed herein are valid only for the purpose stated herein and as of the date of this report.

No responsibility is taken for changes in market conditions or laws or regulations and no obligation is assumed to revise this report to reflect changes, events, or conditions which occur subsequent to the date hereof.

For more information, please contact info@celent.com or:

Ashley Longabaugh
Chris Bendtsen

alongabaugh@celent.com
cbendtsen@celent.com

Americas

USA

99 High Street, 32nd Floor
Boston, MA 02110-2320

[+1.617.262.3120](tel:+1.617.262.3120)

USA

1166 Avenue of the Americas
New York, NY 10036

[+1.212.345.3960](tel:+1.212.345.3960)

USA

Four Embarcadero Center
Suite 1100
San Francisco, CA 94111

[+1.415.743.7960](tel:+1.415.743.7960)

Brazil

Av. Dr. Chucri Zaidan, 920
Market Place Tower I - 4^o Andar
Sao Paulo SP 04583-905

[+55 11 5501 1100](tel:+55.11.5501.1100)

EMEA

Switzerland

Tessinerplatz 5
Zurich 8027

[+41.44.5533.333](tel:+41.44.5533.333)

France

1 Rue Euler
Paris 75008

[+33 1 45 02 30 00](tel:+33.1.45.02.30.00)

Italy

Galleria San Babila 4B
Milan 20122

[+39.02.305.771](tel:+39.02.305.771)

United Kingdom

55 Baker Street
London W1U 8EW

[+44.20.7333.8333](tel:+44.20.7333.8333)

Asia-Pacific

Japan

The Imperial Hotel Tower, 13th Floor
1-1-1 Uchisaiwai-cho
Chiyoda-ku, Tokyo 100-0011

[+81.3.3500.3023](tel:+81.3.3500.3023)

Hong Kong

Unit 04, 9th Floor
Central Plaza
18 Harbour Road
Wanchai

[+852 2301 7500](tel:+852.2301.7500)