



## FINANCIAL PLANNING: AN OPTIMISTIC VISION OF THE FUTURE

*After another year working in the world of UK financial services and FinTech, we offer an optimistic glimpse of the future for financial planning with particular focus on the possible effects of blockchain technology on the underlying investments industry stack.*

*We begin with a “Day in the Life” of Fara, a young financial planner in the 2020’s, followed by a broad outline of how the industry could evolve to that point from today ...*

*Al Sherriff (CBoxx) and David Taylor (OCP), April 2016*

Fara swung her car seat around to talk to Alex about Mr Robins, “He’s coming in for his regular review today. He’s so old school; wants to look me in the eye while I talk him through the projections”. Outside the traffic was humming smoothly into town, no problems to speak of and their car whispered something about arriving at the office in about 15 minutes. Alex casually swiped the windscreen to bring up the latest view of the Robins household finances. “Well, I can see that he loves his Jaffa Cakes, so get plenty of those racked up because I can also see he’s got a retirement shortfall of about £15,000 right now, which isn’t great news. But ... I just read about something that I think we ought to try ...”

Meanwhile, the car decided it was low on juice, so they had a few extra minutes to think about the Robins family while the car recharged itself. “You see this”, Alex gestured at the news panel; “SaverSoft has just released a major upgrade to their PensionAgent on the UK Pensions Ledger. It’s got 98% up-ratings so far and SaverSoft claim it’s turning up thousands of forgotten legacy policies from that bunch of closed book providers they’ve finally managed to hook up with. Well, our Mr Robins hits 62 in a couple of weeks’ time, so you never know, he might just have one of those?”

That morning Fara showed Mr Robins how to authorise the PensionAgent to work for him. Sure enough, a £12,000 pot from his early days in accountancy materialised on the firm’s Pensions Dashboard. That would help. Within a few minutes they authorised it for transfer into his portfolio, re-checked his risk profile, made an informed asset selection and invested it directly and immediately into smart bonds and equities through the NextGen investment platform that was plugged into the firm’s system.

As well as finding forgotten money, Mr Robins would also save an absolute fortune in charges. That old legacy pension had been paying incredible annual management charges of 2% and now those charges would be slashed to a sensible 0.2%. Fara still couldn’t get her head around what people used to pay for all those ridiculous layers of administration.

Mr Robins was more than delighted. He spread recommendations over Facebook (so old school!) and then put Fara in touch with his daughter Danielle right away. She’d just started a new job and needed financial help. “How would you like to meetup Danielle?” Fara messaged, “I can schedule a meeting in your vPlan if you prefer, and we can take a look around at what you’ve got - try out a few what-ifs?”

vPlan is one of several Virtual Reality financial planning tools now available and Fara’s firm had recently licensed and plugged it straight into their system. They could take a stroll together around Danielle’s finances to look at how her savings were doing and then decide where best to invest the extra savings she hoped to put aside from her new job. They could also quickly review her goals if she liked and double check her life cover. Most people really like this sort of thing nowadays, though many, like her father, still prefer printed charts and tables.

Danielle is still early in her career but these days, high quality financial advice is accessible and affordable by everyone. Powerful, data rich, simple to understand, low cost systems mean that financial planning firms are incredibly efficient and engaging for their clients – regardless of how they want to engage: in person, in car, laptop, tablet, mobile, watch, social media, VR, AR, whatever! There is plenty of help for everyone, however and whenever they want to access it. Many people still like the personal touch, though most prefer to self-service

with online guidance and the reassurance that a professional is also keeping an eye on their financial affairs and can proactively step in when needed.

The sheer speed, efficiency and transparency of the investment market means it's very popular and trustworthy nowadays. Every single transaction is ultra-low cost and automatically monitored in real-time by the regulator. So Danielle knows for sure that whatever advice and service Fara provides for her, it will be guaranteed rock solid and fair. ***Financial planning is a first class profession; necessary, affordable and trusted by everyone.***

By the end of the morning the Robins family had scored Fara 120 more reputation points. She could put them towards her annual bonus, trade them for air-miles, car time, Amazon Dollars or invest them.

Everything has a value now, tied directly to your unique identity and totally under your own control. This also means that there are now a whole multitude of complex digital asset classes and instruments available that simply didn't exist a decade ago, making the role of the financial adviser so invaluable.

Fara glanced at her tablet to get up to speed on her next client, finished off Mr Robins' last Jaffa Cake, topped up her coffee and tapped the dashboard "Hello Mrs Siddique, how's Anisha getting on at uni? Great. Now, thanks for taking my call, it's just that we've noticed a great opportunity for you guys ..."

*Looking back, Fara realised that many big challenges had been overcome ...*

**To give Fara such a rewarding experience in her work, many people in the investment industry had laboured hard for many years.**

In 2016, the potential offered by distributed ledger (aka blockchain) technology was relatively unexplored. Firms had done some initial investigations, and just started to come together to collaborate in using the new technology. They had to examine the implications for the whole industry stack, from top to bottom. Legal and regulatory barriers were yet to be overcome. And, if it was all to be successful, clear benefits for end-customers had to be secured.

*The promise of blockchain was explored*

Over time the industry had become massively layered, with customers supported by advisers who placed investments on platforms and in product wrappers, with the underlying funds handled by asset managers serviced by further layers of transfer agents, custodians and banks which traded and settled transactions. A whole infrastructure of messaging and data transfer

enabled this to happen securely but at great cost and expense as the mass of data maintained by every company at every layer of administration had to be continuously reconciled.

There had been much hype about blockchain, and many people had been sceptical. What could blockchain do that existing database and messaging technology couldn't do, so long as it was consistently implemented with robust market practices?

But the advantages of a blockchain (a decentralised, distributed single industry ledger, accessible to all parties) became increasingly clear. The data recorded on this ledger would be validated by consensus between all parties, and the history of all transactions would be fully traceable. Rather than security being a thin, hackable veneer, it would be assured by the encryption of all data and transactions.

Business rules were to be embodied in electronic smart contracts, which were non-negotiable, consistently deployed, collaboratively coded market practice rules governing interactions between industry parties.

At the same time, there were some serious tech challenges to be overcome:

- Would the immature blockchain technology really be able to handle the necessary industrial-scale, real-time transaction volumes required?
- End-consumers' personal data and company confidential data needed to be written to the shared ledgers but anonymity was obviously essential to enable wholesale markets to work in an efficient and compliant manner. Would blockchain permit the necessary data partitioning?

### *Enough firms decided to work together to build the future*

Gradually, players in the industry began to realise that the writing was on the wall for existing ways of working and the associated systems infrastructures. The old ways had fundamentally evolved from the efficient processing of paper based transactions originating at local branches and processed centrally. The new world required a fully digital foundation that went way beyond just bolting digital channels onto the legacy setup.

A series of small but aggressive new entrants neatly demonstrated that point but they faced huge obstacles in overcoming the incumbents. Those new entrants quickly realised that within the heavily regulated investment market they really did have to work with the big brand players who exercised their financial weight to nurture and cherry-pick the best.

The Government's charge cap on occupational pension schemes, the regulator's thematic reviews, and the aftermath of the Retail Distribution Review also increased the pressure to provide greater transparency of the costs of the current stack.

Flat and increasingly volatile market returns from 2012 onwards strengthened belief that a total end-to-end cost for retail investors of as much as 250bps was not going to be sustainable.

Some players were beginning to break ranks. Retail platforms offered lower-cost access to the market. Much greater use was being made of passive funds and separately managed accounts investing directly into equities. In the US, Vanguard's new Personal Advisor Services provided online access with adviser assistance for 30bps.

From 2017 onwards, many players needed to replace their life-expired systems. The price tag was unpalatable. The industry had to decide whether to replace their existing systems with more of the same, or look at something much more transformative.

**The industry could have put its head in the sand, but didn't.** It confronted the threats and took the opportunities presented to it by blockchain and digital transformation. Some money was wasted, but it got there in the end.

### *The industry stack was transformed*

Hard thinking was needed about the performance characteristics of the business process in scope. What did it cost? How quickly were the tasks fulfilled? What were the associated risks? Did the current process work as well for the end-customer, as it did for the players in the industry?

It was common knowledge that there was needless duplication and mirroring of databases and systems across the industry. This led to considerable reconciliations, with lots of manual effort and offline processing.

The prospect of having one, shared dependable set of data meant that there could be fewer systems. Transaction processing and data interchange was quicker (near real-time) and easier, cheaper and less risky, requiring less capital.

Ultimately, the squeeze on the stack came from both the bottom and the top.

The sell-side banks and brokers/ dealers had past experience of using technology to transform their processes, and could see big opportunities to slash operational costs and reduce capital requirements by speeding settlement times and eliminating the associated risks of delay and rework.

They started with niche use cases first, for specialised financial instruments. Soon, the scope extended to cover equities and bonds and moved further up the stack to include mutual funds.

Financial advisers and product distributors had a powerful incentive to reduce the cost of investing for their customers. They could see that, potentially, their systems could integrate directly with fund administrators and broking platforms, eliminating costs, delays and risks from the intervening layers. In due course, they even regained direct control of the administration of adviser remuneration, sidestepping the diverse array of product providers, platforms and legacy networks from the 1970s which had previously arranged it.

### *They hammered out how they would work together legally*

Firms understood that, although blockchain would eliminate the need for many trusted third parties, they would still need robust governance arrangements. And, in fact, existing industry bodies and infrastructure providers had ready-made governance frameworks that had stood the test of time. Their role would evolve to act as the gatekeepers to the industry blockchains.

There were more than a few legal issues to hammer out, aside from assuring data protection and the necessary anonymity of wholesale market participants.

The non-negotiability of smart contracts meant that special care had to be put into formulating them, and into assuring the resilience of non-blockchain processes feeding into, and from, smart contracts. Interestingly, many in the legal profession had to learn how to interpret, write and test the computer code that was being increasingly used to represent contract terms and the new job role of legal developer emerged.

The growing reliance on open source software meant that the legal status of licensing agreements needed thorough examination, in particular to mitigate the potential viral effect on licensing agreements of dynamic linking, namely the distribution of multiple executables.

And the concerns of European Parliament, that blockchain might inadvertently facilitate money laundering and the financing of terrorism, were eventually put to bed.

### *The regulator helped*

Despite the FCA's Project Innovate, launched in 2014, many in the industry believed that the regulator would struggle to keep pace with blockchain developments, and that this would be a major brake on the rate of adoption.

In the event, regulators and tax authorities woke up to the fact that blockchain would make their job considerably easier. They therefore actively engaged with the industry to understand

how regulatory reporting, conduct of business and other rules would need to be adapted to enable blockchain to be widely adopted.

Blockchain provided a much more robust approach to user authentication and authorisation. Anti-money laundering requirements were effortlessly met, and tax compliance assured.

Because all data was fully transparent to the regulator, investor protection was greatly strengthened and prudential and conduct considerations more easily satisfied.

Instead of requiring reports and returns from regulated firms, regulators could directly access data themselves and run their own analytics.

### *Other tech innovations helped*

Simultaneously, other technological innovations helped create the new world in which Fara and Alex now lived. Their generation had grown up in a digitally connected world and that's how they naturally operated.

Smartphones and other handheld devices, the growth of artificial intelligence quietly embedded into all software, the internet of things and the widespread industry adoption of open standards all had a part to play.

### *The customer benefitted*

Eventually, the buy-side benefitted the most, as it reshaped the industry to meet the needs of the end-customer better.

The investments industry became democratised and available and affordable to the masses. It didn't provide what was previously called robo-advice, but it helped customers to intelligently serve themselves and get help when required.

Many supposedly disruptive new entrants had previously aspired to do this, but could only do so at a rich price, using the old industry stack built on legacy tech.

**Blockchain was the key that unlocked the door to the future.**

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## About the research

Our views have been shaped by interviews conducted with a number of companies within UK financial services, including:

- A global transaction automation provider;
- Institutional payment & settlement blockchain infrastructure provider;
- Global systems integrator involved in multiple blockchain proofs of concept;
- Transfer agent;
- Investment platform admin software provider;
- Tech legal firm;
- Industry standards body;
- A global wealth management platform, solutions and asset servicing provider.

Further research information and ideas from CBoxx and OCP can also be found at:

<http://www.slideshare.net/DavidTaylor29/blockchain-and-the-investment-industry-stack>

Many papers, articles and books have been read. We can particularly recommend:

- <https://www.gov.uk/government/publications/distributed-ledger-technology-blackett-review>
- <https://www.euroclear.com/en/campaigns/blockchain-in-capital-markets.html>
- <http://www.dtcc.com/news/2016/january/25/new-dtcc-white-paper-calls-for-leveraging-distributed-ledger-technology>
- <https://www.swift.com/insights/press-releases/swift-and-accenture-outline-path-to-distributed-ledger-technology-adoption-within-financial-services>
- "ValueWeb: How fintech firms are using mobile and blockchain technologies to create the Internet of Value", Chris Skinner, Marshall Cavendish International, March 2016;
- The public blog of Richard G Brown of R3: <https://gandal.me>

## About the technologies

The **technologies** described in this paper include:

- A financial planning specific, component based CRM system seamlessly integrated with low cost easily pluggable software components through Open Standards e.g. the NextGen investment platform, vPlan, social media interactions etc;
- Big data analytics conducted through the cloud based CRM system interacting with other data stores to allow Fara to proactively spot opportunities for her clients;
- A Pension Dashboard based on distributed ledger (blockchain) technology, incorporating a built-in market place for smart contract based components built and operated by third parties e.g. the SaverSoft PensionAgent;
- Pension, Bond and Equities Distributed Ledgers with Smart Contract based products, transparent to the regulator. Fully automated administration with no transfer agents behind the scenes;
- Blockchain based Identity that is self-governed i.e. not owned by a global corporation such as Facebook, Amazon, Google, Apple etc. Probably government backed and incorporates reputation management too;
- Augmented Reality (AR) and Virtual Reality (VR) interfaces e.g. the AR dashboard in the car and the vPlan component;
- Digital Currencies e.g. the fictitious (so far) “Amazon Dollar” that is mentioned;
- Self-driving cars.

Distributed Ledger (Blockchain) technology is evolving fast with backing from major players, for example:

- Linux “Hyperledger” Open Source Project: <https://www.hyperledger.org/>
- Microsoft Blockchain as a Service: [https://devcon.ethereum.org/slides/ethBaas\\_gray.pdf](https://devcon.ethereum.org/slides/ethBaas_gray.pdf)
- Ethereum “Homestead” Release: <https://www.ethereum.org/>
- R3 Global Banking Consortium: <http://r3cev.com/press/2016/4/4/microsoft-and-r3-partnership-to-accelerate-adoption-of-distributed-ledger-technology-by-global-banks>
- SETL blockchain based institutional payment & settlement infrastructure <https://www.setl.io>

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