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IPC

FUTURE OF FRONT OFFICE: VOICE ACTIVATED TRADING?





A Message from Bob Santella, Chief Executive Officer, IPC

Innovation has, and will always be, a hallmark of the financial markets. From the early days of open outcry through the modern era's wide assortment of sophisticated tools for trading and analysis, new developments that provide an advantage in such an ultra-competitive landscape are quickly adopted.

Yet, at what point do the resources that institutions call upon become unwieldy? At IPC, we have consistently heard from industry participants of all backgrounds that technology stacks are turning from help to hindrance, due to their ever-increasing complexity. In particular, the unnecessary siloing of voice and electronic trading has led to inefficiencies that must be eliminated so that the markets to continue to thrive amid uncertainty.

Hence, we've engaged with Celent – one of the world's leading financial research and advisory firms – to explore the path forward as to how market participants can harmonize their data systems, especially with respect to the reconciliation of electronic and voice platforms. Because of recent stunning advances, like Natural Language Processing, differentiating between voice and electronic data has become as obsolete as ticker tape.

IPC's vision since our founding, nearly five decades ago, has been for greater access, community and intelligence, which is possible through continuous due diligence like this report. It is another important milestone in our evolution as a global leader of financial technology.

Thank you for reading.

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FUTURE OF FRONT OFFICE: VOICE ACTIVATED TRADING?

As technology silos between turrets and trading apps blurs,
new trading paradigms are possible

Monica Summerville

This Celent report was commissioned by IPC, at whose request Celent developed this research. The analysis, conclusions, and opinions are Celent's alone, and IPC had no editorial control over the report contents.

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EXECUTIVE SUMMARY

The response to the pandemic proved that the capital markets industry is capable of a step change in culture and technology. As financial entities across the globe strived to keep markets running, they had to think outside the “box”—both literally and figuratively. While the physical “boxes” supporting front offices’ compute and communications functions were rapidly migrated to cloud equivalents over this last year, its cultural “boxes” can be tougher to shift.

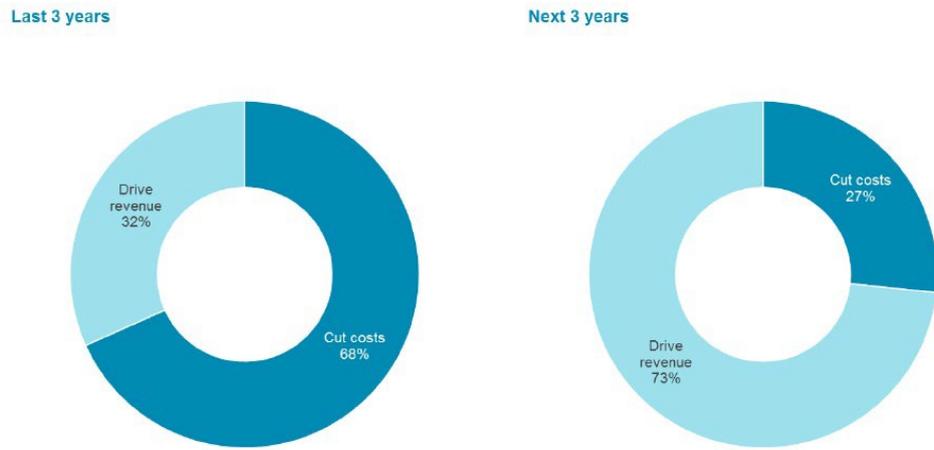
One persistent view is that there is little opportunity for integration across voice and data systems. The latest technological developments in voice technologies and desktop interoperability are challenging that mindset, opening the door to innovation in trading floor design. With senior trading executives shifting focus to revenue generation (see Figure 1), building competitive advantage will be key.

The capital markets industry is doubling down on digital transformation in 2021, and so its senior business and technology executives must question everything. As voice-activated devices and unified communications (UC) become the norm in our personal and professional lives, and as trends such as the embrace of multiasset trading force a rethink in trading technology architectures, Celent believes the trading floor must move beyond its legacy-based distinctions of voice and data.

Using voice to control our environment—think Siri or Alexa—is a natural and highly efficient way of driving action. Application-based voice-driven actions could equally find a home in the front office. Meanwhile, financial institutions looking for increased efficiency and data-driven analytics are embracing multiasset trading. To accommodate these changes, a true integration of voice and data systems is required across the trade lifecycle.

This Celent Flash report identifies trends driving convergence of voice/electronic workflows and trading platforms, reviews the key enabling technologies, and discusses the competitive advantage and efficiencies offered.

Figure 1 – Investment Goals for Trading Businesses Are Shifting to Focus on Revenue Generation



Source: 2020 Celent Senior Trading Leaders Survey

TRENDS DRIVING INNOVATIVE CONVERGENCE

Secular forces, including regulatory and technological change, are creating opportunities to redefine capital markets workflows. Financial institutions are questioning the sense of siloed technology stacks by asset/product type for trading floors as technology evolves and data-driven analytics become the norm. The quest for broader data sets is also a factor driving firms to embrace multiasset trading, further supporting a need to re-architect trading technology. The pandemic proved that capital markets can experience a step change in workflow and technology adoption, and as digital transformation continues to be a top priority for financial institutions, it is time to think carefully about what the future of the front office will look like.

These ruminations must include how best to leverage verbal and visual communications supporting trading workflow, from pretrade through to post trade and back again. Combining data derived from voice communications with native electronic data into analytics and surveillance supports more complete and robust views of P&L and risk management and offers an enhanced data set from which to extract business insights. New trading floor designs embracing integration in this way will be positioned to offer a better client experience, generate more comprehensive data-driven insight, and benefit from increased efficiencies.



The Covid crisis has highlighted existing sell side front office silo challenges, like getting full 360 degree client views, pricing and quote automation, hedging ease, and risk management.”

The Future of Sell Side Front Office Technology, Celent, May 2020

Move to cross-asset trading driving single tech stack

Celent research (see: [The Future of Sell Side Front Office Technology, May 2020](#)) has discussed how dealers are looking to leverage cross-asset technology solutions.

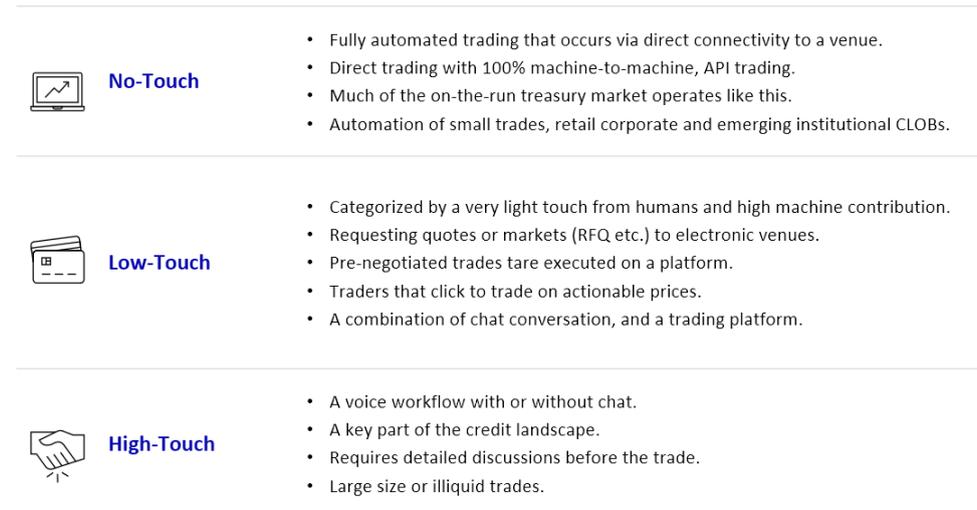
Despite market structure differences between asset classes, Celent expects a gradual increase in the adoption of cross-asset trading technology on the sell side.

Dealers already on this journey include

- Barclays with BARX, its cross-asset trading platform for equities, fixed income, future, and FX
- UBS, which created a cross-asset execution and platform division in October 2019
- Citi, which stated last May it would develop an end-to-end digital strategy and execution plan for its electronic platforms.

However, the move to multiasset trading requires a re-architecting of the technology stack supporting the trading floor. Currently the tech stack is differentiated across different asset classes and product types due to the variations in market structure resulting in executions varying from low touch to high touch (see Figure 2).

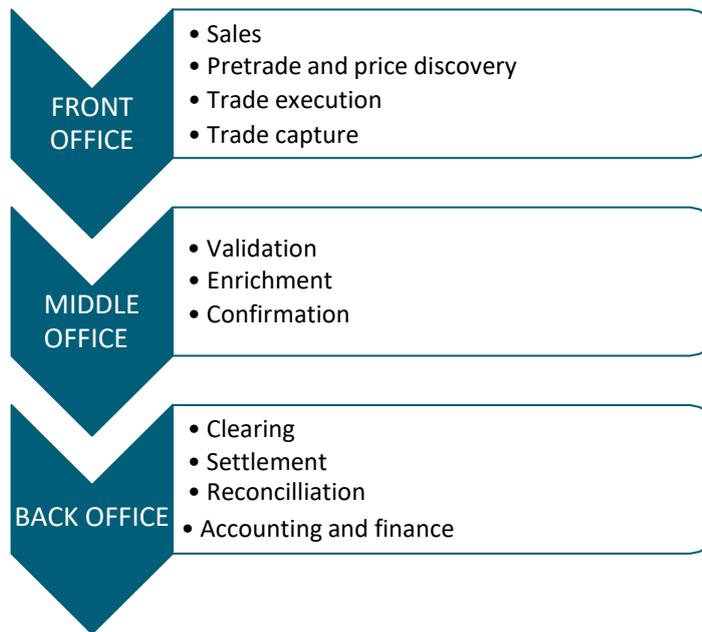
Figure 2 – Execution Styles Vary from No-Touch to High-Touch Depending on Variations in Marketing Structure of Different Asset Classes and Product Types



Source: Celent

Differentiation in tech stack is also a factor of rate of digitalization across various phases of the trade order lifecycle (see Figure 3). Huge gains have been made in improving straight-through-processing (STP), but there are still areas of manual activity requiring communication between the back, middle, and front office (and the counterparty) over the full trade lifecycle. As decisions are made about which layers of the tech stack are common across all asset classes, the traditional separation of voice and data workflows should be reexamined.

Figure 3 – The Full Trade Lifecycle



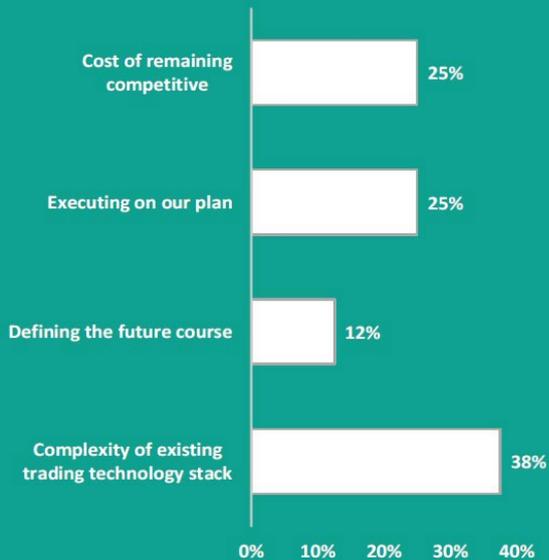
Source: Celent

Trading is increasingly data-driven

Trading is becoming increasingly data-driven, and this trend is impacting areas such as the embrace of multiasset investment. This trend, coupled with regulatory requirements to link and audit trades throughout their lifecycle, means that next-generation trading technology will have to enable trade data extraction and linkage throughout the full trade lifecycle. For all but the lowest-touch, fully STP trades, this will require the ability to link voice, chat, and electronic channels.

Challenges for the sell side

Source: Celent



While trading in equities is predominantly executed electronically, there are still medium- to high-touch services that can include a variety of communication as the trade passes through front, middle, and back office. While the majority of these trades will be processed without any issues, there are exceptions every day that need to be investigated and resolved.

Other asset classes are likely to use of a variety of channels. For example, outside of the more liquid parts of fixed income (e.g., credit and rates), the use of multiple communication channels—including voice and messaging—for bilateral trading is still common.

The variety of trade negotiation and execution workflows across asset classes, coupled with a siloed business approach, has led to a complex trading technology stack, something that the sell side recognizes as one of the top challenges it faces (see side box).

WFH highlighted challenges in replicating all benefits of trading floors

When governments around the world mandated that offices close, the trading community discovered they could work remotely. Some banks had bumper returns thanks to the increased volatility, demonstrating their success in transitioning to remote working. But despite record profits, some banks still preferred traders on the floor over working from home. For example despite JPMorgan Chase's 2Q bumper bond trading revenues of **\$7.3 billion**, a 120% increase year on year, by September it was calling trading staff in New York [back to the office](#).

The mass work from home experiment reinforced the importance of visual and verbal communication between traders in sharing and leveraging market color and sentiment. Large banks have since taken steps to ensure their trading floors are safe so that employees can return. As of October, Goldman Sachs, JPMorgan, and Citi had between 20% and 30% of employees back in their London offices.

But while trading floors need to facilitate communications, the dependence on physical proximity is being rethought. Use of chat and video calls are increasing across the enterprise, but the complexity of the trading workflow often involves

the need to rapidly communicate with numerous parties simultaneously and requires the ability to pick up on market sentiment.

Some of this communication is reflected through behavioral change, with social cues and impromptu conversations playing key roles in conveying information. This type of communication is important even in markets where computer models are involved. Work by Dr. Daniel Beunza, associate professor of management at Cass Business School, City University of London, and author of *Taking The Floor*, a book based on research on derivatives trading, found that the integration of traders across desks reduced the danger of blind spots created by models.

He has stated that trading rooms are “[remarkably effective at emotional contagion.](#)” [Further studies showed](#) that “organizational fragmentation leads to mispricing” and that this was a factor in the 2007-09 global financial crisis. [Speaking to the Financial Times](#) in March this year when an oil-price crash impacted liquidity, Peter van Dooijeweert of Man Group said, “How much risk do you feel comfortable with when you’re working from home? For trading desks and asset managers, that will just compound the problem of poor liquidity.”



How much risk do you feel comfortable with when you’re working from home? For trading desk and asset managers, that will just compound the problem of poor liquidity.”

Peter van Dooijeweert, head of institutional hedging, Man Group, as [quoted by the Financial Times](#), March 9, 2020

Communication occurs at multiple points in the trading workflow, from general atmosphere on the trading floor to pretrade conversations with clients and between colleagues to conversations to resolve failed trades between back office and other staff across the trade lifecycle. All these communications, if converted into structured data, contain useful signals for trading firms to gauge market sentiment, calculate risk, improve efficiency, and identify best practice. While trading floors are likely to continue bringing people together, postpandemic firms will likely also look to be more flexible in supporting remote working. This will require a tighter integration of all communications methods with other systems to better support decision-making and trade workflow.

WHEN VOICE MOVES BEYOND CONVERSATION

Today's trading floor typically separates systems for voice communication from electronic information such as market data and news. Voice is delivered through a range of specialized devices, including the trader turret (also called a dealerboard) and other telephone, intercom, and voice broadcast devices (e.g., high-end PBX phones, hoot-n-holler, etc.). This legacy approach limits the value of voice data, which is one of the most important but unstructured ways of communication information within financial markets.

Unified Communications (UC)

The term UC dates to the mid-1990s, when messaging and real time communications began to merge.

More business concept than specific technology, UC refers to a solution that allows multiple methods of business communications to be integrated. UC elements can include instant messaging, conference calls (audio, web, video), collaboration tools, and mobility. Presence—or knowing where recipients are and their availability in real time—is a key component of UC.

Integration of presence can be challenging on trading floors due to the number and specialized type (e.g., ringdown) of communication lines supported.

Turrets were developed to allow traders to efficiently manage many potential conversations between customers and counterparties, sometimes simultaneously, and support instantaneous calling through dedicated point-to-point, always-open lines (a.k.a. ringdown circuits). Verbal information can also be easily and instantaneously shared to a wide group of internal or external people by talking into broadcast-ready devices such as hoot-n-holler or squawk boxes.

These communications were originally carried over specialized telephony networks that ensured high capacity/high resiliency. End points were physical devices (e.g., handsets and proprietary hardware). Early digital networks were based on time division multiplex (TDM), but as switching technologies matured and processing power increased, telephony transitioned to IP-based server architectures.

This move to IP, coupled with the introduction of open APIs and delivery via a soft client, has been transformational. Now telephony can be integrated with trading applications as well as presence-based communications such as instant message (IM), chat, and videoconferencing.

These once siloed, highly specialized trader communications can become an integrated element of a unified communications (UC) strategy (see side box) or desktop-delivered trading application.

Unleashing the full power of voice communications

Telephony can now move beyond mere communication. Utilizing desktop interoperability approaches, such as those offered by vendors such as Finsemble, Glue42, and OpenFin, offers the possibility of embedding telephony controls

within the trading desktop. This, coupled with use of emerging technology such as natural language processing (NLP), a type of artificial intelligence (AI), can mean relevant data can be extracted from conversations and passed to trading applications and telephony can be seamlessly integrated into trading workflows.

Example use cases include

- Using voice identification and NLP-based real time transcription to auto populate blotters and trade tickets.
- Using voice biometric profiling to create user-specific voice “fingerprints” to track voice communications.
- Linking electronically executed trades with relevant communications for transaction analysis, regulatory, and audit purposes.
- Embedding voice communications capacity into secure chat applications to support seamless and compliant transfer of calls between chat applications and turrets.
- Supporting advanced analytics, including sentiment analysis, conversational analytics, and transcription.
- Enabling a chatbot to dynamically call a squawk line when requested.

The necessary technology to support these types of use cases is largely in place. Trading telephony suppliers are partnering with adjacent solutions providers (e.g., voice recording, voice transcription, communications surveillance and analytics, interoperability solution providers, trading applications, etc.). Voice networks are being integrated into financial markets clouds, which can support the following:

- Unified communications: voice, video, and data can be run across a common connection.
- Improved time to market: cloud-based solutions offer resilience and highly scalable solutions that can be deployed in a fraction of the time required by dedicated communications links.
- Support for complex workflows: possibility to integrate low-touch and high-touch trading workflow.

Leading voice communications solution providers have also embraced the move toward open platforms, offering the possibility for clients to create further integrations supporting unique use cases for their businesses (see use case below).

**USE CASE:
GreenKey, IPC,
and Symphony
collaborate on
a voice-quote-
to-trade-
execution
solution using
open-source
APIs.**

In the OTC markets where a large portion of trading occurs bilaterally via live conversations, next-gen trading workflows are needed to enable traders to communicate more efficiently and trade faster with built-in compliance.

This solutions from GreenKey, IPC, and Symphony allow traders to push a button on an IPC turret, dictate a quote, and have voice converted to data in real time and fed into a Symphony chat room.

Counterparties with access to this chatroom see quotes in real time and can subscribe to alerts or updates on a searchable chat stream. Once a trade is identified, trade information can be communicated via open-source APIs into third party trading systems such as FlexTrade, which is housed in an OpenFin container for execution. Quote and trade information is also fed directly into banks' compliance platforms for compliance with best execution and trade reconstruction requirements.

Source: Fintech Open Source Foundation (FINOS) [Open Source Strategy Forum](#), November 2019

PATH FORWARD

Step one in realizing the front office of the future will be to tear down historical technology and cultural silos—including those developed around voice and electronic trading. Step two will be to leverage the possibilities a coalesced environment offers. In an application- and customer-centric world, the distinction of turret versus trading desktop should not matter. Apps can exist on a turret (physical or virtual—both have screens after all), while turret capabilities can be embedded within workstation-based trading apps—both available at the touch of a button or via voice commands.

The turret is not just a phone system, the trading workstation is not just a collection of apps. Full integration of voice and electronic workflows can support application-based voice-driven actions, power-rich holistic insights, and drive efficiencies as data is shared across numerous communications formats, from voice to electronic and back again.

Forcing voice and electronic information onto separate infrastructures is an artefact of legacy technology. This restricts innovation in trading workflow. Trading floor technology architecture must catch up with the digital transformation we are experiencing across our business and our personal lives.

Celent believes a new paradigm of integrated voice, data, and unified communications technologies will radically change the way trading is done. Financial institutions will always want to talk to their best clients—high-touch and low-touch both exist in electronic markets. The terms dealerboard, turret, hoot-n-holler, squawk, and dedicated point-to-point telephone lines (a.k.a. ringdown circuits) may conjure pictures of dedicated hardware and disconnected systems, but this obscures the continuous innovation that has taken place.

Leading telephony solution providers now support multimedia and unified communication approaches encompassing voice, instant messaging (IM), chat, and even videoconference calling—all in a compliant and open solution. Modern cloud-based delivery models were field-tested this past year, successfully enabling trading from home throughout record market volatility.

Today, the technology exists to create a next-gen trading environment where integrated communications and information flow between front, middle, and back office support data-led analytics, highly collaborative workflows, and new trading paradigms. With financial institutions looking to increase revenue generation and efficiency, the competitive advantage of a voice-activated trading floor is well worth exploring.

LEVERAGING CELENT'S EXPERTISE

If you found this report valuable, you might consider engaging with Celent for custom analysis and research. Our collective experience and the knowledge we gained while working on this report can help you streamline the creation, refinement, or execution of your strategies.

Support for Financial Institutions

Typical projects we support related to policy administration systems include:

Vendor short listing and selection. We perform discovery specific to you and your business to better understand your unique needs. We then create and administer a custom RFI to selected vendors to assist you in making rapid and accurate vendor choices.

Business practice evaluations. We spend time evaluating your business processes, particularly in policy administration, rating, and claims. Based on our knowledge of the market, we identify potential process or technology constraints and provide clear insights that will help you implement industry best practices.

IT and business strategy creation. We collect perspectives from your executive team, your front line business and IT staff, and your customers. We then analyze your current position, institutional capabilities, and technology against your goals. If necessary, we help you reformulate your technology and business plans to address short-term and long-term needs.

Support for Vendors

We provide services that help you refine your product and service offerings. Examples include:

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Market messaging and collateral review. Based on our extensive experience with your potential clients, we assess your marketing and sales materials—including your website and any collateral.

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