ALTERNATIVE INVESTMENT MARKETPLACE

THE RISE OF ALTERNATIVE FINANCE

INTRODUCTION

Financial services are rapidly being transformed as tech savvy investors rewrite the rules. Individuals and small businesses are benefiting from better terms and a greatly improved customer experience. Institutional and individual investors alike are now taking notice as digitalised security becomes available as an investable asset class for the very first time.

INTRODUCTION

A BRIEF HISTORY

Technology has enhanced almost every aspect of our lives in recent years, but some things change more quickly than others. While financial services have largely been trapped in the past, improvements are finally on the horizon. Tech is enhancing the way we invest savings, make payments, conduct research, trade securities, and...lend money.

The rise of alternative lenders (sometimes called marketplace lenders) is due to a number of factors, including extraordinarily low interest rates, a strong regulatory response to the global financial crisis, and an abundance of venture capital. More fundamentally, the influx is the result of various structural challenges faced by more traditional lenders, like banks. Legacy technology, unwieldy bureaucracies, and regulatory barriers all put these firms squarely in the crosshairs of new players that are not burdened with branch systems or old processes.

The result? Specialized lenders who are both nimble and competitive are bringing safe and affordable financing to a growing number of individuals and small businesses. These borrowers are benefiting from lower rates, quicker turnarounds, simpler documentation, and better user experiences. Just as importantly, these lenders do not use deposits to fund lending, so outside investors now have the opportunity to allocate a part of their portfolio to an attractive asset class that was virtually inaccessible only a few years ago.

INTRODUCTION

WHAT IS ALTERNATIVE INVESTING?

Alternative investment platforms were initially started as a way to allow people to lend money to each other. This peer-to-peer (P2P) model followed a well-worn path of internet startups exploiting technology to democratize an important service while eliminating middle men. Lending outside of traditional banking channels has since grown into a global, multi-billion industry that serves a wide variety of borrowers. Alternative lending was a natural outgrowth of the crowdfunding movement, but it has quickly moved beyond its roots. P2P platforms were (by definition) designed to connect small borrowers to small lenders. The same borrowers are still being served, but their loans are now increasingly being sought by institutional investors like hedge funds and university endowments who find a variety of things to like about this new asset class. How is it possible that a business model in place for hundreds of years could suddenly evolve so suddenly? You guessed it: technology. Technology confers a number of competitive advantages for alternative lenders. They are, for example, adept at applying sophisticated analytics to large aggregations of data in order to improve their ability to evaluate credit worthiness. They also rely on technology to streamline standard business procedures, which lowers costs and enables them to pass lower rates on to borrowers. Technical proficiency can also mean more effective customer acquisition, often via new channels. Perhaps most importantly, technology promises a superior customer experience. Anyone who has dealt with a large bank can appreciate the improved access, greater transparency, quick decision, less paperwork, and minimal hassle offered by alternative lenders. Some go even further, offering unemployment deferments and networking opportunities.

INTRODUCTION

SUMMARY

Alternative investments (crowdfunding, P2P lending, ICOs etc) has emerged as a multibillion-dollar global industry. By 2025, the global alt finance market potential could be between $90 billion and $96 billion.

Source: **World Bank**

HighCastle was founded as a result of the increased demand in sourcing alternative investments. HighCastle is an online marketplace for private securities and other alternative investments. HighCastle enables investors to make investments into private companies, hedge funds, property and variety of other investment vehicles. HighCastle sources these opportunities from investment banks, crowdfunding platforms and other trusted channels.

HighCastle had already been known as a successful investment firm, when most of ICO-fundraising companies was just created. Since its launch, HighCastle has started offering a wide range of investment products to professional investors globally and serve companies who are seeking equity and debt financing. Our mission at HighCastle is to make investing in securities easy, understandable and accessible for everyone, anywhere.

Market Segments:
Property Crowdfunding, Equity-based Crowdfunding, Loan-based Crowdfunding, Reward Crowdfunding, Business Lending, Real Estate Lending, Wrap platforms, Trading Platforms, Currency Exchange Platforms, Portfolio Management Companies, Investment Banks, Stock Exchange.

The innovative technology behind ICO does not exempt securities offerings and trading platforms from the regulatory framework designed to protect investors and the integrity of the markets.

Since 2017, HighCastle has been building a regulated, blockchain-powered multilateral trading facility to sell tokenized, compliant securities, and it even applied for Financial Conduct Authority Regulatory Sandbox last July.

A multilateral trading facility (MTF) is a European regulatory term for a self-regulated financial trading venue. These are alternatives to the traditional stock exchanges where a market is made in securities, typically using electronic systems. The United States equivalent is an alternative trading system.

MARKET

THE ALT FINANCE UNIVERSE

In this section we'll define exactly what we mean by alternative finance and identify the sub-sectors that sit underneath this umbrella term, and then after a brief run through the history of the sector we'll give you some stats to show you where it's at today and who's investing.

MARKET

GLOSSARY OF TERMS

Alternative Finance (Alt Fi)	Form of financial service that differs from mainstream equity and debt in the sense that the services are provided outside traditional banks.
Alternative Investment Market (AIM)	Alternative Investment Market (AIM) A sub-sector of the London Stock Exchange that lists shares of smaller companies with more flexible regulatory requirements
Business Property Relief (BPR)	A relief from inheritance tax on qualifying business assets between the rates of 50-100%.
Crowdfunding (CGT)	The practice of funding a project or venture by a large group of individuals. Typically does not require a large amount of capital to be invested.
Enterprise Investment Schemes (EIS)	A series of UK tax reliefs originating in 1994 with the aim to encourage investments in small unquoted companies in the UK.
Financial conduct Authority (FCA)	The financial regulatory body in the UK that operates independently of the government.
Her Majesty's Revenue and Customs (HMRC)	A non-ministerial department of the UK Government responsible for the collection of taxes, the payment of some forms of state support, and the administration of other regulatory regimes including the national minimum wage.
High Net Worth Investors (HNW)	Investors with over £200k in investable assets or an annual income in excess of £100k per annum.
ICAP Securities and Derivatives Exchange (ISDX)	An independent stock exchange in the UK that lists smaller and growing companies.
Individual Savings Account (ISA)	A retail investment scheme which enables individuals to hold cash, shares and unit trusts with tax free growth.
Mini-Bond	A debt instrument issued by smaller companies that pays the lender interest and principal upon maturity.

MARKET

Open-Ended Investment Companies (OEICs)	A type of open-ended collective investment scheme with a reasonable expectation of liquidity.
Peer-to-Peer Finance Association	Represents a large majority of the alternative financial services market in the UK including peer-to-peer lending to consumers as well as invoice financing.
Peer-to-Peer Lending	The practice lending of money to individuals or businesses without the use of a traditional financial intermediary. Includes peer-to-consumer lending, peer-to-business lending and invoice financing.
Net asset value (NAV)	The value of an asset after deduction of any liabilities.
Professional Indemnity Insurance (PI)	PI covers costs and expenses incurred in your legal defence, as well as any costs that may be awarded, if you are alleged to have provided inadequate advice, services or designs that cause your client to lose money.
Seed Enterprise Investment Scheme (SEIS)	A series of UK tax reliefs launched in 2012 to encourage investors to finance high-risk startups. Different from EIS due to the amount of tax relief received from investing.
Self-Invested Personal Pension / Small Self-Administered Scheme (SIPP/SSAS)	UK government-approved personal pension schemes that enables individuals to make independent investment decisions.
Small and Medium-Sized Enterprise (SME)	A company with fewer than 500 employees and an annual turnover of less than £100 million.
United Kingdom Crowdfunding Association (UKCFA)	An association that promotes crowdfunding for UK businesses, projects and ventures.

WHAT IS ALTERNATIVE FINANCE?

Alternative finance is an umbrella term that covers a range of very different models for deploying capital to people who need it. The distinctions between these models are important and we'll cover them in more detail later on in this whitepaper, but the majority share four important features:

01 The platform operators are 'digital' businesses - their model is web-based

02 They are not banks or other traditional financial services institution

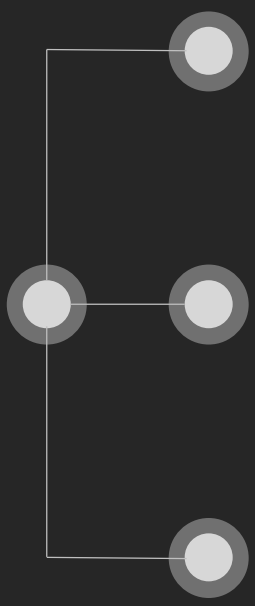
03 They leverage the scale of online platforms to secure lots of lenders and investors at low cost

04 They are not investors themselves - they help their members invest their own money

MARKET

BREAKING DOWN ALT FINANCE

Right at the top, there is a clear distinction between platforms who are facilitating lending, and those that are facilitating investment in equity. Lending activity is referred to as peer-to-peer lending (P2P) or marketplace lending, and can be broken down into peer-to-business, peer-to-consumer and invoice financing. Equity fundraising is referred to as crowdfunding and includes a sub sector that issues debt based securities as well as company shares. Unhelpfully, the FCA used different terminology in its policy statement on alternative finance PS14/04. It had crowdfunding as its umbrella term, and classified the market into loan based crowdfunding and investment based crowdfunding. The term marketplace lender needs explaining. It's used interchangeably with peer-to-peer lending and has been a more US-centric term because the market there has a much heavier weighting to institutions rather than individuals. With more institutional money now coming into the UK alternative finance industry, more and more platforms are referring to themselves as marketplace lenders. This is probably a good development as the term peer-to-peer lending implies something different to what is actually happening on lending platforms where institutions are also playing. An even more nuanced definition would be:

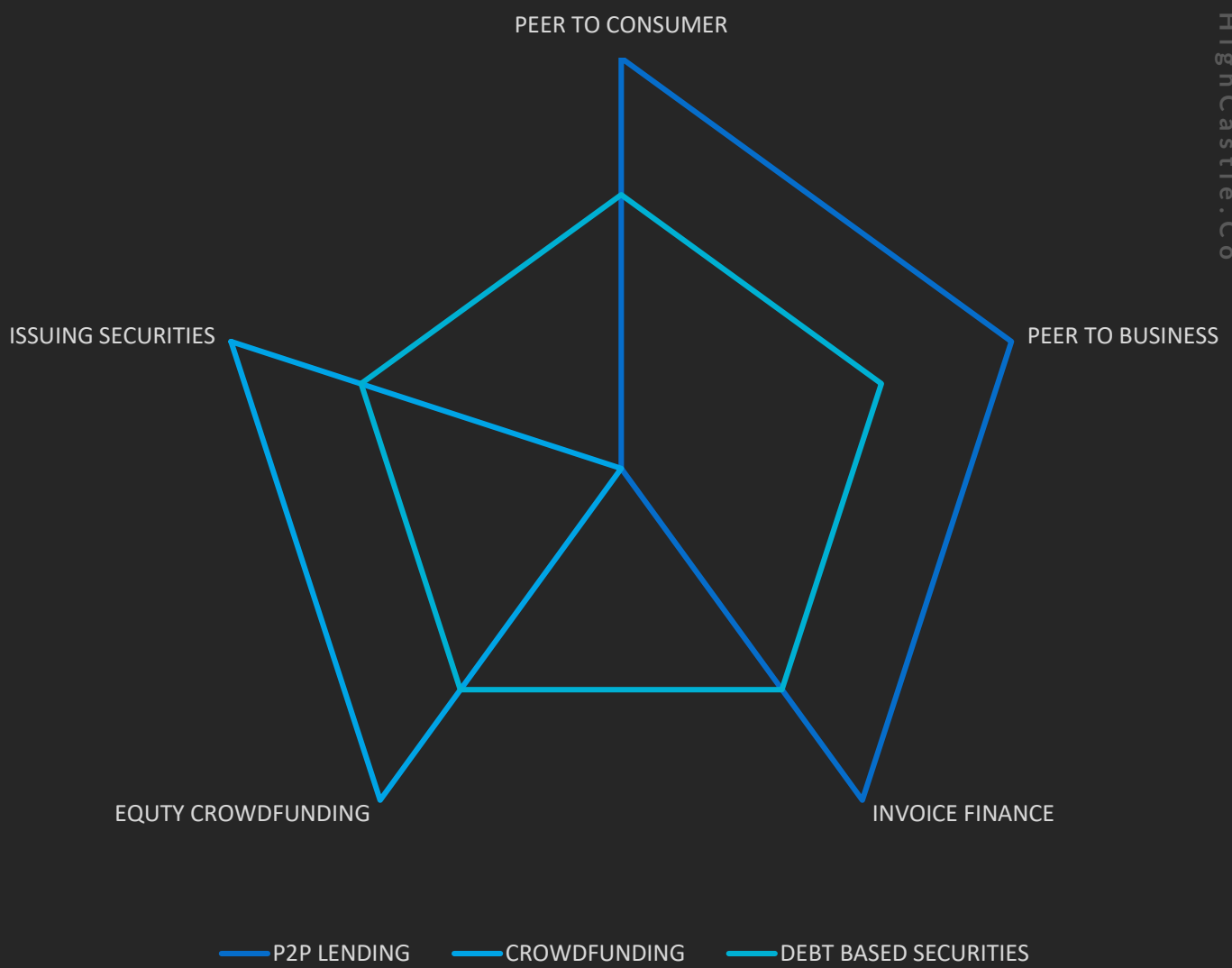


Peer-to-peer lending: consumers and institutions are the lenders

Marketplace lending: institutions are the lenders

Balance sheet lending: the platform is the lender

So it’s important to understand exactly what the platforms do: most do not take on the risk of the loans or equity investments themselves. They originate deals for either retail consumers or institutions, or both. They have a variety of ways of doing this, which we will examine later in the report. Very few lend their own money, but this might change in the future – if inflows from lenders slow down (as they must do eventually), platforms might need the capability to lend their own (or more likely, their owners') money. And the lending platforms are not banks. The platforms undertake some of the activities that have traditionally been the sole preserve of banks, but that’s as far as it goes. Any marketing that suggests they are an alternative to banks (from the lender's point of view) needs examining carefully.



WHAT ARE THE MOTIVATIONS OF THE PLATFORMS?

The platforms' motivations range from a genuine desire to give a better deal to consumers, to giving a better deal to SMEs and early stage companies, to trying to plug a funding gap in a particular sector. (But don't doubt that there are some "me too" opportunists in there as well now that the sector is starting to take off).

GETTING A BETTER DEAL FOR CONSUMERS?

From the consumers' point of view, they have never had access to markets where interest rates are set, or access to affordable opportunities to invest in early stage companies before. To access the yield from issuing credit they had to accept an asymmetric relationship that favoured their bank. And to invest large sums they had to go through expensive fund managers to access the potential returns from investing in early stage companies. Now this report isn't an anti-bank/ anti-fund management polemic: both of those conventional ways of accessing these asset classes have great advantages, and we'll highlight the differences between them and the new world of alternative finance in the risks section later on. But the alternative finance industry has been able to democratise finance and open up asset classes to retail investors. This is important. Whatever other weaknesses there might be with alternative finance models, and whatever headwinds and occasional storms will have to be overcome in the future; this is a fundamental change for the better and should be supported by the regulator and government, applauded by consumers and carefully noted by incumbents.

TAKING ON THE BANKS?

It's also worth pointing out that despite some of the "anti-bank" rhetoric the sector dispenses, the more mature platforms are not anti-bank. They understand that there are important differences in the risks to the lender (the risk is WITH the lender, NOT the bank) and their objective is only to offer an alternative asset class for consumers, not to somehow replace banks. Alternative finance doesn't disintermediate the banks: all of the money stays within the banking system one way or another. What peer-to-peer lending does do is compete with banks' lending departments. In the equity crowdfunding space the platforms are usually looking at smaller deals than conventional venture capital funds. If they are competing with anybody for deals, it is with angel investors. However, the lending and investing parts of financial services feel like an industry that is ripe for disruption:

Fewer than 1 in 3 customers trust their bank (PWC)

UK retail investors pay nearly 60% more for their investments than in the US (True & Fair)

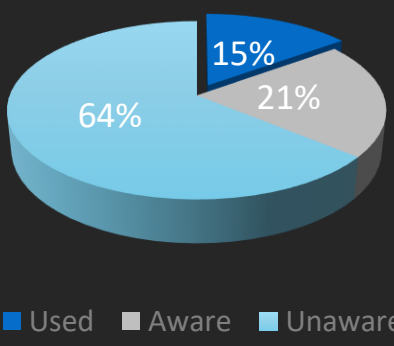
Despite computerisation and colossal economies of scale the cost of intermediation in finance has remained the same for the last 130 years (Thomas Philippon, Professor of Finance at the Stern School of Business).

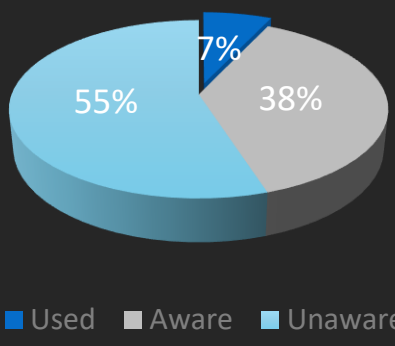
So while alternative finance does compete with incumbent lending and investing institutions what it is doing is bringing about fundamental changes in how consumers can access markets -but we don't buy any anti-bank/anti fund management rhetoric. Rightly or wrongly, Barclays and HSBC are not about to go the same way as HMV and Our Price because of digital disruption...

PLUGGING THE FUNDING GAP?

The government estimates that there is a £1 billion annual funding gap for SMEs that needs to be plugged. This is significant for the UK: at the start of 2014, small firms accounted for 99.3% of all private sector businesses, 47.8% of private sector employment and 33.2% of private sector turnover. Small and medium sized businesses employed 15.2 million people and had a combined turnover of £1.6 trillion. (Federation of Small Business). Unlocking the growth potential of this sector will have a big positive impact on the UK's economy. But banks and investment funds don't really want to step in and plug this gap. The British Business Bank estimates that 500,000 SMEs are deterred or declined for finance every year.

AWARENESS OF MARKETPLACE PLATFORMS





Awareness of marketplace platforms is higher in the UK, but usage lags vs. the US; partnerships are a key opportunity to increase awareness

Source: **Morgan Stanley Research**

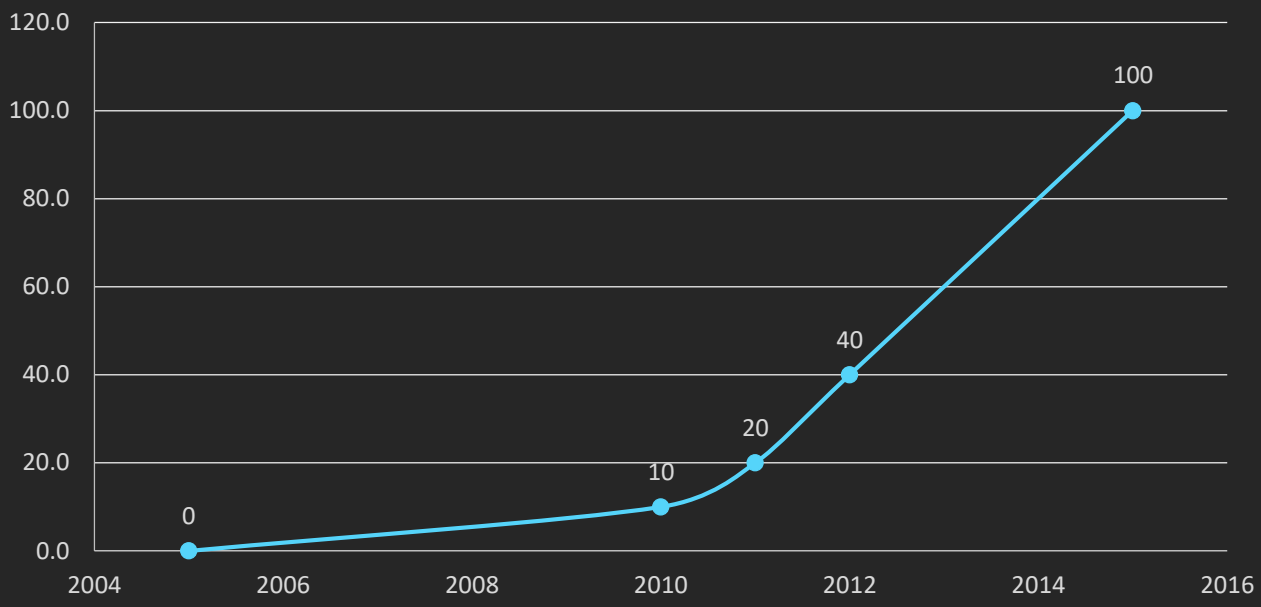
MARKET

OVERVIEW OF ALT FINANCE

Since the financial crisis in 2008, banks have been reluctant to lend as they try and repair their balance sheets and regulation has also played its part. The Basel Accord requires banks to hold significant amounts of capital against risky assets, and lending to small firms is hard work - large firms take bigger sums of money for longer periods of time and have more assets to secure loans against, making them much more "lendable". Similarly, in the venture capital world, funds are usually looking to make bigger investments of at least £3 million plus. All of this leaves an underserved market of SMEs that alternative finance providers can step in and provide either credit or equity funding to. By using technology to drive their overheads and costs per loan down, alternative investment providers are better able to serve this market. Finally, it's worth mentioning speed here. From the investee companies' point of view, whether they are selling equity or borrowing money, the platforms can offer a much swifter solution than traditional sources - a timing issue which can be the difference between success and failure for some small businesses.

It's important not to get too carried away with the "newness" of alternative finance, or promises of disruption to the incumbent financial services industry. Facilitating the efficient allocation of capital is about as old as capitalism itself, and raising money from "the crowd" goes back at least to medieval cathedrals. Of course the online element is new, but even that has been traced back to the British rock group Marillion, who raised £40,000 online to fund a tour back in 1997. So the concepts behind alternative finance are not brand new. The first peer-to-peer lending platform was Zopa, founded in 2005 - which makes it the only alternative finance provider to have operated throughout (or almost throughout) the entire business cycle. Funding Circle launched in 2010 and was the UK's first peer-to-business lending platform, and RateSetter, the first peer-to-peer lender to use a contingency fund to protect investors, also launched in 2010. These are not only the originals; they are also currently the biggest players in the UK alternative finance market. Crowdcube is widely recognised as the first crowdfunding platform, launching in 2011 and MarketInvoice, the first invoice trading platform, launched the same year.

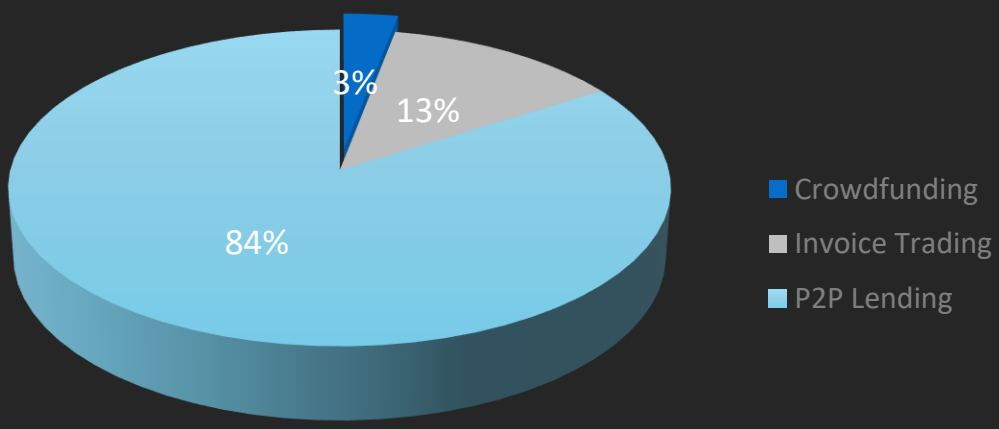
THE "EXCITEMENT" PHASE: 2008 - 2014



The two biggest drivers behind the growth of the alternative finance market were probably 'Web 2.0' and the financial market crash of 2008. Web 2.0, along with the widespread adoption of broadband by households, got people used to the idea of forming online communities, researching and pursuing their own interests and doing much more than ever before online. The 2008 crash prompted a search for new asset classes as investors became disillusioned with the volatility of the stock market, "bankers" and the culture of "the city". It was seemingly in this spirit - using the web to reach out to people and form communities and invest money in a more democratic or impactful way - that lots of new alternative finance platforms launched. Of course they all had the objective of making money as well, and how much they have remained in keeping with this grassroots feeling is a matter for debate, but there is no doubt that the rapid expansion of the sector has its roots in this period 2008 - 2014. According to our research, the number of alternative finance platforms grew from 4 to 94 from 2008-2014 (2,250% growth!) and at the time of writing the number has settled at 102 platforms. During this period of rapid growth we started to see the explosion in the number of different innovations and business models as platforms innovated and looked to carve out specialist niches or unique selling propositions in the new asset class.

THE “EXECUTION” PHASE: ALTERNATIVE FINANCE TODAY

The "excitement" phase is probably over and we are now entering the "execution" phase as the industry matures and starts to enter the mainstream. We’ve identified 88 platforms currently operating in the UK now and according to AltFi Data over £4.8 billion of loans and investments have been originated to date.



UNITED KINGDOM

We see the UK as the most compelling marketplace lending opportunity in Europe, with small business and consumer lending together representing a total addressable market of ~£100 billion.
We expect increasing institutional flows and supportive policies to supercharge growth in the coming years toward ~£15 billion of annual origination by 2020 vs. ~£1.3 billion in 2014.

A fast-growing market set for the supercharge of institutional money

Source: **Morgan Stanley Research**

Increasing institutional flows

▲ 900%

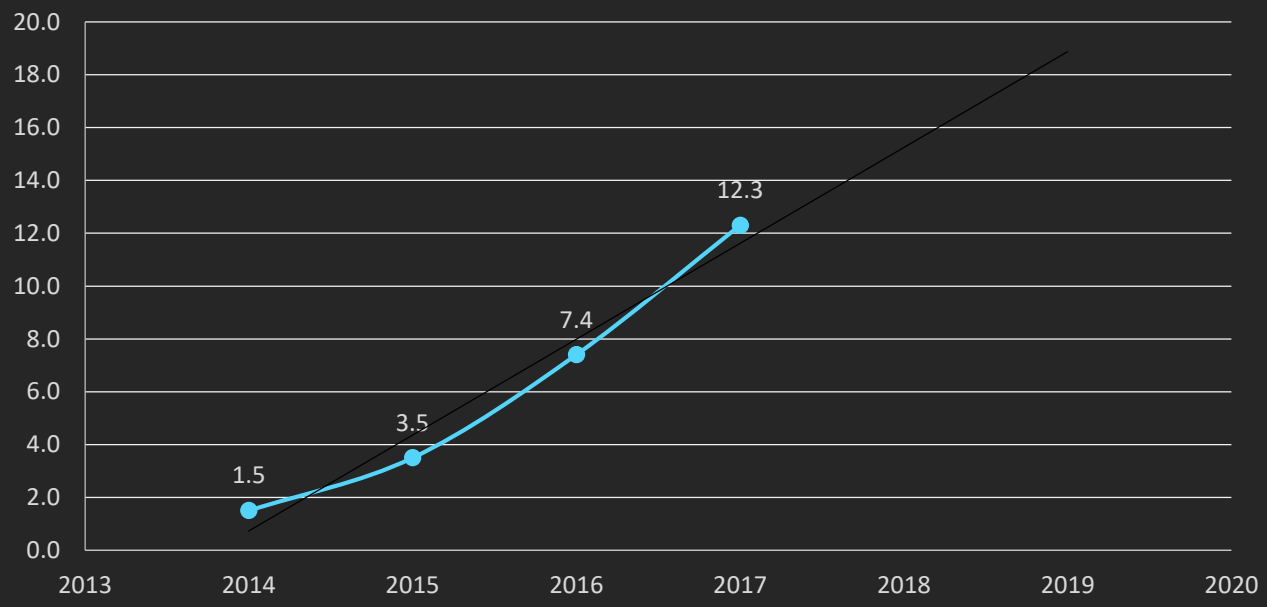
SINCE 2014 BY 2020

▲ 15 BLN

£, BY 2020

UNITED KINGDOM

Source: **Morgan Stanley Research**



The UK platforms are currently skewed toward retail funding (our sense is that ~75% of funding is retail at this stage), but we expect this to shift toward institutional funding over time as the UK platforms look to grow volumes more rapidly than a fully retail-funded model allows for. Institutional funding started to flow into UK platforms in 2014, with the British Business Bank channelling funding into SME lending in early 2014.

The regulatory and political environment is supportive of challenger lenders in the UK, including marketplace lending platforms. The marketplace lending sector has a single regulator, the Financial Conduct Authority (FCA), which provides a relatively simple landscape for marketplace lenders compared to the patchwork of regulation in the US. P2P platforms in the UK are required to meet minimum operating capital requirements, observe client money requirements, and follow a disclosure-based regime.

MILLENNIAL'S AWARENESS AND USE

Our survey shows Millennials have high awareness of P2P and favour fast, convenient, and low rate consumer credit solutions

30%
USED

52%
ANAWARE

18%
AWARE

Source: **Morgan Stanley Research**


GDAX
AVAILABLE BALANCE
ORDER BOOK
PRICE CHART
TRADE HISTORY
PLACE BUY ORDER
279.72

PRODUCT

PRODUCT

THE PROBLEM

There are hundreds of crowdinvesting and crowdlending platforms in the world

Only 2 from them have equity secondary market, so for investors there is no possibility to sell their investments, no liquidity

All investment platforms work in their own niche. So investor who wants to diversify his portfolio needs to have many accounts across different platforms and needs to switch between them

Only one from them accept cryptocurrency as payment method so coins holders are staying out board

Many of the worldwide investment platforms do not provide due diligence or fact-based scoring of the investment offers

Many of the worldwide investment platforms do not provide due diligence or fact-based scoring of the investment offers

Fundraising process for businesses is very long, expensive and painful. From 2-6 months on crowdinvesting platforms up to 2-3 years on the stock exchange (eg London Stock Exchange)

PRODUCT

THE SOLUTION

For investors

The minimum investment is $50

A wide range of investment opportunities around the globe aggregated from trusted partners (equities, bonds, loans, properties, funds and digital gold)

All transactions at HighCastle primary and secondary markets are recorded on the blockchain, making investing and trading fast, transparent, and secure

Investments are tokenized. Each digital token represents its owner's rights in an investment

Secondary market infrastructure for liquidity of you private securities

For entrepreneurs

A special automatic application process to create standardized comprehensive campaign profile for raising funds. Investment opportunities goes live in hours, not months

One-stop-shop solution to raise funds: Equity, Debt, Rewards, ICO, CrowdSales

Investment structure, that make secondary market for private securities possible

Issue of legal, securities-backed tradeable digital tokens that represent stocks, bonds, properties, securities, precious metals, commodities, goods

INVESTMENT PROCESS

REGISTER

Simply register using your Twitter, Facebook or LinkedIn

DISCOVER

Choose one or more investments from our database

VERIFY YOURSELF

This is a simple process that will often be completed in the background

TRADE

Buy and sell your investments

INVEST

Now you're good to go. Start grow and multiply your capital with HighCastle

PRODUCT

COMPETITIVE ADVANTAGES

PORTFOLIO DIVERSIFICATION

Global investment opportunities in one place: equity, lending and reward-based from all industries

BLOCKCHAIN-BASED INFRASTRUCTURE

Primary market for private placement, securities issue, secondary market for shares, bonds, properties, funds and digitalised gold

TOKENISED INVESTMENTS

All transactions at HighCastle primary and secondary markets are recorded on the blockchain, making investing and trading fast, transparent, and secure

FCA-REGULATED ICO

HighCastle issues its own tokenised securities which represents underlined asset such as stocks, bonds, loans, other tokens, commodities

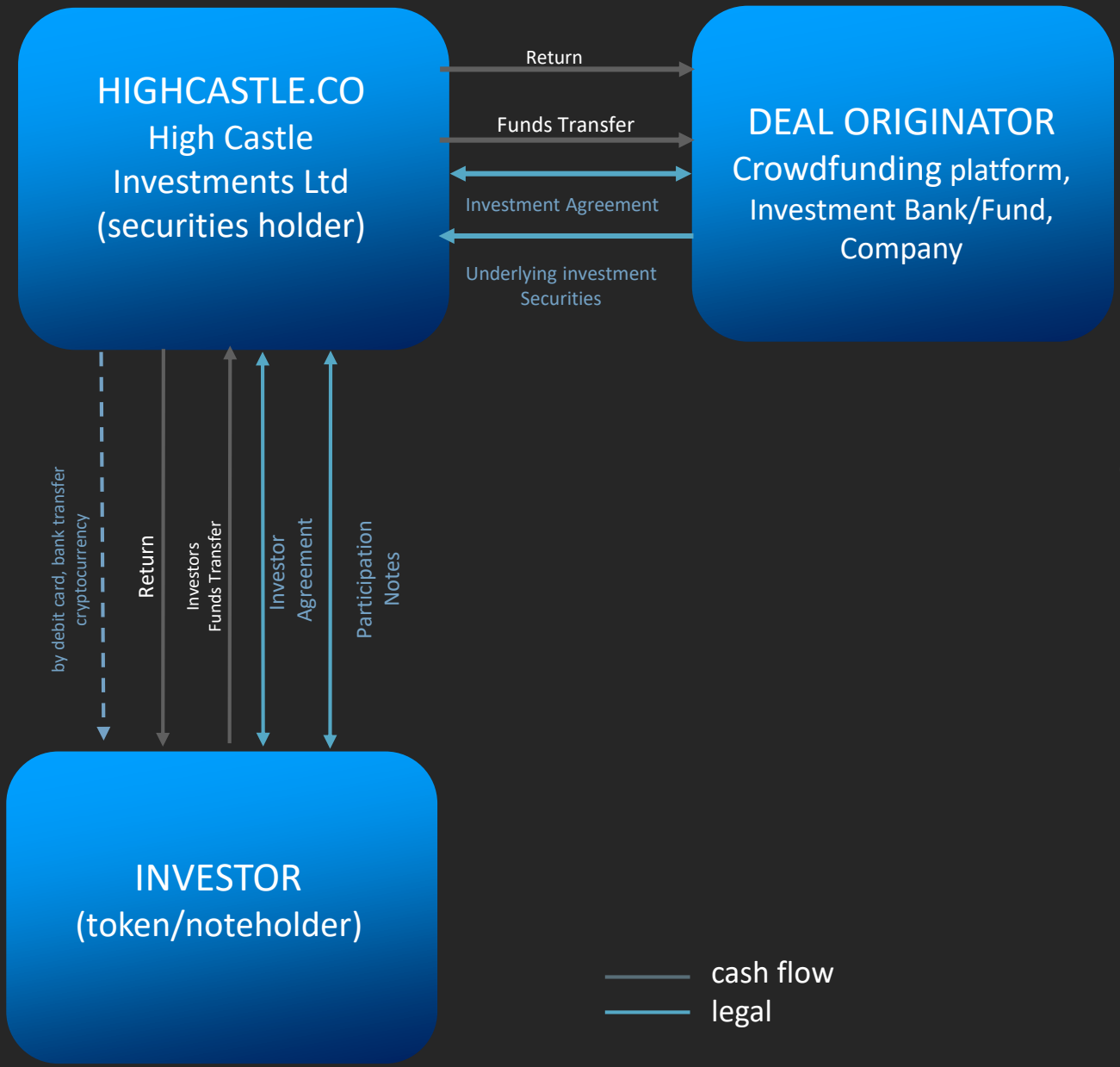
SMART AUTOMATION

FinTech company with 70% of work covered we do by use of chat-bots, AI and programmable algorithms

GLOBAL MULTI-CURRENCY FUNDING

HighCastle accept both fiat and crypto currency as payment method worldwide

DEALING PROCESS



PROOF OF CONCEPT: LendingClub 2.582B market cap P2P lending platform has the same legal structuring of deals through securities-backed derivative notes issue

PRODUCT

BUSINESS MODEL

Current fees

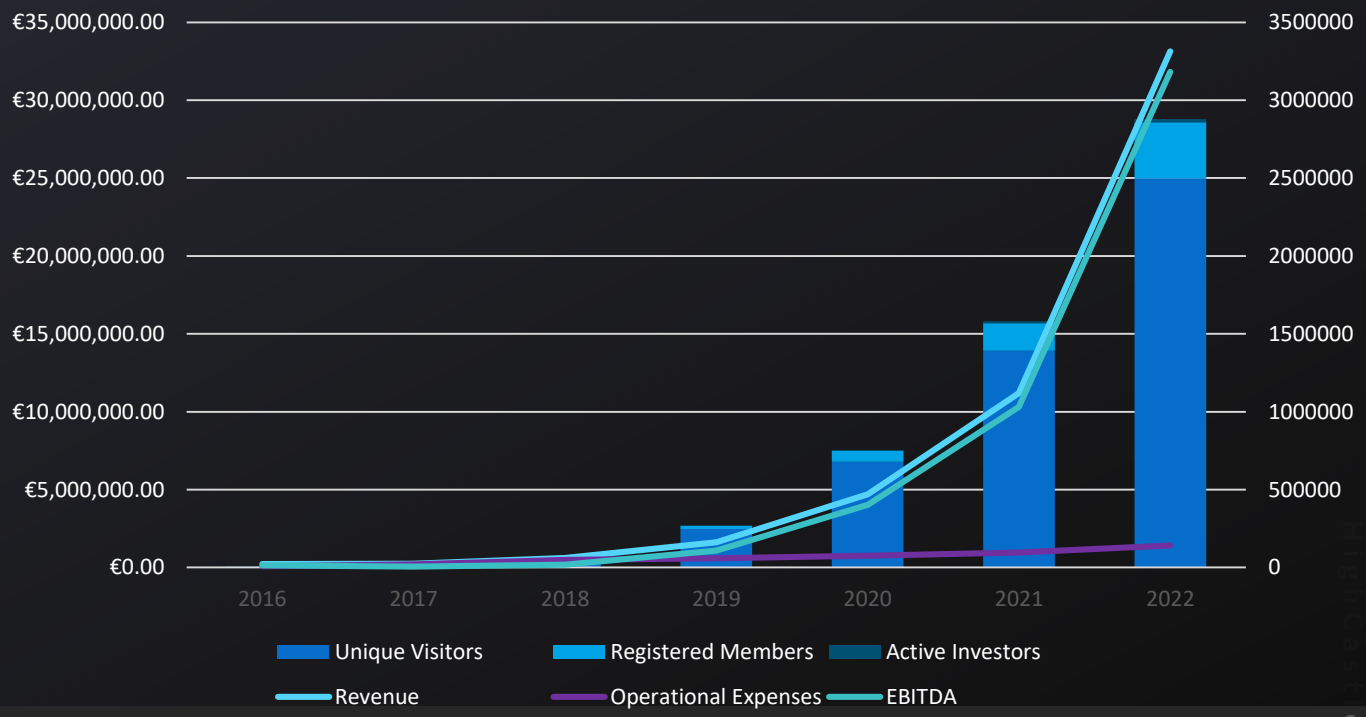
- 3 to 10% success fee of funds raised, depending on fundraising type and volume.
- One-off 1% aggregation management fee on investor’s initial investment
- 5% holding fee on investor`s dividends, interests and other cash returns
- Consultancy referral fee 10% accordingly to Partnership Program
- $1999 monthly fee for premium services for campaign success

Future fees

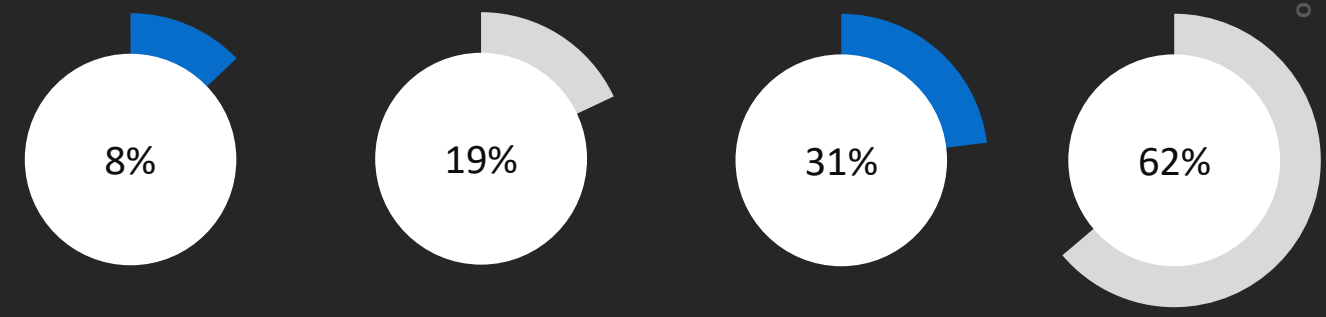
- Platform trading fee on buy/sell investments
- Platform currency/token exchange fee
- Premium membership/VIP offerings
- Additional services and products
- Franchise Program
- Listing fee

YEARLY TARGET

TOTAL REVENUE PER STREAM



Sales Channels



AUTHORIZED ADVISERS

AMBASSADORS

INTERNET

SALES- BOTS

HighCastle Market Share Goals

Aggregation of 50% crowdfunding market, 20% share in private placement market and 30% private securities secondary market share by 2022

ROADMAP

LEGAL AUTHORIZATION AND UX

- Securities primary market UX improvements: filters, investment opportunities subscription, sale-bots, targeting and customized offering tools, crypto-fiat currencies automatic exchange for instant crypto investments into any private placement offering worldwide
- Launch of the UK-regulated secondary market and blockchain-based securities trading infrastructure (at this stage FCA-authorization obtained)
- Extension of HighCastle team for further aggregation of the third-party platforms projects to reach 500K active investment opportunities offered at the primary market and 2M projects profiles (closed campaigns) available for resale

3Q 2018

MARKETING AND EXPANSION

- Extension of marketing budget, sales and marketing team to triple growth rate
- Launch of HighCastle US and HighCastle Asia with full legal framework
- Opening of 5 offices in worldwide financial centers to extend partnership with investors in the region and increase attractiveness of the HighCastle marketplace

4Q 2018

PRIDUCTS, MTF TRANSFORMATION

- Launch of tokenized government bonds offering
- Launch the HighCastle's Projects Automated Due Diligence and Scoring Module
- Transformation into Multilateral Trading Facility (MTF) under MIFID II legal framework with capital requirement and extended compliance

1Q 2019

ADVISORY AND FUND LICENSING

- Provide investors with a complete set of Portfolio Management Modules: • Price Feed Modules • Risk Management • Accounts and portfolio aggregation & mapping with tools for direct Tax Reliefs compliance • AI-based portfolio customization and advise
- Launch of investment advisory division with obtained additional FCA license
- Extensive marketing and geographic scaling
- Launching HighCastle Fund

3Q 2019

TECHNOLOGIES

TECHNOLOGIES

THE ARRIVAL OF DLT

DLT is a relatively recent advancement that has received increasing amounts of industry, media, political and other stakeholder attention in recent years. It combines various existing tools such as shared databases, cryptography and peer-to-peer networking to offer firms the ability to share data efficiently and securely. Technology companies seeking to provide DLT-based solutions have grown sharply in number and size, and regulated firms have invested increasing resources in using this technology to provide financial services. Industry efforts to investigate DLT have become especially concentrated in the last 24 months, and in the second half of 2017 into 2018 we expect to see more movement from 'Proof of Concept' to 'real-world' deployments.

TECHNOLOGIES

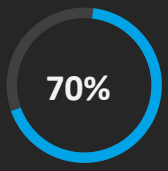
KEY TERMS

While there is no formal definition of DLT, it can be described as a set of technological solutions that enables a single, sequenced, standardised and cryptographically-secured record of activity to be safely distributed to, and acted upon by, a network of varied participants. This record could contain for example, transactions, asset holdings or identity data. This contrasts with a traditional centralised ledger system, owned and operated by a single trusted entity. We consider a blockchain to be a type of DLT where records are collated into “blocks” and linked using a cryptographic signature.

TECHNOLOGIES

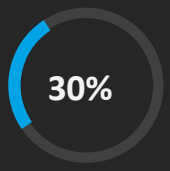
CONCEPTS

• ’Public/private keys’: a type of encryption involving an identifier code which is known to others (the public key) and a code known only to the user (the private key). On the presentation of the public and private keys, users can for example be given certain rights to distribute or receive data.
• ’Nodes’: participants on a distributed ledger. Different nodes may have different rights to read, write and/or delete data.
• ’Miners’: this is a participant on a distributed ledger that adds new records by solving a cryptographic puzzle and is rewarded in the protocol’s digital currency.
• ’Public’ DLT networks: these are networks where all users of the network can see records being added or changed. The opposite, ’private’ DLT networks, are those where visibility is restricted to a subset of users.
• ’Unpermissioned / permissionless’ DLT networks: these are networks where anyone is allowed to validate and add new records to the existing set of records. The opposite, ’permissioned’ DLT networks, are those where only users with specific rights are allowed to do this.



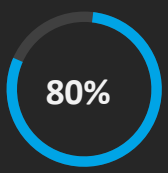
Public DLT networks

all users of the network can see records being added or changed



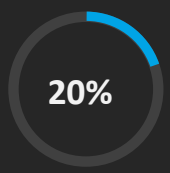
Private DLT networks

visibility is restricted to a subset of users



Unpermissioned nets

anyone is allowed to validate and add new records to the existing set of records



Permissioned nets

only users with specific rights are allowed to do this

TECHNOLOGIES

REGULATORY REPORTING

The ability to make data easily available using DLT also has potential applications for regulatory reporting requirements. This is a key area of our research into RegTech, a sub-set of FinTech that focuses on technologies that may facilitate the delivery of regulatory requirements more efficiently and effectively than existing capabilities.

Regulatory reporting requirements apply in different ways depending on the financial activity being carried out. However, the obligations to report on time and accurately are features common to all of them. Complying with these obligations in a cost-effective manner can be challenging for firms as it often involves the interaction of multiple systems, some of which are legacy and others new.

We expect that implementing a DLT solution to perform regulatory reporting would carry similar challenges and risks as implementing any other new solution. For example, managing the interface between a 'front-office' system which accepts orders and a DLT regulatory reporting system. In certain situations, this use case for DLT might enable a report to be generated at the same time as an order is placed. This might help firms to mitigate the potential operational risk of multiple legacy systems interacting with each other. However, it remains an open question whether firms would be willing to commit the significant capital which would be necessary to implement such a solution. Additionally, firms will need to be clear on the advantages of a DLT-based system in this use case over other technologies.

TECHNOLOGIES

DLT NETWORKS OF REGULATED FIRMS

Since the arrival of DLT, we have seen market participants making large shifts towards close collaboration and using shared networks which they collectively manage. Consortia such as R3 CEV or B3i are good examples of this.6 One possible reason for this is that only recently has technology as a whole made sufficient advances in computation, storage and messaging speed such that a large-scale (i.e. multi-firm) DDBMS such as DLT has become feasible.

Various potential benefits may also be gained where there are large groups or networks of firms, each of which use the same information. A good example of this is customer due diligence or AML checking, which often come under the term 'know your customer'. Firms currently operate on a spectrum between (i) performing all such checks themselves, and (ii) outsourcing these checks to a third party. This means that firms operate in silos and it can be challenging to track criminal activity from a transaction's origin to its destination.

Multiple firms operating on a DLT network could enable more effective transaction monitoring. The ability of DLT to replace paper trails with easily-auditable, digital ones may facilitate compliance with rules seeking to mitigate financial crime. The Money Laundering Regulations 2007 require firms to apply policies and procedures to minimise their money laundering risk. These include keeping records of customer identity and transactions, which must be promptly accessible. Currently, tracing criminal activity where transactions are routed through multiple accounts across different providers is very challenging. In a scenario where a customer is assigned an identity on a DLT network (using a public key or another mechanism), information about that customer's transactions could potentially be more easily traced, resulting in a reduction in financial crime and costs of AML compliance.

TECHNOLOGIES

DLT NETWORKS OF REGULATED FIRMS

Of course, such a solution would require network adoption by a number of firms to be effective. This represents one of the biggest hurdles to implementing a DLT solution in the money laundering space. Historically, regulated firms have been hesitant to outsource or share their AML responsibilities with third parties, including other regulated firms. How and whether DLT solutions will change remains to be seen.

TECHNOLOGIES

RECORDKEEPING & AUDITABILITY

Keeping accurate records is fundamental to the operation of financial services. These records can constitute amounts owed, identity or cover held and are used both in day-to-day operations and in the event of a firm's insolvency. Their accuracy is vital to our market integrity and consumer protection objectives and we, therefore, require firms to comply with a variety of rules regarding recordkeeping. These rules sometimes require firms, for example, to reconcile their records with a third party's copy (e.g. our custody rules and client money rules in CASS) and to maintain a robust audit trail (e.g. the Money Laundering Regulations, examples of which are in the previous section). Additionally, regulated firms must ensure they have adequate systems, governance and controls in place to carry out their business.

Currently, some firms in various sectors are heavily reliant on manual, paper-based processes which might interact with different legacy systems for record. These processes and systems sometimes involve multiple parties, which can be costly. They can also carry higher risks of inaccuracy and of data loss. DLT offers the ability to aggregate and verify data from multiple sources and offer a shared view of the same record. It, therefore, has the potential to reduce discrepancies and costs substantially. For example, when risks are written in the London insurance subscription market there is currently a heavy reliance on paper-based contracts and a manual exchange of risk data. This requires significant reconciliation, governance and audit processes which introduce both administrative costs and uncertainty. If subscription contracts were transacted using DLT, it might be that greater trust could be placed in the system leading to lower costs and more competitive premiums for policyholders.

TECHNOLOGIES

RECORDKEEPING & AUDITABILITY

One of the purported advantages of DLT is its ability to assign a record to a customer's identity (e.g. of a transaction or investment) at a very granular level of detail and keep this detail throughout that record's lifecycle. For example, when investing in an authorised collective investment scheme (UCITS), a consumer might instruct an independent financial adviser, who purchases a fund on that consumer's behalf through a platform, who in turn uses an order management system to place orders with the UCITS fund manager who then purchases investments in the market. The fund manager might use third party transfer agents to aggregate orders and registrars/custodians to maintain and reconcile its client records.

In this scenario, potentially every time the record (e.g. the customer order or fund unit) changes hands, its format has to be updated to reflect the system of the record's holder. Additionally, sales of authorised funds may be aggregated at platform level; with the effect that granularity of beneficial ownership is lost. As with the insurance example above, the exchange of paper-based documentation in this process can also introduce certain risks.

DLT might offer the ability to represent or create proof of ownership when the customer places an order at both the consumer level and at the fund level simultaneously, effectively bringing the consumer closer to the point of origin of the financial product. From a fund perspective, this gives them a more transparent view of who owns how much and reduces some levels of intermediation and hence cost through its distribution network. This might make it easier to provide 'direct to consumer' (or D2C) financial services if that option is desirable. From a consumer perspective, this might result in lower costs.

TECHNOLOGIES

RECORDKEEPING & AUDITABILITY

Another area where enhanced granularity of ownership may benefit consumers is in securities investments. Shares in particular normally carry voting rights and rights to dividends. Auditable, transparent and fully verifiable electronic election DLT platforms are already commercially available, and may augment or replace the existing process in soliciting a proxy vote for exercise of shareholder rights. Furthermore, this technology could potentially work to empower investors as it could reduce the use of a tiered holding system, such as through nominee firms, and make it easier for the investor's name to be directly registered on the securities.

Another common DLT use case is to manage the validation and storage of documents. Documents are typically 'hashed' – a cryptographic technique to generate a unique code to represent that document which keeps the contents of that document confidential. These codes are then used to verify that a certain document exists and has not been tampered with. This may, therefore, allow regulated firms to identify fraudulent documents more easily. The ability to easily compare the cryptographic hashes of documents communicated via DLT may also improve the ability to detect organised crime where criminals use multiple regulated firms' services. This could reduce the costs of fraud in financial services and lead to lower costs for consumers over time.

TECHNOLOGIES

SMART CONTRACTS

DLT can facilitate greater levels of automation through so-called ‘smart contracts’, a phrase which pre-dates the Bitcoin network by over a decade and relates chiefly to executing terms of legal contracts digitally. Ethereum, another public, unpermissioned DLT protocol enabled more complex automation on blockchain than possible with the Bitcoin protocol. In his White Paper, Vitalik Buterin (Ethereum’s founder and CEO) defined smart contracts as ‘systems which automatically move digital assets according to arbitrary pre-specified rules’.8 There are now multiple definitions being used, the broadest of which use the term ‘smart contracts’ to refer to any sort of automation on blockchain. We define smart contracts for the purposes of this WP as ’blockchain functionality to execute pre-determined commands without further human intervention’.

The industry’s commentary on the benefits of automation focus mainly on the improved efficiencies in firms’ back offices and this is where we see the most immediate potential short term benefits. This is particularly the case in situations where participants not only have to see a record but act upon it. Currently, some sectors of industry operate on the basis of legacy, manual technology such as facsimile and paper-based documentation in order to execute certain contractual rights and obligations. Not only is this prone to error, fraud and loss but also comes with significant cost. Even where firms do not employ this technology, some firms circulate spreadsheets of information by email for human verification (e.g. derivatives margin requirements) which are also prone to manual error.

TECHNOLOGIES

SMART CONTRACTS

These challenges have persisted in the industry for some time and it is unclear how smart contracts on DLT constitute a significant improvement on currently available systems. Arguably, the execution of commands conditionally on an event occurring pre-dates DLT and there are a wide range of vendor offerings which automate certain practices such as collateral management. Firms will, therefore, have to assess carefully their options in selecting the right product to automate their systems, whether it involves DLT or not.

Firms will also need to consider carefully if full automation is appropriate. For example, some commentators have claimed that DLT could significantly impact post trade infrastructure as it can reduce the settlement cycle for cash equities from a standard settlement cycle of T+2 to a cycle of near instantaneous settlement. Participants argue that in such circumstances the need to clear these cash markets is removed. Firms have informed us that potentially, because of the near real-time way that DLT updates, reconciliations may not be necessary. However, this speed of settlement (i.e. the transfer of title of a property) may not always be the market preference, particularly if there are other aspects of trading (e.g. collateral management) which are not part of the system.

TECHNOLOGIES

THE USE OF DIGITAL CURRENCIES TO DELIVER FINANCIAL SERVICES

We have seen that public DLT networks, such as those underpinning Bitcoin or Ethereum, can be used in ways other than for trading digital currencies. However, the use of digital currencies is the most widespread activity currently being carried out using DLT.

Since the release of the first version of Bitcoin in 2009, a variety of applications have been built on top of the Bitcoin network to enable people to keep and trade Bitcoin for services or to realise a return on capital. These applications have been replicated on other public DLT networks and include wallet providers and digital currency 'savings accounts' which pay a regular return in digital currency. Firms have also used 'Initial Coin Offerings' to fund themselves, which we cover in more detail below.

In the early days of widening public interest in Bitcoin and other digital currencies, a number of regulatory bodies published warnings to consumers about the potential risks of digital currencies and advised on key points to bear in mind. In December 2013, the FCA drew attention to a warning issued by the European Banking Authority. In November 2014, the Government undertook a review of benefits and risks associated with digital currencies and underlying technology, with a particular focus on the question of regulation.

TECHNOLOGIES

THE USE OF DIGITAL CURRENCIES TO DELIVER FINANCIAL SERVICES

Following that exercise the Government published a response document alongside the Budget in March 2015 which said, amongst other recommendations, that it intended to apply anti-money laundering regulation to digital currency exchanges in the UK, to support innovation and prevent criminal use. The Government committed to work with the British Standards Institution and the digital currency industry to develop voluntary standards for consumer protection.

In July 2016, the European Commission published proposals for making amendments to the 4th Money Laundering Directive agreed in May 2015 to apply anti-money laundering obligations to firms which operate as digital currency platforms or as custodian wallet providers for digital currencies.10 The proposal is available on the Commission's website and is still subject to negotiation. This will mean that once this directive is transposed in member states, including the UK, these types of operators will need to comply with obligations to identify customers using their services, monitor transactions through their business and identity and report any suspicious activity to law enforcement.

TEAM

OUR TEAM

Ulyana Shtybel, Vice President

Ph.D. in Economics, former Executive Director of Warsaw Stock Exchange in Ukraine, Banking Policy Officer at American Chamber of Commerce, Loan specialist and business trainer at Alfa Bank, intern at UN Department of Economic and Social Affairs (NYC). Since 2011 Ambassador to One Young World Summit

Denys Goncharenko, CEO

Founder and Managing Partner at HighCastle Capital Group
Licensed Trustee in Bankruptcy at Mount Point Ltd
Former Head Of Legal Department State Tax Service of Ukraine

Ludwik Sobolewski, Board Member

CEO of the Bucharest Stock Exchange.
President and CEO of the Warsaw Stock Exchange (WSE) between 2006 and 2013. Before WSE, Sobolewski spent several years as the Executive Vice-President of the Polish National Depository for Securities (and Clearing House). He was also chairman of Polish Power Exchange, BondSpot, Exchange Centre SA.

OUR TEAM

Leon Saunders Calvert, Advisory Board Member

Global Head of Capital Markets & Advisory at Thomson Reuters. Dedicated and experienced business leader in corporate finance information with an MSc in International Management. A driver of strategy and innovation, developing intelligent content and workflow solutions for the investment banking and private equity community with a proven success record in guiding people and projects to achieve company goals and facilitate expansion objectives.

Dominic Prentis, Board Member

Advising on IPOs and secondary fundraisings for companies in the financial services, technology and natural resources sectors, bond issues, the disposal of LLPs in the property sector, cross-border disposals for French companies, co-ordinating a disputed Anglo-French inheritance, re-financing a UK company with overseas assets.

Nitin Gaur, Advisory Board Member

Director at IBM Blockchain Labs. Master of Business Administration (MBA). Master of Science (MS) in Management Information Systems. Business + Technology Thought Leader. IBM Master Inventor with 40+ Patents

OUR TEAM

Roman Tehlivets CIO

Bachelor's degrees in Politology and Consulting Psychology. Experienced manager responsible for compliance and developing internal control plans, assisting in the coordination and management of internal audits.

Vladimr Saakov Partner, CFO

Master’s Degree in Economics. Serial Entrepreneur more than 10m of assets under management. Gained extensive experience working with international/global manufacturing companies operating in Emerging Markets, active in mining, Real Estate,industrial machine-building.

Costiantin Pechnikov Partner, CTO

Master’s Degree in Law. Serial Entrepreneur with a primary focus on IT and Law. More than 20 years of experience. Gifted Back-end Developer with wide portfolio of creating trading platforms and marketing strategy.

OUR TEAM

Ugo Bechis, Advisory Board Member

Ugo has a professional experience in Banking and finance, transactional and distribution services. He has been Head of Bank Multichannel Distribution, Home Banking, Trading On-line, Corporate and Retail Payments, Cards, Consumer Credit and Bancassurance, following commercial responsibilities in Corporate and Trade Finance, Audit and Acquisitions.

JOIN

HIGH CASTLE

Millions of investors currently face technological denial and restrictive regulation of their right to trade private securities. By development of new financial inclusive technological tools and better administrative vs. restrictive legal frameworks, the investors acquire assets via computers and phones easier than ever they could do it before. By creating HighCastle, a blockchain-based marketplace, we can connect all investors and platforms together. Using built-in token and smart contracts at HighCastle platform, users will be able to make one-click sale and exchange of any security ever placed on any investment platform. HighCastle makes the investments and resale of securities available for anyone, anywhere.

Using our API, every investment platform's operators will easily connect their platforms to HighCastle. That will increase lifetime value, revenue in their platforms. Users will finally enter the global economy with virtual assets. Creating a new community in the billion-dollar market economy.

Third-party platforms are very welcome to integrate with HighCastle's API and apply HighCastle open-architecture to their business model. We invite every qualified and interested financial, blockchain and crypto developer to HighCastle economic network. Professional investors can participate in the token sale with the main phase starting on October 1st.

Become part of THE NEW ERA OF INVESTING. Support HighCastle and join us today.

SOURCES

REFERENCE LIST

https://www.nesta.org.uk/sites/default/files/understanding-alternative-finance-2014.pdf

https://www.nesta.org.uk/sites/default/files/pushing_boundaries_0.pdf

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https://chain.com/assets/brochure.pdf

https://bebeez.it/wp-content/blogs.dir/5825/files/2015/06/GlobalMarketplaceLending.pdf

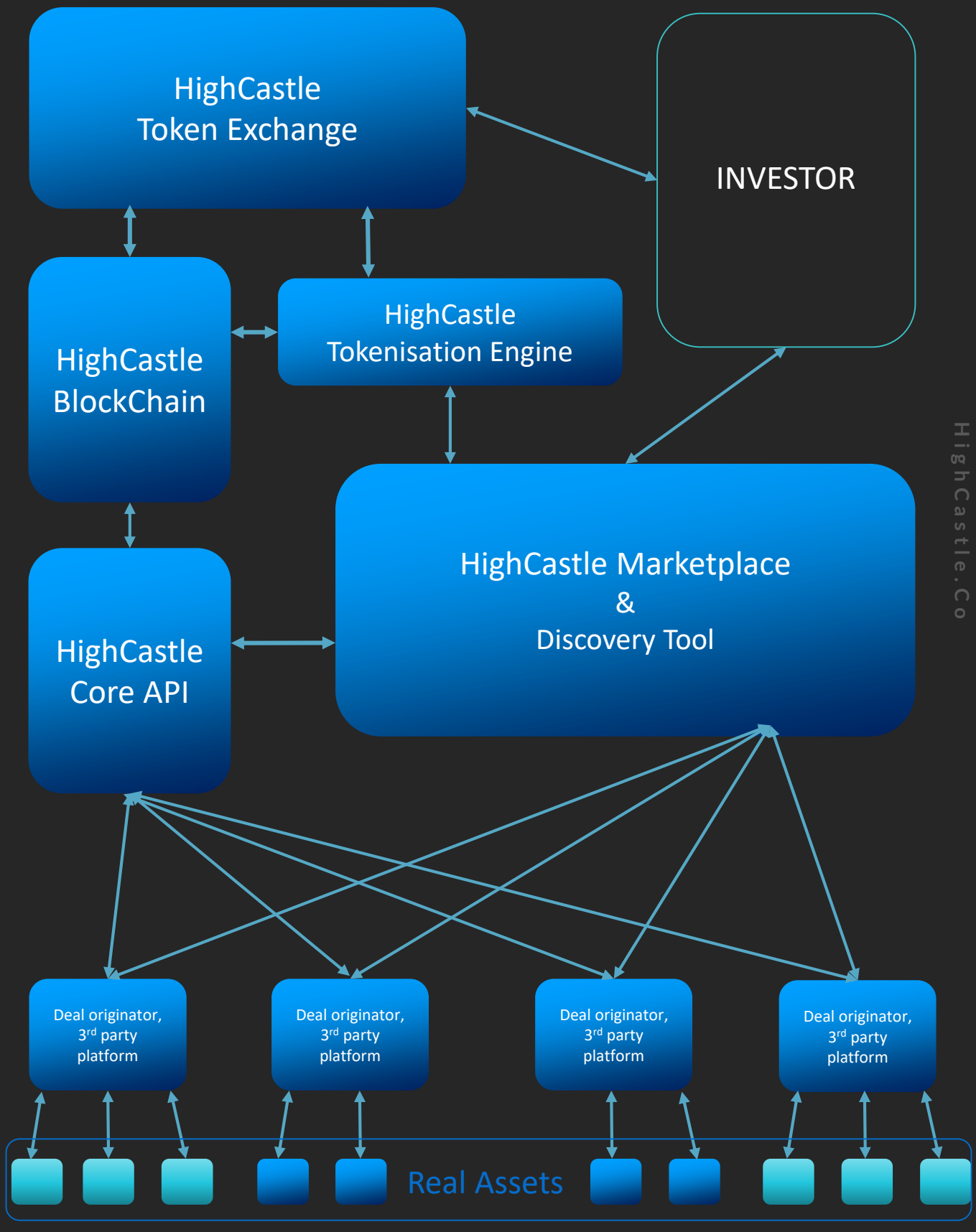
http://www.altfidata.com/

https://github.com/jpmorganchase/quorum-docs/blob/master/Quorum%20Whitepaper%20v0.1.pdf

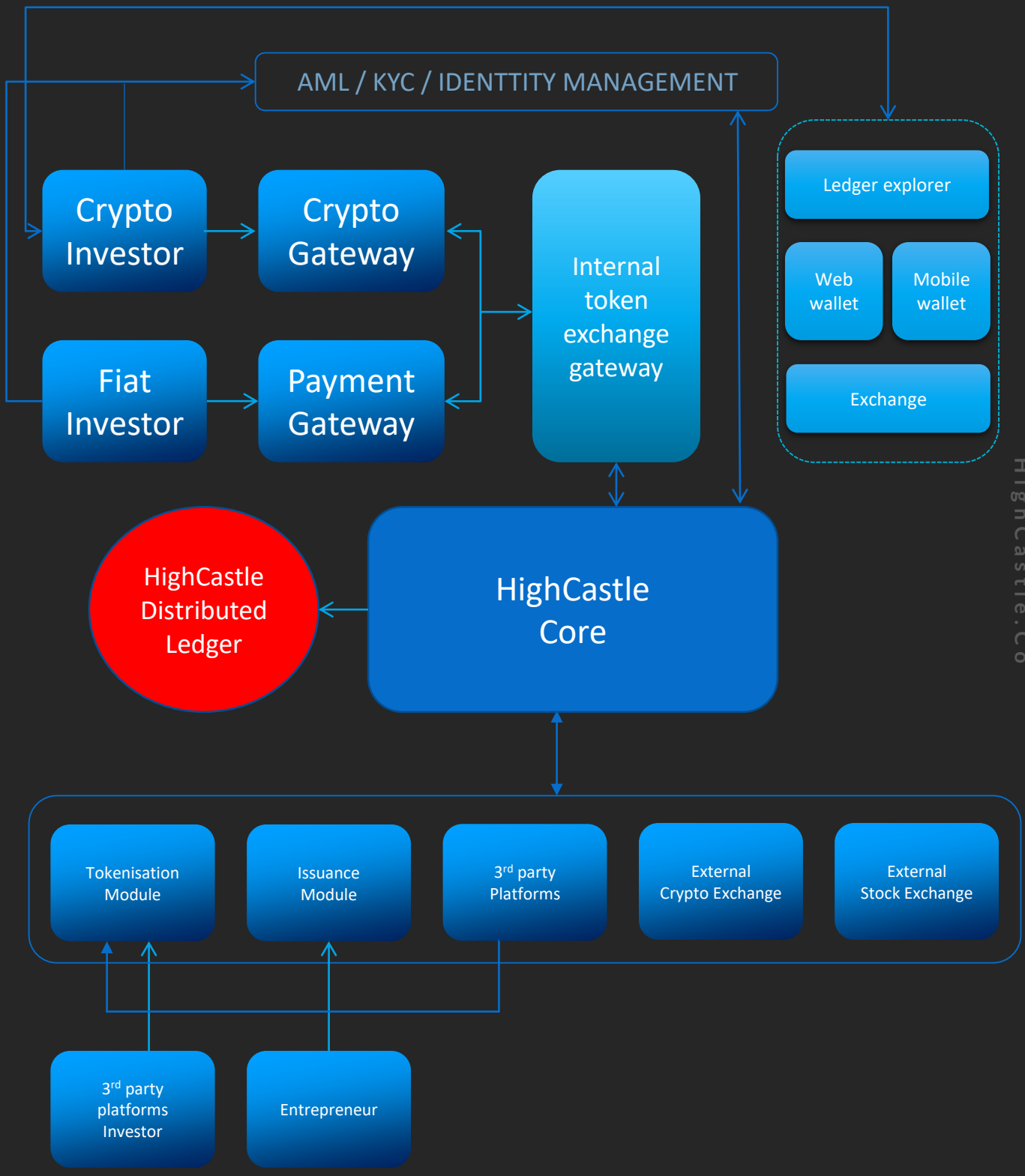
ADDITIONAL INFORMATION

INFOGRAPHIC

OPEN ARCHITECTURE



PLATFORM PROTOCOL



THE
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