The Future of Trading

White Paper

Introduction

As the world emerges from the shock of the Covid-19 pandemic, and begins to settle into a new normalcy, financial institutions, their service providers and their regulators are starting to look ahead to the future of the trading world. What awaits us in this brave new world? What permanent changes have we seen? Will our new working practices become a permanent fixture, and how will technology and regulation adapt to better support them? And how are the ways in which we communicate and trade with each other, and consume data and services, evolving as new technology paradigms emerge?

Even for large institutions, the balance between flexibility, security, reliability, and scalability can seem like an unattainable nirvana. Many firms are still experiencing significant pressure on costs and resources. There remains considerable uncertainty around what the future will bring. The good news is that many of the ingredients needed to address these challenges already exist. For most trading firms, it's a question of finding them and combining them in the way that is the right fit for their specific needs. Over the past decade, we've seen paradigm shifts not only in technology itself, but also in the way that technology services are provided.

In this paper, we'll look at these questions, alongside the opportunities and challenges facing trading market participants today: new asset classes emerging while existing ones evolve and develop; the potential that unlocking voice and other alternative data can unleash; and the macroeconomic drivers of trading behavior across global financial markets.

The Impact of Regulation

Just as Dodd-Frank, in the US, drove a greater embrace of trading technology and workflow automation as a means of regulatory compliance, the second European Markets in Financial Instruments Directive and its accompanying regulation (MiFID II / MiFIR) have spurred development of enhanced digital workflows on UK and EU trading floors. For a salesperson on the phone to a client, requesting prices from a trader across the desk and relaying them on before executing a trade and entering it into the trade booking system, manual capture of all the required data points and their timestamps would be at best unwieldy and at worst entirely unworkable. The solution was for banks to introduce tooling that would enable automated capture of the necessary data; the only way this could be done was through an overhaul of the way in which salespeople communicated externally with their clients and internally with the traders. Recorded lines and chat tools capture the communications with clients. Instead of shouting out for prices across the desk, quote requests from clients are captured electronically and transmitted to trader screens.

Initially, these changes were met with wariness and skepticism from sales and trading desks. Some salespeople felt threatened by what they perceived as the increasing infringement of automation on their jobs, and their ability to successfully cultivate and nurture enduring client relationships. Then the pandemic came along, and instead of being a burden, these tools were a boon. For trading firms that had invested in workflow automation, the transition to remote or multi-site working during periods of lockdown, while not trivial, was at least possible and workable. Higher trade volumes and greater market uncertainty meant that salespeople relied on automated client quote request capture and quoting capabilities for the more straightforward requests, freeing them up to give their attention to those who needed more bespoke services.

Learning to Embrace Automation

With sales and trading users becoming increasingly at ease with the new paradigm, and now that the use of digitization tools to process price requests and execution, the attention has shifted towards greater efficiency and improved client service. *"We're seeing things like large lists, multi-asset and multi-leg packages, bonds vs futures, asset swaps – things that, on the face of it, we would never even have contemplated bringing in scope two years ago – now being built into the workflow and tooling,"* says Matt Harvey, Head of Cross-Product Sales and Development at NatWest Markets.

While Harvey attributes some of this change to the well-documented enthusiastic embrace of homeworking by the non-trading workforce, he also sees a generally more positive attitude towards digital workflows from his sales and trading colleagues. *"The mindset has changed towards treating the digitization of this workflow as something that helps sales-trading efficiency and facilitates better, high-quality client engagement and an enhanced client experience. We know that we want to preserve a bilateral interaction for some of the highest risk transfers, to give clients the benefit of our expertise and experience to support these larger risk transfers. We want to preserve direct client relationships for these workflows."*

Both inter-dealer and dealer-to-client trading venues are also starting new projects using natural language processing (NLP) based chat functionality to automate the quote and trade execution process. Tradeweb's AiEX (Automated Intelligent Execution), for example, allows a client to drag a large list of orders over into the tool and to set up simplistic rules for execution – for example, to request quotes from multiple liquidity providers, including only those dealers that are axed in the position, excluding those with the lowest hit rates. BondVision's platform offers rules-based execution, and Bloomberg also offers rules-building functionality. This type of rules-based trading is not smart order routing and while leading to greater automation of execution, these capabilities are distinct from algorithmic trading. They do, however, offer a powerful capability to asset managers who need to execute hundreds or even thousands of trades in relatively small ticket sizes, or to undertake month-end portfolio rebalancing exercises.

The Recipe for Successful Electronification

"I think, if I look back two or three years ago, I was probably a bit too conservative versus what's happened today. I think that automation and electronification of workflows, trade processing and sales-client or sales-trader communications have accelerated far more quickly than I would have anticipated. We're approaching the part of the curve in which automation starts to become exponential," says Harvey.

Chris White, CEO of BondCliQ, posits that transaction frequency is ultimately the determinant of which asset classes and markets become highly automated and electronified: *"The more frequently transactions occur, the greater the tendency is for that marketplace to adopt fully automated trading solutions. In other markets, however, where the frequency of trading activity is medium to low, automation of trading is not a priority, and these markets are therefore more likely to remain at the semi-automated or more manual level."*

Algorithmic trading, essentially, is a black box decision tree. The quality of the black box's output – in the form of trading decisions – is entirely dependent on the quality, reliability, and trustworthiness of its input data. This is of course true for any trading decisions (or indeed any type of decision-making!); however, in the case of fast-trading markets, high-quality, timely and accurate data is ever more necessary. White observes a tendency for people to assume that highly automated markets are better than those that are less automated, and that this is a marker of "progress" or "improvement" in all markets. He envisages a future in which human beings continue to play critical roles in maintaining well-functioning markets, and in which human judgment and human decision-making also continue to benefit from the development of improved tools – built to utilize improved data – that can help facilitate their decision-making processes.

Data is at The Heart of Markets

Many assumptions around the evolution of trading and markets tie innovation and change to technical capabilities. In reality, it is often the quality and reliability of the data available that can either drive innovation or create roadblocks. Well-organized, reliable core data is a fundamental prerequisite for the development of better pricing, trading, and risk management tools. Without it, even the best technology cannot be fully leveraged to advance the development of markets.

In the corporate bond market today, at any given time, it is almost impossible to ascertain, definitively, the market-determined value of a bond. If a buyer wants a bond price, they need to ask a broker or dealer to make them a price. Furthermore, there is no way for the buyer to verify that the price provided is actually representative of the bond's true value. The buyer can request a price from multiple sellers, via a multi-RFQ protocol or voice, but the only way that they could have a true comparison would be if a single source of all available bid and offer quotes existed. In the equities market, on the other hand, where this consolidated pricing data does exist, the current value of any listed stock – be it Microsoft, Tesla, Amazon, or Oracle – is not only available, but also made accessible in such a way that anyone could access it on their mobile device. Outside of equities, however, this data is not as readily available, and in the case of less liquid assets, transparency becomes even more vital.

It's About Quality, Not Quantity

"Much of the future of how markets are going to develop is directly dependent on the quality, availability, and accessibility of data in the marketplace. Without solving the data problem, in any market, the amount of evolution and innovation that can occur in terms of technology adoption will be suboptimal. You simply cannot successfully apply these wonderful capabilities, such as machine learning and AI, if the underlying data sets are either unavailable, poorly organized, or corrupt," says White. *"The concept of simultaneity is also important when it comes to data availability and accessibility. Who gets the data first? Does everyone get it at the same time?,"* he continues. The absence of simultaneity leads to information asymmetries in the marketplace, which in turn can impede the development of well-functioning, orderly markets as well as their integrity. Bulletin boards (such as, famously, the original NASDAQ quote system) and consolidated tapes go a long way towards overcoming these potential asymmetries and can form the basis of more efficient markets – a principle that White and his team are putting into action through BondCliq's market data offerings for corporate bonds.

Improved data provides a foundation on which improved decision-making tools can be built. The greater the degree of automation encompassed in such tools, the more the trading process can be sped up. Maximum automation and speed are, however, not the end goal for every asset class. There is indeed a highly automated segment of the marketplace, in which full electronification and automation of both trade execution and front-to-back trade processing are the norm. On the other hand, there are also those portions of the market and those asset classes for which trading is less frequent, and which rely heavily on human judgment and intervention for pricing and trading decisions. These can benefit from the development of hybrid tools that facilitate better decision making and more efficient agreement and conclusion of trades.

Global Markets in Motion

Financial markets have long been global in nature, but their increasing interconnectedness, combined with technology developments that reduce communication latencies down to almost imperceptible differences, are together driving changes in the ways in which market participants across different jurisdictions interact, how they access each other and how they access liquidity. *"We are moving to a global multi-currency world,"* says Amber Ghaddar, Founder of AllianceBlock, a decentralized infrastructure company linking DeFi with TradeFi decentralized finance ecosystem. *"Since the conflict in Ukraine began, we've begun to see more settlement directly in rubles, bypassing the US dollar. I have no doubt that the largest emerging economies - China, India, and South Africa – are observing this development and wanting do more of the same with their currencies and we already saw China and Russia working on homegrown alternatives to the SWIFT payment system. So we need to find solutions to create liquidity in what are relatively illiquid currencies, compared to the US dollar, pound sterling and the Euro. No doubt about it, this is definitely a potential growth area, but it's got to be done in conjunction with the central banks."*

"The search for alpha remains, as always, a priority for the buy side," observes Joe Pickel, Head of Product Strategy at IPC, "*and that's also going to drive the sell-side response. Where do they go to find alpha? The market is now in a very different place to where it was ten years ago, when we used to talk about the BRICs, and emerging markets. It's increasingly difficult to say that we have truly emerging markets any more in our global economy. We're seeing black swan events that affect markets in unexpected ways – not only the pandemic, but more recently the events in Ukraine – and the buy side reacts very quickly to these events. The main outlier in terms of truly emerging markets is Environmental, Social, and Governance (ESG), which is an increasingly popular investment class, and to some extent, the gradual mainstreaming of crypto. We're also seeing behavior in these emerging markets that is a little different to traditional trading patterns; for example, when one of the largest Canadian private equity firms starts making very strong bets, in the tens of billions of dollars, in ESG portfolio companies. There's increased interest in the monetization of ESG. Perhaps we could see an inter-dealer broker step in and set up a carbon exchange, or other types of new ESG-focused markets."* In this brave new world, data remains a challenge. The incorporation of ESG metrics into decision making, trading and risk management is a critical dependency in being able to measure ESG performance and outcomes.

With technology giants beginning to challenge the status of financial institutions, these firms are under growing pressure to embrace technology themselves and to adapt, if they are to survive. *"They're trying to build out differentiation, and this involves thinking about the trading floor of the future and how people will interact with each other in the trading environment, whether that's physical, ergonomic, or environmental. There is a huge shift towards cloud-based, on-demand services and API-driven environments, and to be able to capture and monetize data, and also use that data to drive collaboration, workflow efficiency, and improvements. We've seen, in the banks, a trend towards hiring people from technology companies such as Amazon and Google, whereas in the past it's been the other way around,"* says IPC's President Dave Brown.

Brown continues, *"ESG is not only a factor when it comes to trading, but also involves firms themselves adhering to the new regulations and standards that are coming into effect now, and the choices they make around their own suppliers and infrastructure. This is also driving the investment in technology and more flexible and sustainable infrastructure procurement, and the shift to a cloud environment."*

The Rise of Crypto

While cryptocurrencies and digital assets – and the decentralized finance (DeFi), protocols that are springing up around them – are gaining traction with institutional investors, they are lagging behind significantly on the maturity curve when it comes to transparency and market integrity. Ghaddar views insufficient or inadequate credit and counterparty risk management as a key issue to be addressed. In the absence of the regulatory frameworks and risk management tools available to traditional financial market participants, and in what are often extremely concentrated markets (in which a single asset may be traded on a small handful, if that, of exchanges, and a single investor may hold positions capable of moving – or crashing – the entire market) even a relatively small initial price fluctuation may have market-wide consequences. Indeed, this was illustrated by the catastrophic (for crypto markets) failure of Terra's UST coin in May 2022, and the accompanying repercussions for confidence in other cryptocurrencies. Once again, the availability of high-quality, accessible, and standardized market data will be essential in developing the risk management tools and frameworks needed to support a mature crypto market.

Crypto markets also include structures that have long been regulated, or even disallowed entirely, in traditional financial markets. There is significant transfer of liquidity between crypto exchanges, with most of the large exchanges connected to each other. Many exchanges also operate as both principal and agent to trades – with the exchange providing brokerage services directly to clients. This can lead to a blurring of the distinction between these different activities and functions, not to mention the potential conflicts of interest and opportunistic behaviors that can arise.

Applying DLT in Traditional Markets

Nevertheless, the advent of crypto has also highlighted the benefits that digitization, or tokenization, can bring to traditional asset classes. This is especially true for less-liquid assets. *"If you look in the equity space, it's already a very transparent, very efficient market. The only benefit that DLT can really bring to equities is real-time settlement, in my view. You need to think about it from a risk-reward perspective: are you going to make a huge investment to change a system that already works quite well, in order to reap a relatively small reward? On the other hand, there could be a real benefit for those assets that are currently illiquid and for which a low degree of automation has so far been achieved. I can see a huge benefit to tokenizing bonds, and gaining operational efficiencies in coupon payments, for example,"* says Ghaddar.

A greater degree of automation is often linked to greater liquidity in an asset class or instrument. Automation plays a role, in this context, not only in pricing and execution processes, but also – and crucially – in post-trade processing, settlement of the trade and on-going management of lifecycle events. If settlement is dependent on the expensive and time-consuming completion of numerous complex paper-based contractual agreements between the counterparties to a transaction, then it is evident that the asset in question is not going to trade particularly frequently. The less frequent it trades, the less data is available to determine its value, and therefore to price it. And therefore, it will remain an illiquid asset.

Conversely, improved settlement and ongoing trade management capabilities can therefore help to underpin greater liquidity in markets. This is where emerging technologies such as distributed ledger technology (DLT, better known by many as blockchain), can play a role. Axoni's equity swap platform for example, launched in 2020 and supports peer-to-peer electronic confirmation, cash flow matching and event reconciliation for equity swaps, a notoriously complex asset class with many potential structures and contractual terms. Using DLT, Axoni's platform achieves these improvements in post-trade processing without the need for any intermediaries or human intervention.

The Tech Environment of the Future

The shift in working patterns - initially driven by the pandemic, but now firmly embedded in many companies globally - has been well-documented. The reality is that remote trading has become a fact of life. We are still observing the consequences of this paradigm shift, in terms of how technology infrastructure is being adapted to support new working patterns. For example, will we see more investment in high-speed fiber connectivity to traders' homes, and greater use of soft turret installations, as the changes are further bedded down? Alternatively, will financial institutions spread their staff and functions across multiple office premises, investing more in "Team A / Team B" models whereby staff are on-site, but physically separated?

This could mean developing distributed hub-and-spoke offices as well as putting in place the infrastructure for individuals to work on a longer-term basis from remote locations. For financial institutions, this challenge is further compounded by the need for security, reliability, resilience, and the ability to demonstrate compliance with exacting regulatory requirements. For trading firms, the ability to trade anytime, anywhere, from any device – in a secure and compliant manner – is an enormous competitive benefit in an uncertain and ever-shifting environment.

And there's another consideration for trading firms. Based on the experiences of the past two years, they are now very much aware of the importance of resilience for their firm – resilience both now and in the face of future unknown events and challenges. They want a solution that offers an element of futureproofing, enabling them to adapt and maintain their competitive edge no matter what may come their way. This means that they expect a higher standard from their infrastructure provider, with innovation and technology that is constantly evolving, being updated, and upgraded behind the scenes in a manner that is seamless and transparent to them.

Scaling in The Subscription Economy

Ownership is a great model for assets that appreciate in value over time. In the case of technology, whether it be hardware or software, these are assets that depreciate in value over time. Subscribing to these as a service therefore eliminates subscribers' exposures to the downside of depreciation and gives them all the upside of continuous improvement by the provider. The subscription economy – of which SaaS, PaaS, IaaS, and cloud are all enablers – is transforming the way in which we consume services. The benefits that it brings to subscribers cannot be understated.

"The past few years have driven a different perspective on technology. Pre-pandemic, people were not interested in mobility or remote access, and the ability to scale certain parts of their operations up and down as required wasn't really a factor in their technology strategies. Now, however, everyone's looking at more of a subscription-based model. They don't want to own property, or infrastructure – they want to outsource the capex. And we can support the vendors, such as market data providers, in building out these subscription-based offerings. We can say to a market data provider, we can give you the white-labelled capabilities to offer clients access to your services via voice platforms, or mobile apps, or any other channels they want, and all in a compliant and well-governed manner, and using multifactor authentication. That's a very powerful proposition," says Rob Coole, Vice President of Strategic Innovations at IPC.

Firms that adopt a subscription model for their technology and infrastructure can experience drastically lowered barriers to entry, along with reduced set-up costs and time to market. Their focus can be on the core business, and on hiring and retaining the right people to drive that core business forward, without the distractions of managing non-core systems. They can scale up and down flexibly on demand and have shorter innovation cycles, with new features launching more quickly and cheaply. They have an enormous and extraordinary advantage over their non-subscription-based counterparts.

The shift towards a subscription economy, when combined with the power of the cloud, enables firms to create solutions that combine flexibility with reliability, and scalability with certainty. The benefits can be felt by firms of all sizes; with scale eliminated as a barrier, any firm – be it large or small, newcomer or incumbent – can now access the same state-of-the-art tech as their competitors.

What's more, consuming technology services on a subscription provides all the other well-proven benefits of software-as-a-service. As any challenger knows well, adopting a cloud-native environment gives subscribers comfort that they only pay for what they need, but can also expand and consume more as they grow. It's also about the futureproofing and reassurance provided by evergreen technology that's seamlessly updated and upgraded in the background, with new delivery channels, access mechanisms and markets added and available on-demand.

The Shape of Things to Come

"The pandemic changed everything, completely on a dime. The business continuity strategies of our largest customers were no longer valid – instead of shifting fully to disaster recovery sites, there was an unprecedented requirement for remote, dispersed working across a range of different home and office set-ups, and all in the context of a highly regulated industry and set of activities. In real time, we paused our in-flight product development programs and went back to our clients, talking with them about what they needed to achieve, how they were staying in the market, and what their goals were. And as a result, we found ourselves rotating and transitioning our product strategy, and developing new short- and long-term strategies based on that customer feedback," says Pickel.

In this context, creativity was vital. How could the firm pivot its trader voice services to be available anytime, anywhere, and in a frictionless manner? IPC had a legacy soft client product, with limited adoption, which ended up being rapidly rolled out to meet the sudden, urgent demand for compliant trader voice communications infrastructure. Product focus pivoted to support clients' updated business continuity plans, redesigned around hybrid environments. The firm also began to rethink its cloud offering, eventually settling on a dedicated cloud environment – one that provides a platform for customers to build and introduce new functionality and features - as opposed to the public clouds offered by competitors. This includes a full dedicated cloud-based model for voice trading, with features such as a turret that connects over the internet.

Now that trading firms are converging around the "new normal" mode of working, in the form that applies best to their organization, technology investment is moving up the agenda once again. While electronic trading has unleashed a tsunami of trade data on trading firms and markets, there remains an untapped wealth of information locked up in voice data. The digitization of voice flow, which began with a focus on regulatory compliance, is increasingly recognized as a key foundation for the successful application of frontier technologies such as AI / ML, cloud, and big data, to the trading floor and to intelligent decision-making.

Swimming in a Sea of Trading Data

All too often, the data captured in different systems – chat systems, phone recordings, and trading systems – remains isolated and segregated from other systems. The potential value, in terms of market intelligence, that sits within these systems has yet to be realized. Better integration of these disparate trading data sources can provide firms with an improved market pulse and sentiment analysis capabilities. Much work is therefore focused at present on the use of AI / ML and NLP in the voice space, particularly as it remains the largest pool of unstructured – and hence untapped - data in most trading firms. If this data can be structured and combined with other sources of data on the trading floor and other financial applications, it has the potential to underpin further transformation of the trading workflow, as well as improved decision-making and greater productivity in the trading environment.

What kinds of insights can be gained from unlocking this additional communications-based data? *"You get a better view of market sentiment. What's really trading? What kind of trading is happening based on market events and market news? In the case of voice, sometimes the tone and the emotion can provide color that doesn't necessarily translate to a structured, text-based format. But I think we are getting to the point where we can understand tone of voice and emotional context and use this to form better insights into the mood and overall sentiment in the market. It's almost like being in a trader cockpit,"* contemplates Ganesh Iyer, Chief Marketing Officer at IPC.

Neil Fishler, Vice President of Sales, North America and Strategic Accounts, at IPC, observes that greater data availability, and a proliferation of communications tools and trading channels, are not necessarily always to the benefit of trading firms. *"I do see a potential issue emerging around remote collaboration – when we start to see too much collaboration happening, as it were. Traders are very talented people who are highly skilled at multitasking and managing lots of incoming data streams. But when you put 15 different collaboration tools on a trader's desktop, it becomes very difficult to manage. We've seen a few examples where we've worked with clients who have added on extra tools to their trader desktops and then suddenly the trader hits a critical point: it's too much for them to manage and the workflow becomes very difficult. There's got to be a balance, so that it is manageable and optimal from a human interface perspective,"* says Fishler. In his view, the vast pools of unstructured data that can be unlocked from alternative data sources using NLP, including voice data, will be most effective if they can be integrated into a manageable set of tools rather than adding even more to the desktop.

Iyer concludes, *"I don't want to sound cliched, but I really do believe that data is the new oil. The challenge for trading firms, who want to maintain their competitive edge and to grow and expand their footprint in a fast-moving environment, is how to unleash the power of that data."*

Conclusion: Turning Constraints into Strengths

Unlike many other industries, financial institutions have been a latecomer to the paradigm shift towards flexible and remote working. This has been driven by two constraints: technological limitations – the resources required to support voice turrets, trading systems, and multiple screens, and the regulatory compliance requirements in terms of control, oversight, and data capture (including voice communications capture). The global pandemic has shown that trading floors have functioned effectively throughout a period of rapid change and turmoil.

To a large extent, this is a testament to the regulatory changes that have emerged, following the global financial crisis and aimed at ensuring that financial institutions can continue operating with resilience in stressed market conditions, without falling prey to systemic and liquidity risks. It is also enabled by the enormous strides made in technology during the past decade, particularly with respect to cloud, AI / ML and NLP, and distributed ledger technology. Subscription and cloud-based services now allow firms to easily and cost effectively scale up and down as required. New asset classes such as crypto and ESG are creating demand for more data sources and there is increased demand for better means of unlocking and exploiting the rich seams of data hidden away in many organizations.

In an ever-evolving global marketplace, participation in a strong, diverse community can give firms an opportunity to shine, to demonstrate real differentiation from competitors. A successful community network offers its participants connectivity to an already built, diverse and global financial ecosystem – one that includes a wide variety of counterparties for price discovery, liquidity, and execution, such as broker/dealers, inter-dealer brokers, exchanges, other trading venues, dark pools, hedge funds, pension and mutual funds, institutional investors, trade lifecycle services and market data providers. In other words, the information that firms need to find liquidity, and the ability to access it.

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