

The Fourth Industrial Revolution: Impact on Financial Services

What lies ahead for the Buy Side?

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“The changes are so profound that, from the perspective of human history, there has never been a time of greater promise or potential peril.”

- Klaus Schwab, Founder and Executive Chairman of the World Economic Forum

We are at the beginning of the Fourth Industrial Revolution, a technological transformation that is reimagining the way we live, work and interact.

According to Klaus Schwab, the Fourth Industrial Revolution is building on the Third, Digital Revolution, bringing a “fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.”¹ These technological breakthroughs are coming at an exponential pace, and are disrupting almost every industry in every country.

Advances mean we are now living in a world where more people have access to a mobile phone than basic sanitation. This creates many new business opportunities. Yet at the same time, it poses a serious threat to companies that fail to adapt, as the likes of Kodak and Blockbuster have discovered. No business is immune, including the Financial Sector.

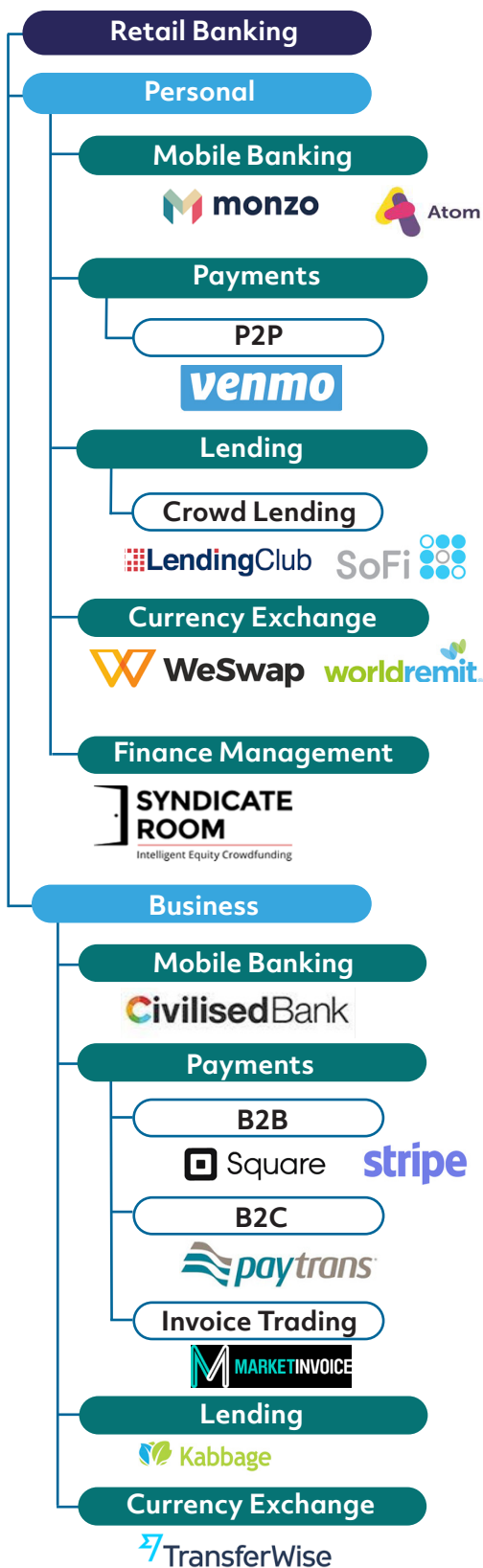
The FinTech Transformation

The omnipresence and importance of technology in Financial Services is epitomised by the rise of the financial technology (FinTech) sector. The emergence of these pioneering companies and new technology developments is progressively transforming established businesses and reshaping the landscape.

By using technology in new and innovative ways, the plethora of start-ups have broken down the barriers to entry of traditional financial industries, experienced immense and fast-paced growth, and redefined how business is conducted in the sectors they have disrupted. Further change is coming as well, if the level of interest in FinTech start-ups is any indication. Global investment more than doubled quarter over quarter in Q2 2017, with 293 transactions totalling \$8.4 billion². The third quarter saw a further 274 deals worth \$8.2 billion³.

This constantly evolving maze of new market players and sectors has created investor demand for a new classification system focused solely on disruptive technology companies, and for research into FinTech sector trends and developments. In response, wealth management and capital markets firm ECHELON Partners developed a proprietary mapping system that organises 1,000 companies into eight WealthTech

Figure 1. Impact of FinTech on Retail Banking



sectors and 42 sub-sectors⁴. The firm provides research on WealthTech start-ups, and is building a database of venture capital and private equity firms actively investing in the space, as well as companies looking to buy or sell.

Other market players are also recognising the need for new sector classifications. For instance, in its 2016 primer, S&P Global Market Intelligence mapped out key FinTech sector segments and the most rapidly growing sub-sectors⁵.

As new technology continues to impact and change all industries, demand for research in the tech space will only continue to grow.

Key Areas of FinTech Disruption

Area #1: New face of Retail Banking

High street retail banks have embraced technological advances, as seen with the successful adoption of internet and mobile banking into their day-to-day operations. However, new technology and FinTech start-ups are progressively challenging aspects of their traditional businesses.

"For many people, the smartphone is the first and only computer they have."

- Inga Beale, CEO, Lloyd's of London

For instance, challenger banks such as [Atom Bank](#), [Monzo](#) and [CivilisedBank](#) are taking the concept of mobile banking a step further by offering mobile-only banking services. Through such initiatives, they are redefining the concept of a high street bank.

The traditional retail banking model has also been broken into pieces by the multitude of FinTech start-ups offering specialised, low cost, hassle free alternatives, as represented by **Figure 1**.

Start-ups offering currency exchange and money transfer services – such as [TransferWise](#), [WeSwap](#) and [WorldRemit](#) – have successfully exploited existing inefficiencies to appropriate sizeable chunks of the traditional banks' businesses.

Emerging FinTechs are also starting to tackle a range of other banking services. These include providing alternatives in the payments space, offering loans and delivering financial planning services, something that in the past was only available to high net worth individuals.

Crucially, technology has made it possible to reach clients and markets previously deprived of banking services, thereby opening up new and untapped revenue streams. FinTechs have begun catering to the needs of underserved clients, such as people with low credit scores who are unable to obtain loans in the traditional way, or small- and medium-sized businesses. FinTechs are also offering a cheaper alternative to customers regularly hit by expensive bank charges.

In addition, mobile banking makes it possible to provide much-needed banking solutions to parts of the world that hitherto lacked the necessary infrastructure. For example, [M-Pesa](#) – a successful collaboration between Vodafone, Kenyan micro-finance institute Faulu and the Commercial Bank of Kenya – began by facilitating payments and money transfers in Kenya. It now provides access to banking services for 19.3 million Kenyan local mobile network subscribers, most of whom previously did not have a bank account. [M-Pesa](#) has since expanded to 10 countries, including Tanzania, India, Egypt, Ghana and Romania.

At the same time, the dominance of mobile and online banking in developed markets is forcing the closure of an increasing number of high street bank branches. For example, Société Générale announced it will close 15% of its branch network and cut up to 900 jobs in France by 2020⁶. Royal Bank of Scotland plans to close 259 branches across the UK, including more than a third of its Scottish branches⁷.

Technology-fuelled disruption will continue to reshape the global banking sector, creating new opportunities and solutions for businesses and customers as it democratises financial services. However, the accompanying restructuring will have a significant impact on providers' business models, profitability and employment needs.



Area #2: The Rise of WealthTech

WealthTech is at the forefront of technology developments in finance, and has been experiencing exponential growth. WealthTech providers leverage technology to offer alternatives to traditional wealth management services, with innovative tools to support investors and advisers. Investment in the space has been growing consistently for the past five years, with a record 74 deals worth \$657 million in 2016⁸. In the first half of 2017, 40 different investments were made in the sector, with a value of around \$315 million⁹.

Robo-advisory and robo-retirement are among the most rapidly-growing services in the WealthTech sector. These specialised start-ups use elaborate online questionnaires to profile their clients, then employ algorithms to develop automated portfolio allocation and investment recommendations tailored to those profiles.

Robo-advice provides a much-needed answer to unmet demand. This was evidenced by a 2015 Citizens Advice report, which found up to 14.5 million people in the UK believe they would benefit from financial advice but are unable to pay for it. More than 5 million people would consider paying for advice if it cost less¹⁰.

Following the success of [Wealthfront](#) and [Betterment](#) – the first independent online financial advisor to reach \$10 billion in assets under management¹¹ – large wealth managers and investment companies started to recognise robo-advisory's potential. Many have subsequently developed or acquired their own robo-advisor capabilities, in a bid to update their offerings and adapt to the changing market realities.

Investment in WealthTech has been growing consistently for the past five years, with a record 74 deals worth \$657 million in 2016. In the first half of 2017, 40 different investments were made in the sector, with a value of around \$315 million.

For example, in March 2015, Charles Schwab launched [Schwab Intelligent Portfolios](#), an automated investment product that attracted \$1.5 billion from 23,000 users in its first six weeks of operation¹². BlackRock followed soon after with its acquisition of [FutureAdvisor](#)¹³. Deutsche Bank subsequently collaborated with FinTech company [Fincite](#) to develop its [AnlageFinder](#) robo-advisor, an extension of its [Maxblue](#) online investment platform. In November 2016, leading wealth manager UBS launched its [SmartWealth](#) service to a limited number of clients in the UK, before a full roll-out in February 2017. Meanwhile, Vanguard's hybrid human-robo platform, [Personal Advisor Services](#), had grown to \$83 billion in assets under management by the end of Q1 2017, more than four times [Schwab Intelligent Portfolios](#), its closest rival¹⁴.

With so many new launches and traditional players entering the market, this has become an exceptionally dynamic space, with robo-advisors increasingly competing on cost, speed, and the level of service and functionality provided by their platforms.

Similarly, robo-retirement emerged to fill the gap in pension advice. According to the HM Treasury and Financial Conduct Authority's Financial Advice Market Review report, released in 2016, around half of consumers regard pensions as difficult to understand¹⁵. The Pensions Policy Institute ranked the decision about how to access defined contribution pensions as one of the most complex people are likely to encounter, due to the level of market and economic knowledge required, as well as the impact of unknown factors. Yet despite the complexity, less than a third of consumers have obtained financial advice. Start-ups such as [Bloom](#) and [Guideline](#) have stepped into this environment to provide a simplified, low-cost alternative to traditional services.

Wealth managers' portfolio management functions are also being transformed by technology. The emergence of online-only investment management services from the likes of [Nutmeg](#) and [Vaamo](#) are changing the client/wealth advisor dynamic. Other entrants, such as [Openfolio](#), bring the power of social networks and transparency to the world of personal investing by applying the concept of social investing to wealth management.

More specialised providers are also offering innovative and low-cost alternatives to clients and investment professionals. The [BondIT](#) software-as-a-service (SaaS) platform uses advanced machine learning algorithms to construct risk-optimised portfolios that match a client's risk profile. Meanwhile, [SESAMm](#) applies natural language processing, quantitative analysis and machine learning to big data to identify the major emotional trends and behavioural biases that drive financial markets, and thereby help predict market movements.

Micro-investing represents another interesting trend in wealth management. Start-ups such as [Stash](#) and [Acorns](#) offer investment opportunities for as little as \$5, helping open new doors for people who were not able to invest in the traditional way.

Brokerage is also changing with the emergence of online brokers. [Robinhood](#), for example, offers commission free online stock trading, while [Folio Investing](#) enables investors to purchase any dollar amount or percentage of an ETF or individual stock.

[eToro](#) is a global online marketplace for people to trade currencies, commodities, indices and CFD stocks. The big innovation with [eToro](#) though is its social investment network, which enables users to share

portfolio information, and interact with and follow other traders to benefit from a diverse trading community.

Technology is reshaping the institutional asset management arena as well.

One initiative is [DarcMatter](#), an online investment platform that provides investors with transparent, institutional-level access to a range of screened alternative investment opportunities across venture capital, private equity, hedge funds and commercial debt products.

Another is [Edgefolio](#), a web-based platform that connects institutional investors and hedge funds. Investors can search for, compare and connect with hedge fund managers. In turn, managers are able to enhance their asset raising by connecting with interested institutional investors.

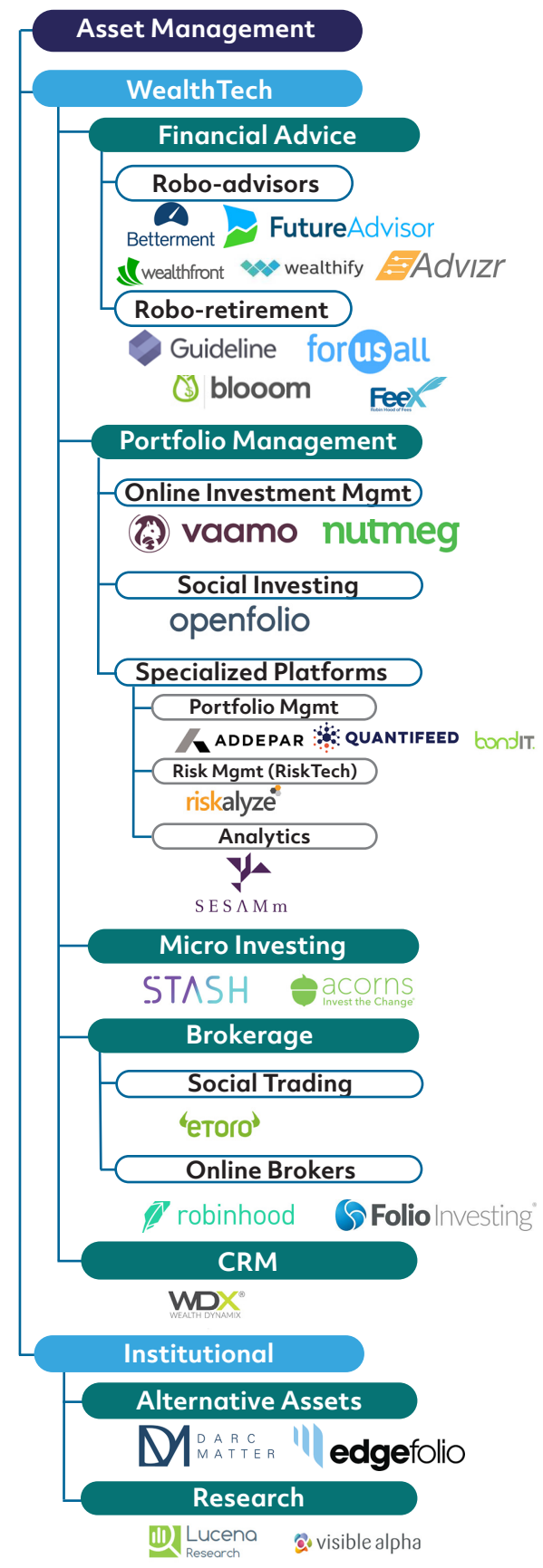
The transformation of the asset management industry is illustrated in **Figure 2**.

Clearly every asset management function has been influenced by technological changes and the emergence of new entrants. New technologies such as artificial intelligence (AI), machine learning, robotic process automation, algorithms, cloud technologies and big data analytics are further creating opportunities for innovative companies to thrive.

Area #3: Reining in Regulation with Technology

Increasing regulatory pressures on financial institutions, especially following the 2008 financial crisis, have led to a substantial increase in regulatory fines. McKinsey research reports

Figure 2. Impact of FinTech on Asset Management



“The difficulty lies not so much in developing new ideas as in escaping from old ones.”

- John Maynard Keynes

that regulatory fines and settlements against 20 large US and EU universal banks increased by almost 45 times in the period from 2010-2014, while operating income decreased 10%¹⁶.

BCG research found banks globally have paid \$321 billion in fines since 2008 for regulatory failings, driven by misconduct. The Bank of England has estimated that between 2011 and 2015, misconduct costs reduced UK banks' pre-tax profits by 40% on average. Meanwhile, Bain estimated that governance, risk and compliance expenses now account for 15%-20% of the running costs of most major banks¹⁷.

The RegTech sector has emerged in response to the growing influence and complexity of the regulatory environment. This new breed of highly-specialised RegTechs are applying innovative technologies such as AI and blockchain to provide much-needed solutions to regulatory problems and challenges.

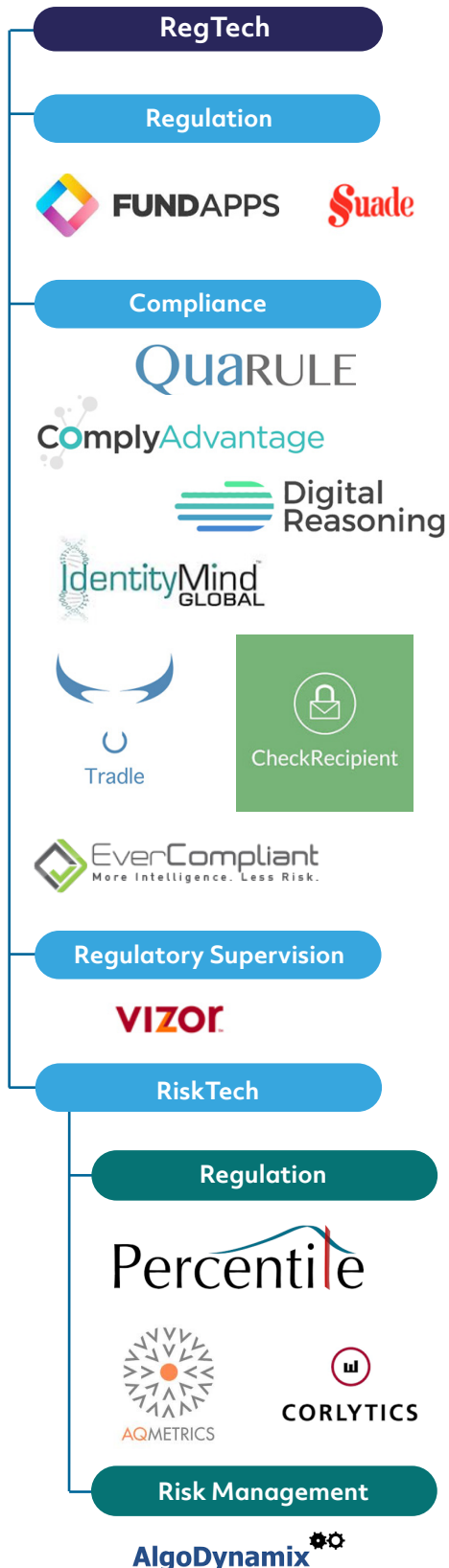
[Suade's](#) Regulation-as-a-Service (RaaS) platform allows financial institutions to process large volumes of data and automate the output of required regulatory reports, while applying the necessary controls and governance. But in its mission to optimise regulatory reporting, [Suade](#) is going a step further. In 2016, it launched the FIRE Data Format, an open source project sponsored by the European Commission and Open Data Institute to create a standard for regulatory data. If successful, it will have a significant impact on the entire industry.

[FundApps](#) helps asset managers, hedge funds, pension funds and banks meet their regulatory challenges through its automated compliance monitoring services. [FundApps](#) monitors and reacts to regulatory changes, providing users with automated alerts to rule issues and updates via an intuitive web interface. Its compliance experts write and maintain over 500 rules in more than 90 jurisdictions, analysing over \$3 trillion in client assets every day.

Formed in 2014, [ComplyAdvantage](#) provides anti-money laundering (AML) screening and monitoring technology. It uses AI, machine learning and big data analytics to produce higher quality anti-money laundering data on individuals, organisations and associated entities. This enables companies to improve the client onboarding and monitoring process by screening payments and monitoring transactions more effectively.

Various RegTech providers are also starting to adopt blockchain technology. [TradeFlow's](#) blockchain platform is designed to track trade data over legacy infrastructures. It uses a Unique Referencing System to track every transaction that is processed, helping drive down the costs that result from delays in settling trades.

Figure 3. FinTech Regulatory Solutions



Tradle's trust provisioning offering leverages blockchain technology to simplify and securely know your customer (KYC) requirements. The company plans to create a simple, user-friendly smartphone interface that can send documentation to banks, instead of relying on traditional paper-based communication. It also improves the accessibility of KYC data for auditors.

It is not just companies struggling to improve their compliance-related processes. Regulators also face challenges in monitoring the increasingly complex regulatory landscape, and trying to regulate new market players. Vizor's solution, for example, supports the full supervisory lifecycle with a web-based data submission portal featuring real-time validation capabilities. All supervisory data is collected and stored in a single central database, making it easier to automate processes, provide analysis, and create comparison, trend and qualitative reporting.

RegTech is quickly becoming one of the most dynamic sectors within the FinTech ecosystem, with specialised, niche sub-sectors such as RiskTech now gaining traction, as illustrated in **Figure 3**.

RegTech will continue to thrive, as technology start-ups offer a fresh approach to tackling the regulatory issues that large and slow-moving financial institutions, with their legacy systems and complex infrastructures, are struggling to deal with effectively.

Conclusion

The Fourth Industrial Revolution is disrupting and reshaping existing businesses, redefining the high street, and irreversibly changing the way business across all industries is conducted. Hundreds of new firms are coming to market, leveraging the emerging breed of technologies

to exploit any existing inefficiencies and deliver innovative propositions that chime with clients' evolving expectations.

Along with changes to the business ecosystem, an abundance of supporting industries are also emerging, including tech research, tech accelerators and incubators, as well as tech-themed conferences and events. These developments are further challenging the status quo as they redirect funds and investments into new companies and technologies.

"Silicon Valley is coming."

Jamie Dimon, CEO, JPMorgan Chase

But we are only at the beginning of this tech revolution. The next stage will likely see the emerging, often overlapping, sectors start to collaborate and take advantage of the synergies between different technologies, such as the Internet of Things and blockchain.

The financial sector has been at the forefront of this change, and further disruption is to come. A wide range of financial services functions could eventually end up outside the traditional industry as they are taken over by new technology entrants. As JPMorgan Chase CEO Jamie Dimon has put it: "Silicon Valley is coming"¹⁸.

The only factor that could impact and slow down these changes is regulation. However, regulators are lagging behind the disruptors, and are yet to adapt to this new reality.

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From Theory to Application – Axxsys Consulting

Innovation requires time, resources and expertise. Not all investments will pay off, and there is a long way from concept to its effective application.

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