



The Future of Financial Services

How disruptive innovations are reshaping the way financial services are structured, provisioned and consumed

An Industry Project of the Financial Services Community | Prepared in collaboration with Deloitte

Final Report • June 2015

Foreword

Consistent with the World Economic Forum's mission of applying a multi-stakeholder approach to address issues of global impact, the creation of this report involved extensive outreach and dialogue with the financial services community, innovation community, academia and a large number of financial technology startups. The dialogue included numerous interviews and interactive sessions to discuss the insights and opportunities for collaborative action.

Sincere thanks are extended to the industry experts and emerging disruptors who contributed their unique insights to this report. In particular, the members of the Project's Steering Committee and Working Group, who are introduced in the following pages, played an invaluable role as experts and patient mentors.

We are also very grateful for the generous commitment and support to Deloitte Consulting LLP in the U.S., an entity within the Deloitte¹ network, in its capacity as the official professional services advisor to the World Economic Forum for this project.

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Table of Contents

Acknowledgements.....	4
Executive Summary.....	10
Reading Guide.....	24
Detailed Research Modules.....	27
Payments:	
<i>How will customer needs and behaviours change in an increasingly cashless payments landscape?.....</i>	28
<i>How will the evolution of decentralised or non-traditional payment schemes change the role of traditional financial institutions?</i>	43
Insurance:	
<i>How will disaggregating forces across the value chain transform the insurance industry?</i>	58
<i>How will an ever more connected world impact the value delivered by insurance providers?</i>	72
Deposits and Lending:	
<i>How will emerging alternative models of lending change the market dynamics of traditional lenders?</i>	86
<i>What will be the future role of financial institutions in response to continually shifting customer preferences?</i>	100
Capital Raising:	
<i>How will the evolution of distributed capital raising impact the role of traditional intermediaries?</i>	112
Investment Management:	
<i>How will the empowerment of individuals through automated systems and social networks transform the business of investment management?.....</i>	127
<i>How will the externalisation of key processes transform the financial ecosystem?</i>	139
Market Provisioning	
<i>How will smarter and faster machines transform capital markets?</i>	153
<i>What impact will better connected buyers and sellers have on capital markets?</i>	163
Contact Details.....	178

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Executive Summary

The mandate of this project was to explore the transformative potential of new entrants and innovations on business models in financial services

Project Context

We set out to address three major problems that have prevented a comprehensive understanding of the state of disruptive innovation in the industry:

- There is no common taxonomy or understanding of which innovations are the most relevant
- There is no clear understanding of the evolutionary path of emerging innovations
- The implications of those evolutions on incumbent business models are unclear, creating significant uncertainty for traditional players as they strive to react to growing competitive pressures

Project Approach

We structured our research around three main questions, each requiring distinct actions:

1 Which emerging innovations are the most impactful and relevant to the financial services industry?

→ **Action:** We identified 11 key clusters of innovations based on how they impact the core functions of financial services

2 How will these innovations impact the ways in which financial services are structured, provisioned and consumed in the future?

→ **Action:** We considered a range of scenarios for the degree and nature of impact each cluster of innovation could have

3 What would be the implications of these changes on customers, financial institutions, and the overall financial services industry?

→ **Action:** We analysed the implications of each scenario on customers, incumbent institutions and the overall financial services ecosystem

Over 15 months of research we engaged with industry leaders and innovators through interviews and multi-stakeholder workshops

Industry Leaders

- Oversight, guidance and thought leadership from **16 C-suite executives and 25 strategy officers of global financial institutions**



Innovators

- In-person and phone interviews with **100+ innovative new entrants and subject matter experts**



Global Workshops

- Facilitated **six multi-stakeholder workshops** at global financial hubs with 300+ total participants including industry leaders, innovators, subject matter experts, and regulators



Hong Kong SAR
4 Sep. '14



Tianjin, China
11 Sep. '14



Boston, USA
30 Sep. '14



New York, USA
21-22 Oct. '14



London, UK
2 Dec. '14



Davos, Switzerland
21 Jan. '15



The outcome of this work is the first consolidated taxonomy for disruptive innovation in financial services

Research Framework

We have structured our framework against **six functions** of financial services and **eleven clusters** of innovation.

Functions of Financial Services

Even in an environment of rapid change to the design, delivery and providers of financial services, the core needs those services fulfill remain the same. We have identified six core functions that comprise financial services :

- *Payments*
- *Market Provisioning*
- *Investment Management*
- *Insurance*
- *Deposits & Lending*
- *Capital Raising*

Clusters of Innovation

We have identified 11 clusters of innovation exerting pressure on traditional business models



We have synthesised six high level insights on innovation in financial services

Key Research Findings

- 1 Innovation in financial services is **deliberate and predictable**; incumbent players are most likely to be attacked where the **greatest sources of customer friction** meet the **largest profit pools**
- 2 Innovations are having the **greatest impact** where they employ business models that are **platform based, data intensive**, and **capital light**
- 3 The most **imminent** effects of disruption will be felt in the banking sector; however, the **greatest impact** of disruption is likely to be felt in the insurance sector
- 4 Incumbent institutions will employ **parallel strategies**; aggressively **competing with new entrants** while also leveraging legacy assets to provide those same new entrants with **infrastructure and access to services**
- 5 **Collaboration** between regulators, incumbents and new entrants will be required to understand how new innovations alter the **risk profile of the industry** – positively and negatively
- 6 Disruption will not be a one-time event, rather a **continuous pressure to innovate** that will shape customer behaviours, business models, and the **long-term structure of the financial services industry**

In the following pages, we have summarised our insights by function and cluster

Insight Summary – Reading Guide

This section provides a summary of our findings, divided by function and clusters within the functions. For each cluster of innovation we have defined the major disruptive trends, summarized the impact, and examined key implications for institutions in that function and cluster.

Function grouping

Innovation cluster

Key trends driving disruption in financial services business model

Summary of the activity that the cluster of innovation is creating

Major implications for financial institutions as a result of activity within the cluster

Key Findings | Payments

Cashless World

Key Disruptive Trends

 Mobile Payments
 Streamlined Payments
 Integrated Billing
 Next Generation Security

Summary

New consumer functionalities are being built on existing payment systems and will result in meaningful changes in customer behaviour

Implications for Financial Institutions

- Financial institutions may lose control over their customers' transaction experience as payments become more integrated
- With reduced visibility, becoming the card of first choice among specific customer segments will become critical
- Winning issuers will gain visibility into more of customers' spending patterns and build more holistic understanding of customers

Emerging Payment Rails

Key Disruptive Trends

 Cryptographic Protocols
 P2P Transfers
 Mobile Money

Summary

The greatest potential for cryptocurrencies may be to radically streamline the transfer of value, rather than as store of value

Implications for Financial Institutions

- As more efficient alternative rails are adopted, the role of traditional intermediaries as a trusted party may diminish
- Financial institutions may face a new set of risks (e.g., reputation, security) and regulatory issues as they participate in new rails
- Applications of these technologies can expand beyond money transfer to modernise other financial infrastructures



Key Findings | Payments

Cashless World

Key Disruptive Trends



Mobile Payments



Streamlined Payments



Integrated Billing



Next Generation Security

Summary

New consumer functionalities are being built on existing payment systems and will result in meaningful changes in customer behaviour

Implications for Financial Institutions

- Financial institutions may lose control over their customers' transaction experience as payments become more integrated
- With reduced visibility, becoming the default card among specific customer segments will become critical
- Winning issuers will be able to gain visibility into more of customers' spending patterns, build more holistic understanding of customers, and create more competitive offerings

Emerging Payment Rails

Key Disruptive Trends



Cryptographic Protocols



P2P Transfers



Mobile Money

Summary

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Key Findings | Insurance

Insurance Disaggregation

Key Disruptive Trends



Disaggregated Distribution



Sharing Economy



Self-Driving Cars



3rd Party Capital

Summary

Emergence of **online insurance marketplaces** and **homogenisation of risks** will force big **changes in insurers' strategies**

Implications for Financial Institutions

- In an increasingly commoditised environment, the risks of customers being more fickle will increase and creating loyalty through innovation will become more important
- Insurers' ability to benchmark against competitors will become more important as customers gain ability to comparison-shop
- With increased margin pressure, insurers will need to increase their size by expanding either scope or scale

Connected Insurance

Key Disruptive Trends



Smarter, cheaper sensors



Wearables



Internet-of-Things



standardised Platforms

Summary

Ubiquity of connected devices will enable insurers to highly **personalise insurance** and **proactively manage** clients' risks

Implications for Financial Institutions

- As customer relationships evolve from short-term product-based to long-term advisory, capturing customers early on becomes critical
- As insurers become a hub for customer data, their strategic value within full-service financial institutions will grow
- Forming partnerships with data providers, device manufacturers and other ecosystem participants will be critical to enable connected insurance



Key Findings | Deposits & Lending

Alternative Lending

Key Disruptive Trends



P2P



Lean, Automated
Processes



Alternative
Adjudication

Summary

New lending platforms are **transforming credit evaluation and loan origination** as well as opening up consumer lending to **non-traditional sources of capital**

Implications for Financial Institutions

- Intensified competition will narrow spread between deposits and loans, decreasing financial institutions' profitability
- As savers turn to alternative platforms, traditional deposits and investment products will be eroded
- Distribution of customers' credit portfolio over a large number of alternative platforms may make it difficult to measure customer's creditworthiness

Shifting Customer Preferences

Key Disruptive Trends



Virtual Banking
2.0



Banking as Platform
(API)



Evolution of Mobile
Banking

Summary

New entrants will make **meeting customer demands more important**, creating an imperative for banks to **reconsider their roles**

Implications for Financial Institutions

- Financial products will increasingly be offered on a stand-alone basis limiting incumbents' ability to competitively cross-subsidise
- Financial institutions' ability to collaborate with non-traditional players and other institutions will become essential
- Financial institutions will need to choose where they will specialise and where they will leverage external partners (e.g., product manufacturing vs. creation of customer experience)



Key Findings | Capital Raising

Crowdfunding

Key Disruptive Trends



*Empowered Angel
Investors*



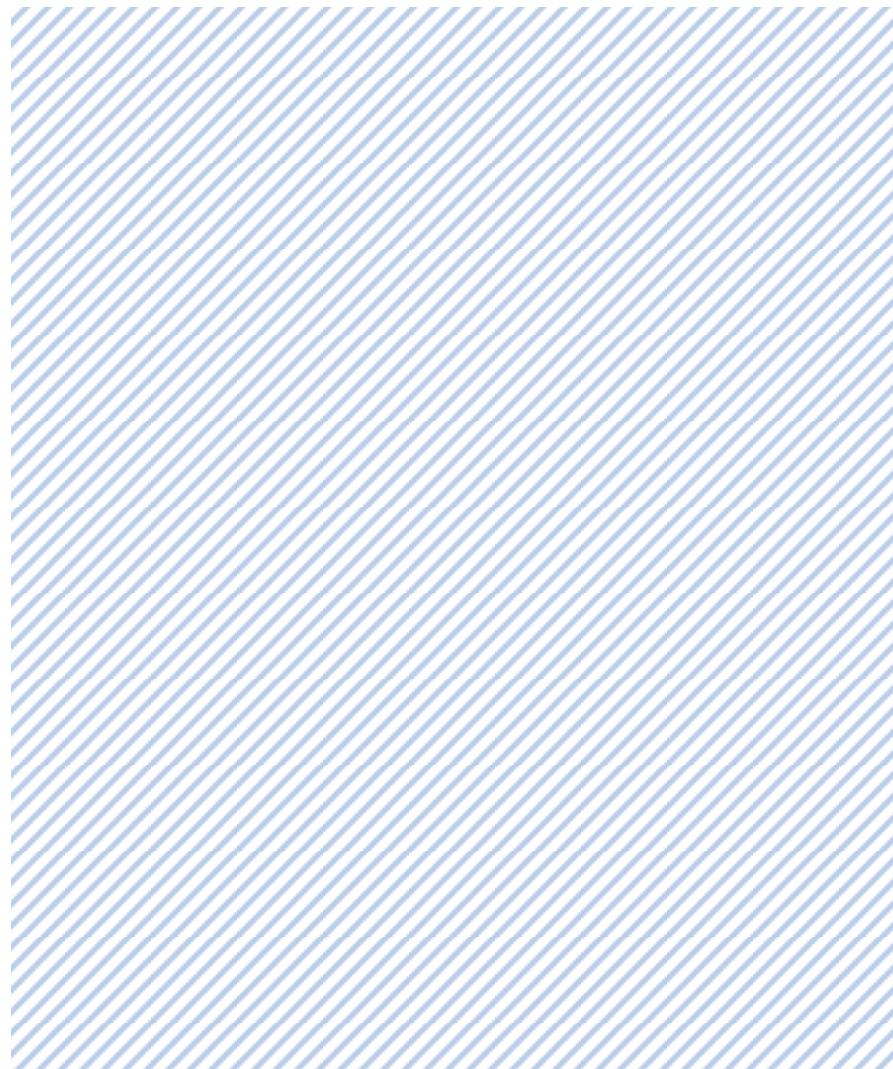
*Alternative
Adjudication*

Summary

Crowdfunding platforms are **widening access** to capital raising activities, making **the overall ecosystem richer**

Implications for Financial Institutions

- Access to more diverse funding options allow new companies to grow at a quicker pace and shorten the average time between early funding stages
- Distribution platforms create a venue for investors to tailor their investment portfolio across dimensions beyond financial return
- As the barriers to enter the asset class fall, it becomes ever more important for traditional intermediaries' profitability to find undiscovered "start" investments





Key Findings | Investment Management

Empowered Investors

Key Disruptive Trends



*Social
Trading*



*Automated Advice &
Wealth Management*



*Retail Algorithmic
Trading*

Summary

Robo-advisors are improving **accessibility to sophisticated financial management** and creating **margin pressure**, forcing traditional advisors to evolve

Implications for Financial Institutions

- New entrants will place pressure on margins and intensify competition among traditional players in more specialised segments
- As more advisory functions become automated, distributing wealth products via proprietary advisory channels will become less effective
- As new entrants widen the access for mass customers, they will compete for customers' traditional savings deposits

Process Externalisation

Key Disruptive Trends



*Advanced
Analytics*



*Natural
Language*



*Process-as-a-
Service*



*Capability
Sharing*

Summary

The **scope of externalisable processes is expanding**, giving financial institutions access to the new levels of **efficiency and sophistication**

Implications for Financial Institutions

- The ability to access sophisticated capabilities without large infrastructure investments flattens the playing field for mid-sized institutions
- Organisational agility will become critical to sustain competitiveness as high-value capabilities are continued to be commoditised
- Externalisation of capabilities may result in workforce skill loss by preventing the development of a holistic view of operations



Key Findings | Market Provisioning

Smarter, Faster Machines

Key Disruptive Trends



Machine Accessible
Data



Artificial Intelligence /
Machine Learning



Big
Data

Summary

As the popularity of high frequency trading declines, the focus of **algorithmic trading** may shift to **smarter, faster response to real-life events**

Implications for Financial Institutions

- The impacts of event-driven algorithmic trading on liquidity, spread and systemic stability are unclear
- With end-to-end trading activities automated, even small errors in data integrity, trade strategy, and execution will lead to large impacts
- Regulators have the potential to significantly alter the course of developments in this area

New Market Platforms

Key Disruptive Trends



Fixed Income



Funds / Fund
of Funds



Private Equity /
Venture Capital
Shares



Private
Company
Shares



Commodities &
Derivative
Contracts

Summary

New information platforms are **improving connectivity** among market constituents, making the markets more **liquid, accessible, and efficient**

Implications for Financial Institutions

- As traditional differentiators among intermediaries (e.g., ability to discover counterparty) become commoditised, the importance of advisory services will increase
- Information platforms will evolve the standards for best-execution from a best-efforts basis to more quantifiable and comparable metrics

We identified six important themes that cut across functions and touch multiple clusters of innovation

1 Streamlined Infrastructure

- Emerging platforms and decentralised technologies provide new ways to aggregate and analyse information, improving connectivity and reducing the marginal costs of accessing information and participating in financial activities

2 Automation of High-Value Activities

- Many emerging innovations leverage advanced algorithms and computing power to automate activities that were once highly manual, allowing them to offer cheaper, faster, and more scalable alternative products and services

3 Reduced Intermediation

- Emerging innovations are streamlining or eliminating traditional institutions' role as intermediaries, and offering lower prices and / or higher returns to customers

4 The Strategic Role of Data

- Emerging innovations allow financial institutions to access new data sets, such as social data, that enable new ways of understanding customers and markets

5 Niche, Specialised Products

- New entrants with deep specialisations are creating highly targeted products and services, increasing competition in these areas and creating pressure for the traditional end-to-end financial services model to unbundle

6 Customer Empowerment

- Emerging innovations give customers access to previously restricted assets and services, more visibility into products, and control over choices, as well as the tools to become "prosumers"



At the conclusion of the research phase, the Steering Committee gave us a mandate to dive more deeply into high-potential areas of disruption

Next Steps

We have identified three major challenge areas related to innovation in financial services that will require multi-stakeholder collaboration to be addressed effectively. We are launching a project stream related to each area, with the goal of enabling tangible impact.

The Forum is uniquely positioned to support advancements against each challenge due to its ability to:

- Convene senior multi-stakeholder groups and align diverse perspectives
- Create thought leadership on cutting-edge issues with long-term implications to the industry

Challenges



New financial products and services are creating significant regulatory uncertainty and fueling perceptions of regulatory arbitrage



Decentralised systems, such as the blockchain protocol, threaten to disintermediate almost every process in financial services



Outdated identity management protocols create risks and inefficiencies for both service providers and consumers

Projects



**Regulatory Models
for Innovation**



**Applications of
Decentralised Systems**



**Blueprint for
Digital Identity**

We will be presenting outcomes from these projects in early 2016

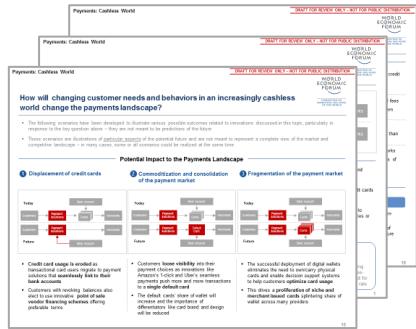
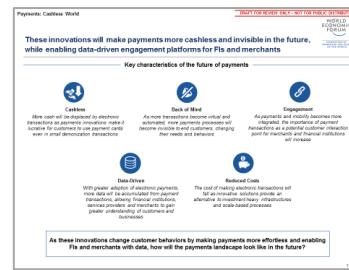
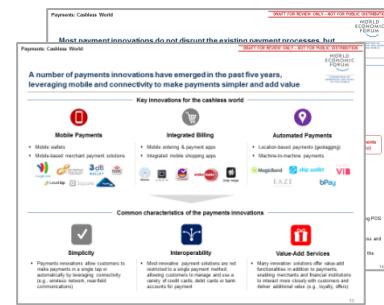
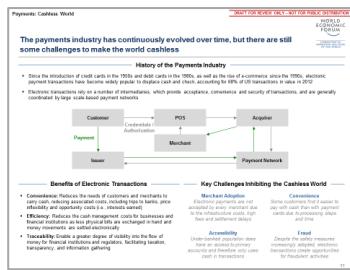
Reading Guide for the Detailed Sections of the Report

The following detailed sections of the report are organised based on key innovation clusters and how they map to the core functions of financial services



We have analysed the relevant cluster of innovations for each key area of impact and developed scenarios that present potential answers

Report Structure



A Background Context

- Brief analysis of current state business models and processes in the impacted function
- Summary of historical developments
- Key pain points and challenges with the current state

B Analysis of Innovations

- Overview of key innovations impacting the topic
- Key characteristics of the innovations
- Impact of the innovations on the current state value chain
- Comparison of the current state models and innovations

C Future Characteristics

- Key characteristics of future models of financial services enabled by innovations for the impacted function

D Scenarios

- Summary of potential outcomes related to the key question for the topic in a scenario format
- Narratives and case studies to further illustrate each scenario
- Necessary conditions required for each scenario to be realised
- Implications of the scenario on customers, incumbents and overall industry
- Key opportunities and risks associated with the scenario

Key insights from the analysis of each topic and relevant cluster of innovations have been summarised in the Executive Summary and Conclusions pages in each module

Detailed Research Modules

Payments

How will customer needs and behaviours change in an increasingly cashless payments landscape?

Executive Summary

Context / Innovation

- A number of innovations have emerged in the past five years leveraging mobile devices and connectivity to make payments simpler and more valuable. Examples range from digital wallets to automated machine-to-machine payments
- The majority of these innovations will modify front-end processes to improve the customer and merchant experience while leaving the underlying payments infrastructure undisrupted

Future of Payments

- These innovations will reduce the use of cash and make payments less visible to payers. They will also enable financial institutions and merchants to use data-driven customer engagement platforms
 - As more payment solutions allow customers to link their bank accounts for direct payment and seamless point-of-sale vendor financing, the use of credit cards could be displaced by these platforms
 - Customers may lose visibility into their payment choices, increasing their default cards' share of wallet and reducing the importance of some traditional differentiators like brand and design
 - The elimination of a need to carry physical cards and the emergence of payment decision support systems could support the proliferation of niche and merchant issued cards, splintering wallet share among many cards

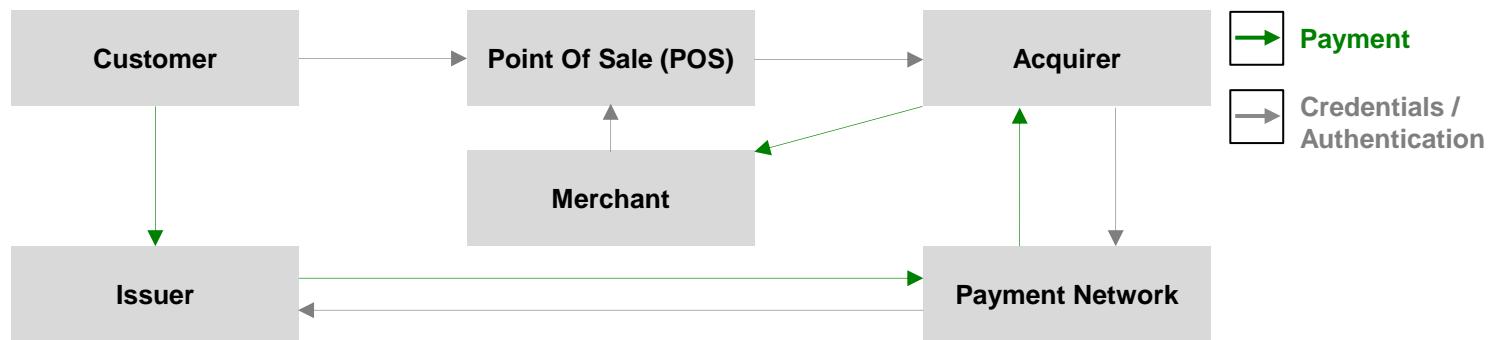
Key Implications

- Success of any innovative payment solution will require a strong customer rationale to switch, as most customers do not consider the existing payment regime to be broken
- In an increasingly cashless future payment providers who can embrace emerging payment innovations to offer differentiated, value-adding digital experiences will be able to deepen their relationships with customers and take a dominant place in the changing market landscape

The payments industry has continuously evolved over time, but there are still some challenges to make the world cashless

History of the payments industry

- Since the introduction of credit cards in the 1950s, debit cards in the 1980s and the rise of e-commerce through the 1990s, electronic payments have grown in popularity, displacing cash and cheques. In 2012 they accounted for 68 percent of U.S. transactions in value
- Electronic transactions rely on a number of intermediaries, which provide acceptance, convenience and security of transactions, and are generally coordinated by large scale-based payment networks



Benefits of electronic transactions

- **Convenience:** Reduces the need for customers and merchants to carry cash, reducing associated costs, including trips to banks, price inflexibility and opportunity costs (i.e., interest earned)
- **Efficiency:** Reduces the cash management costs for businesses and financial institutions as fewer bills are exchanged by hand and money movements are settled electronically
- **Traceability:** Enables a greater degree of visibility into the flow of money for financial institutions and regulators, facilitating taxation, transparency, and information gathering
- **Protection:** Protects customers and merchants from fraud and theft by documenting transaction records and reducing the need to hold cash

Key challenges inhibiting the cashless world

Merchant Adoption

Electronic payments are not accepted by every merchant due to the infrastructure costs, high fees and settlement delays

Convenience

Small denomination payments are often still conducted reducing the number of processing steps and time to complete a transaction

Accessibility

Under-banked population does not have access to primary accounts and therefore only uses cash in transactions

Fraud

Despite the safety measures increasingly adopted, electronic transactions create opportunities for fraudulent activities

A number of payments innovations have emerged in the past five years, leveraging mobile and connectivity to make payments simpler and add value

Key innovations for the cashless world



Mobile Payments

- Mobile wallets
- Mobile-based merchant payment solutions



Integrated Billing

- Mobile ordering & payment apps
- Integrated mobile shopping apps



Streamlined Payments

- Location-based payments (geotagging)
- Machine-to-machine payments



Next Generation Security

- Biometrics / location-based identification
- Tokenisation standards



Common characteristics of successful payments innovations



Simplicity

- Payments innovations allow customers to make payments in a single tap or automatically by leveraging connectivity (e.g., wireless network, near-field communications)



Interoperability

- Most innovative payment solutions are not restricted to a single payment method, allowing customers to manage and use a variety of credit cards, debit cards or bank accounts for payment



Value-Add Services

- Many innovative solutions offer value-add functionalities in addition to payments, enabling merchants and financial institutions to interact more closely with customers and deliver additional value (e.g., loyalty, offers)

Most payment innovations do not disrupt the existing payment processes, but rather modify front-end processes to improve customer and merchant experience

How different types of innovative payment solutions interact with today's payment process

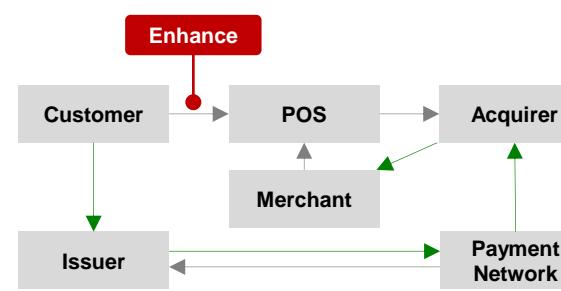
Open-loop mobile payment solutions

How They Work

Allows for increased consumer access by using existing payment network ecosystem to connect to parties already on the platform (including a large number of merchants) and make payments more convenient for customers leveraging new form factors (e.g., NFC, QR code)

Closed-loop mobile payment solutions

Illustrative Diagram

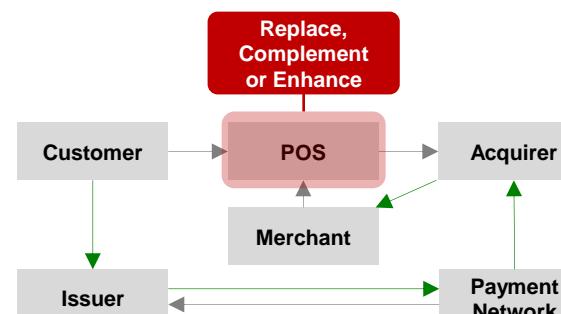
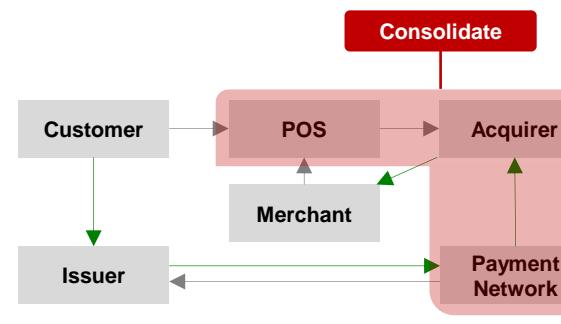


Examples



Mobile merchant payment solutions; Integrated payment apps; Streamlined payment solutions

Aims to replace or complement the current POS infrastructure by leveraging mobile connectivity (and aggregate transactions in some cases) to make the payments process more effortless and accessible by more merchants



Innovations will make payments more cashless and invisible in the future, while enabling data-driven engagement platforms for customers

Key characteristics of the future of payments



Cashless

More cash will be displaced by electronic transactions as payments innovations make it beneficial for customers to use payment cards even in small denomination transactions



Back of Mind

As more transactions become virtual and automated, more payments processes will become invisible to end customers, changing their needs and behaviours



Engagement

As payments and mobility becomes more integrated, the importance of payment transactions as a potential customer interaction point will increase for merchants and financial institutions



Data-Driven

With greater adoption of electronic payments, more data will be accumulated from payment transactions, allowing financial institutions, services providers and merchants to gain greater understanding of customers and businesses



Increased Access to Loans

As more payments are processed through electronic rails, financial institutions' visibility into individuals' and businesses' cashflow and spending patterns will increase, improving their ability to extend loans to customers previously less understood



Reduced Costs

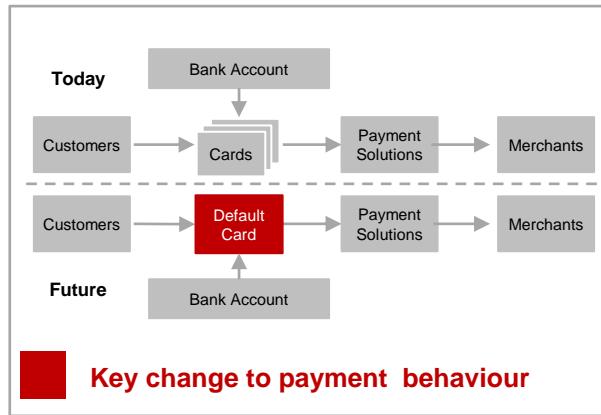
Because innovative solutions build on the existing infrastructure, which has very low variable costs, the cost of making electronic transactions will fall as electronic payments gain more volume

As innovations change customer behaviours by making payments more effortless and provide financial institutions and merchants with data, what will be the payments landscape in the future?

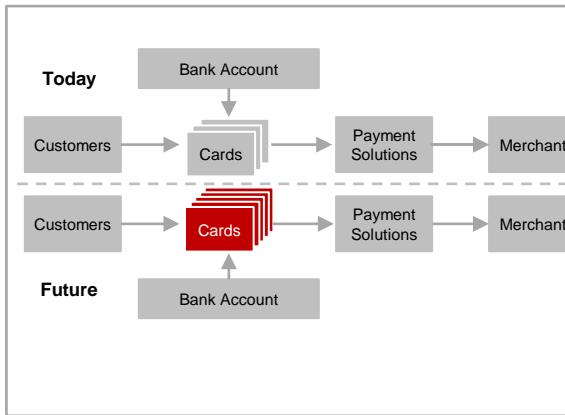
How will changing customer needs and behaviours in an increasingly cashless world change the payments landscape?

Potential impact on the payments landscape

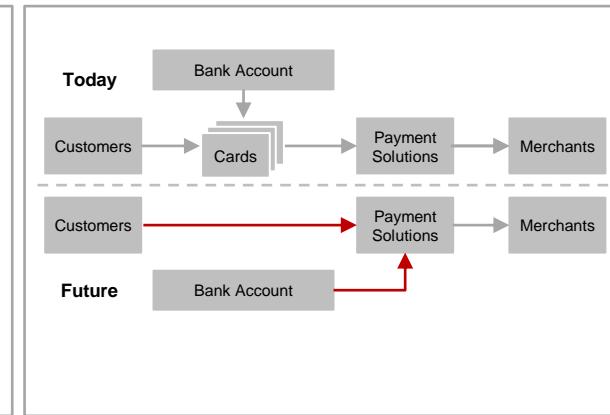
1 Consolidation of the Payment Market



2 Fragmentation of the Payment Market



3 Displacement of Credit Cards



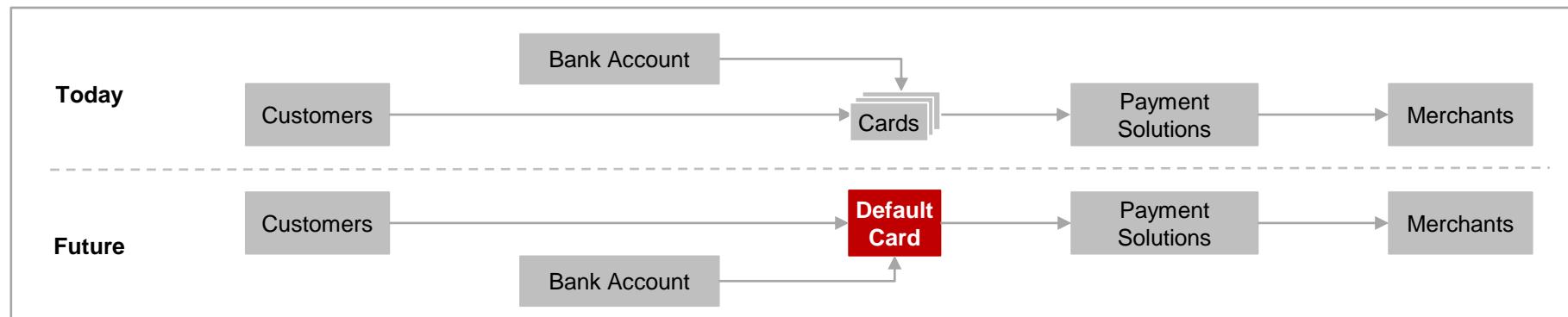
- Customers **lose visibility** into their payment choices as innovations like Amazon's 1-click and Uber's seamless payments push more and more transactions to a **single default card**
- The default cards' share of wallet will increase and the importance of differentiators like card brand and design will be reduced

- The successful deployment of digital wallets eliminates the need to own/carry physical cards and enable decision support systems to help customers **optimise card usage**
- This drives a **proliferation of niche and merchant issued cards**, splintering share of wallet across many providers

- Customers with revolving balances elect to use innovative **point of sale vendor financing schemes** offering preferable terms
- Credit card usage is eroded** as transactional card users migrate to payment solutions that **seamlessly link to their bank accounts**

- The following scenarios illustrate potential outcomes generated by the innovations discussed in this topic, particularly in response to the key question above – they are not meant to be future predictions
- These scenarios are illustrations of particular aspects of the potential future and are not meant to represent a complete view of the market and competitive landscape – in many cases, some or all scenarios could be realised at the same time

Scenario 1: Consolidation of the payment market (1 / 2)



Narrative

To avoid “moments of truth” in customer decision-making, more merchants and payment solutions will adopt an automated or one-click / one-touch / one-tap check-out in both virtual and physical marketplaces. These “seamless” check-out environments will rely on a default card that will be used unless customers make a conscious choice to change cards. As a result, default cards will become significantly stickier and receive a higher share of total customer spend.

Card issuers will respond to the changing landscape by developing products that provide the best loyalty points and benefits in aggregate to compete for the role of the default card.

Summary of impact

- Customers lose the desire to regularly use a variety of cards as payment innovations enable a seamless transaction experience in one-click / one-touch or less
- Driven by simplicity and convenience, customers push more transactions to a single default card, increasing the default card's share of wallet
- As customers' desire to switch cards decreases, traditional differentiators like card brand and design may become less prominent, making it more difficult for card issuers to differentiate

Case studies



In-app purchases within mobile apps can turn traditional physical purchases into online purchases and combine purchase and payment into a single tap, eliminating the step for payment method selection



Virtual payment processing services store customers' payment credentials and allow customers to use those credentials in one-click or tap to maximise convenience and improve security

Scenario 1: Consolidation of the payment market (2 / 2)

Necessary conditions for the scenario

- Availability and widespread adoption of seamless payment solutions to a large number of customers and at a large proportion of everyday-spend merchants
- Customers' willingness to relinquish control over payment options (e.g., convenience over control)

Customers

Implications of the scenario on...

- Less complex and time-consuming customer experience at check-out
- Decreased cognitive effort on payment selection

Merchants

- Reduced friction and improved efficiency at check-out
- Issuers seek to incentivize merchants to influence consumers to load their cards

Incumbents

- Increased competitive intensity among existing players to become top of wallet
- Marginalisation of niche players

Overall Ecosystem

- Reduction in the number of credit card providers
- Increased stickiness to those surviving card issuing institutions

Opportunities and risks associated with the scenario

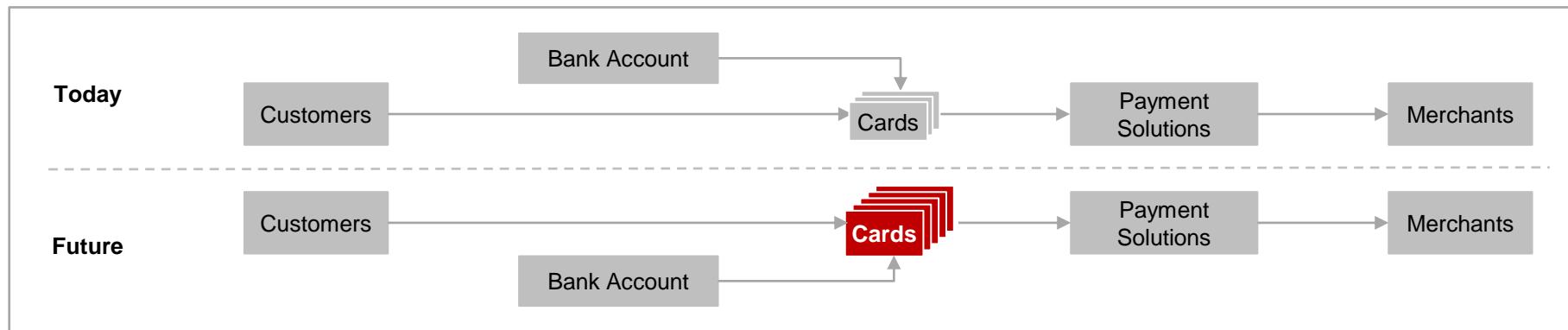
Opportunities

- Development of more personalised rewards programs to attract and retain customers

Risks

- Over time, potential decrease in the number of available card choices as consumers use fewer cards, leading to decreased competition and innovation

Scenario 2: Fragmentation of the payment market (1 / 2)



Narrative

The adoption of digital wallets will free consumers from physical limitations on the number of cards they can carry, allowing niche cards to gain popularity, particularly in geographies where customers are value-conscious.

This proliferation of cards will encourage the development of decision support systems that interact with digital wallets to help customers choose the best card for each purchase. As a result, owning and using multiple payment cards will no longer hinder the delivery of a seamless customer experience, prompting further proliferation of niche / merchant-issued cards.

Summary of impact

- The successful deployment of digital wallets eliminates the need to carry physical cards and virtually removes the limitations on the number of payment cards customers can carry and use
- Proliferation of digital wallets also enables decision support systems to help customers optimise card usage by automating card selection based on loyalty points and other benefits
- This drives a proliferation of niche and merchant-branded cards, optimised for specific purchases, splintering share of wallet across many providers

Case studies



Currently, customers can add multiple payments cards (credit and debit) to leading digital wallets (e.g., 8 for Apple Pay, unlimited for Google Wallet), and pick and choose a payment card for each transaction with few additional clicks / taps



While currently not integrated with digital wallets, decision support systems run on mobile and wearable devices to automatically recommend the optimal payment option among payment cards added by the customers to maximise the overall rewards

Scenario 2: Fragmentation of the payment market (2 / 2)

Necessary conditions for the scenario

- Merchants' widespread acceptance of smart payment solutions or the solutions' successful integration with existing acceptance markets
- Development of payment solutions into platforms surrounded by innovative ecosystems (e.g., increased linkage between mobile wallets and merchant apps, location-based check-out experience creation)
- Proven efficiency and impartiality of recommendations engines' card choice for each transactions, creation of streamlined user experience and differentiated value propositions by smart wallets that will drive consumers to want to adopt the optimisation services

Customers

Implications of the scenario on...

- Able to optimise reward collection without sacrificing seamless experience

Merchants

- Potential increase in debt as it becomes easier to issue multiple credit cards, offset by spending management functionalities of mobile wallets

Incumbents

- Potential decrease in total merchant service charges paid as private-label cards are more widely adopted among each merchant's customer base

Overall Ecosystem

- Increased issuance of a greater variety of cards
- Increased competition from new entrants, including merchant credit cards
- Stronger competitive position for niche players

- Encourage issuers to improve and innovate their product offerings (e.g., rewards programmes, interest rates)

Opportunities and risks associated with the scenario

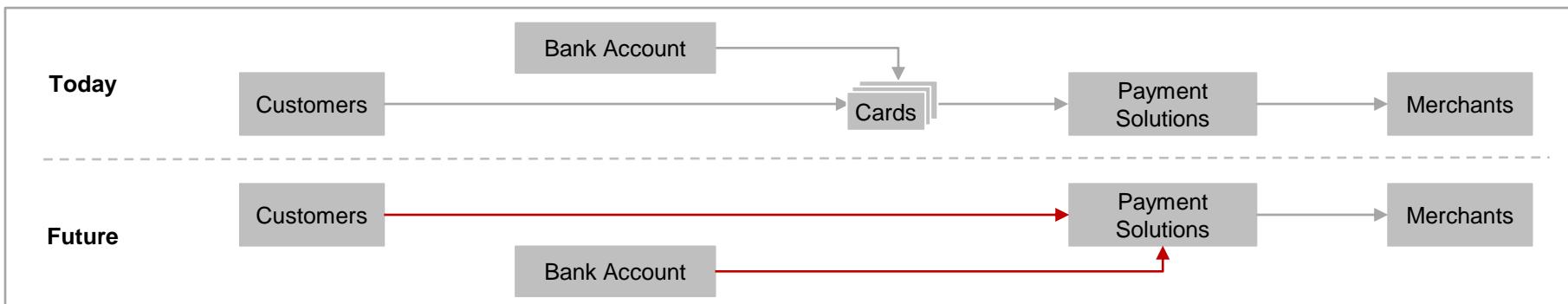
Opportunities

- Opportunities for merchants to directly enter the payments ecosystem via private label solutions and gain deeper understanding of their customers' spending patterns
- Ability for financial institutions to introduce highly specialised rewards programmes to capture specific segments of spend

Risks

- Decreasing opportunities to scale for credit card providers
- Potential decline in the efficacy of rewards programmes if card is only used for most rewarding (lowest margin) transactions
- Displacement of traditional players who are not willing to participate in smart payment solutions
- Potential arms race for rewards and backward optimisation

Scenario 3: Displacement of credit cards (1/3)



Narrative

Today, merchants and payment solutions providers, such as mobile wallets pay higher merchant service charges on credit card-funded transactions than on bank account-funded transactions. To reduce costs, these players will use incentives to encourage customers to switch their funding method from credit cards to bank accounts. At the same time, merchants will adopt data-driven alternative vendor financing solutions that offer customers lower interest rates and provide financing income to merchants.

These innovations will place pressure on credit card transaction volume and interest income; limiting issuers' ability to offer attractive loyalty programmes and reducing competitiveness in the face of merchants who are able to directly offer their own incentives (e.g., loyalty points, special offers).

Summary of impact

- Credit card usage is eroded on two fronts: payment facilitation and revolving lending / loyalty
- Payment solutions that link directly to bank accounts provide an alternative to customers who previously relied on credit cards for payment facilitation
- Point-of-sale vendor financing schemes and merchant loyalty functionalities within new payment solutions further their appeal to customers who currently rely on credit cards for revolving balances or loyalty accumulation

Case studies



Leading mobile payment solutions allow customers to fund their purchases with credit cards and bank accounts and generally earn profits only on bank-funded transactions



Leading mobile payment platforms allow customers to add, manage and use multiple merchant loyalty programmes and enable merchants to directly issue offers to customers



Emerging point-of-sale vendor financing schemes provide revolving or purchase-specific line of credit to replace the need for credit card financing

Scenario 3: Displacement of credit cards (2/3)

Necessary conditions for the scenario

- Create incentives for customers to switch their funding methods
 - Merchants' willingness to transfer financial incentives to customers to be more appealing than the rewards offered by card issuers
 - Sufficient trust needs to build with wallet providers, alternative lending providers and loyalty providers
- Development of alternative financing providers that can offer comparable user experience and efficiency as credit cards (e.g., seamless application process at POS and efficient loan servicing)
- Cooperation of bank account providers and payment solution providers to allow a seamless connection of payment vehicle and account, including sufficient data visibility for real-time decisioning and authorisation
- Clearly defined liability rules across all ecosystem participants and payment solutions' ability to provide zero liability for consumers while offering higher rewards
- Bank account providers' willingness to take on credit risk
- Fraud monitoring that maintains fraud levels near those of the current payment networks
- Development of wallet solutions and business models that do not impose large adoption costs to merchants and have a strong business case
- Acceptance infrastructure of providers must be ubiquitous enough to build customer use patterns

Implications of the scenario on...

Customers

- Shift in financial incentives from card-driven rewards programmes to direct savings from merchants
- Potential savings from lower transaction fees if bank account / wallet providers can adopt security innovations and offer protection at a lower cost than current credit card fees

Merchants

- Cost reduction due to elimination of credit card fees, potentially offset by passing on savings to customers and increased fraud costs
- Exert greater control in the payments ecosystem

Incumbents

- Reduced fee revenues
- Transaction accounts become more important than credit cards in customer retention

Overall Ecosystem

- Potential disintermediation of credit card networks
- Entrance of technology companies as providers of alternative payment networks

Scenario 3: Displacement of credit cards (3/3)

Opportunities and risks associated with the scenario

Opportunities

- Encouragement of more prudent spending patterns by customers as revolving credit lines are replaced by case-by-case loans
- May increase check-out conversion for merchants

Risks

- Fragmentation of payment solutions leading to proliferation of non-interoperable or nationally exclusive payment solutions
- Increased risk of violations against data protection and security of transactions due to replacement of proven credit card infrastructure with immature alternative payment solutions
- Lack of clear liability construct could drive confusion across participants
- De-centralisation of payment transactions could drive increased fraud and lower efficacy than existing models

What does this mean for financial institutions?

Key implications and remaining questions

“Safe Bets” – Likely Implications Under All Scenarios

- ! **Reduced control over customer experience:** Financial institutions may lose some or most control over their customers' transaction experience as digital wallets consolidate digital payment platforms
- ! **Customer targeting:** Leveraging data on specific customer segments will become an essential component of strategies to gain a dominant share of wallet among those segments that encourage or drive more frequent usage in a diversified market
- ! **Merchant relationships:** Financial institutions' ability to partner with merchants will become critical component of strategies to drive merchant-specific usage, enable merchant-issued credits, or become a preferred card on merchant platforms
- ? How will issuers create differentiated customer experience when their control over customer experience is taken over by digital payment platforms?

Scenario 1: Consolidation of the payment market

- ! **Competitiveness of bank-issuers:** Large stand-alone issuers or network issuers may gain competitive edge over bank-issuers using their scale to consolidate the market
- ! **360° view of customers:** Issuers that consolidate their customers' share of wallet will gain visibility into most of their payment activities, leading to valuable data on their lifestyles and preferences
- ? What will be the characteristics of issuers who successfully consolidate the market?
- ? To what degree can and should financial institutions leverage the enhanced view of customers to deliver more value?

Scenario 2: Fragmentation of the payment market

- ! **Customer retention:** As consumers spread purchases over a larger and larger number of cards, the credit card will lose its significance as a key anchor of customer retention for financial institutions
- ! **Distributed credit:** It will become more difficult for individual financial institutions to assess customers' credit worthiness as their credits become distributed over multiple cards
- ? How will retail financial institutions generate customer loyalty and stickiness in the future?

Scenario 3: Displacement of credit cards

- ! **Shift in credit business models:** As new credit vehicles displace credit card based borrowing the overall profit models of retail financial institutions will be forced to change
- ! **Loyalty programmes:** Financial institutions will need to create new ways to promote customer loyalty as lower fees on bank account transactions disrupt the current credit card loyalty models
- ? How will financial institutions assess their customers' creditworthiness without traditional payment history?
- ? What will the future loyalty models look like on direct payments from bank accounts?

Payments

**How will the evolution of
decentralised or non-traditional
payment schemes change the role of
traditional financial institutions?**

Executive Summary

Context / Innovation

- The current value transfer system, built on automated clearing houses and intermediary banks, has made it easier for customers to send money across geographies, but many pain points remain to enabling rapid and inexpensive value transfer between countries
- Decentralised currencies and mobile money solutions provide compelling alternatives to traditional value transferring systems by streamlining the intermediating processes

Future of Payment and Settlement Rails

- Driven by competitive pressure from these innovations, the future of value transfer will be more global, faster, more transparent, and cheaper
 - These non-traditional schemes may compete directly with the existing financial ecosystem as alternative payment networks emerge along with a variety of financial products denominated in network's native currency
 - Financial institutions may choose to facilitate the growth of alternative payment networks as a complement to existing networks. They might act as a gateway for value into these networks and launch financial products that are connected to non-traditional payment schemes
 - Alternatively, the non-traditional schemes may act as a catalyst for traditional institutions to develop solutions that fix key pain points in the current value transfer system; potentially by leveraging elements of the non-traditional schemes

Key Implications

- To bring innovations to the traditional value transfer rails, financial institutions must collaborate to identify top priority areas for transformation solve for regulatory complexity

While the rails built on automated clearing houses have enabled value transfer across geographies, many pain points are emerging as customer expectations rise

How do financial institutions facilitate value transfer today?

- While the current “rails” for value transfer between financial institutions are complex and involve many institutions a similar process is used for all transactions; from large institutional transfers to the settlement of retail payments

1 Sender Request

Sender asks their financial institution to transfer an amount to a specific address (using BIC or IBAN codes)

2 Secure Messaging

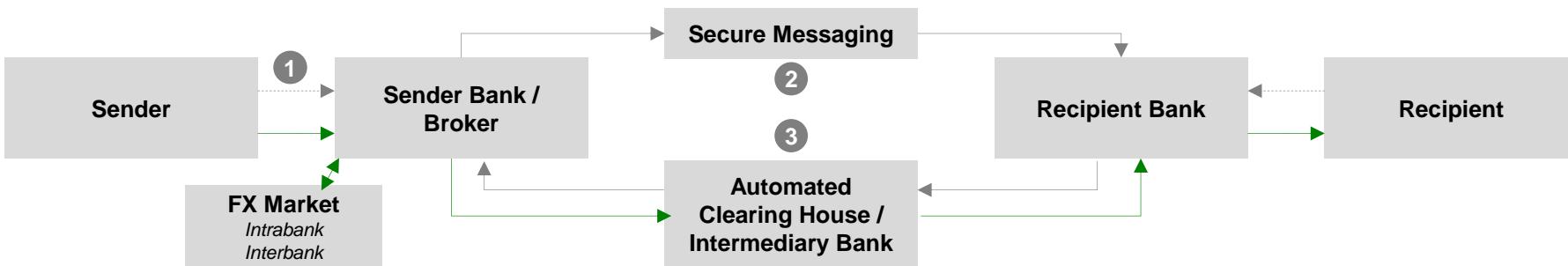
Sending bank sends a secure message to the recipient bank requesting transfer of the specified amount

3 Flow of Funds

The recipient bank responds to the sender bank’s request for funds via a clearing house or correspondent bank

 Flow of Funds

 Transfer Request / authorisation



Evolution of money transfer schemes

- The basic elements of the current value transfer process have been in place for over 150 years
- The concept of “wire transfers” was originated by telegraph companies (e.g., Western Union) who would receive funds for transfer from a sending party and send a telegraph to correspondent branch instructing them to deliver the money to the intended recipient
- The digitisation of this process throughout the latter half of the 20th century improved the security of messaging services and improved the settlement time of clearing house activities

Key pain points with today’s schemes

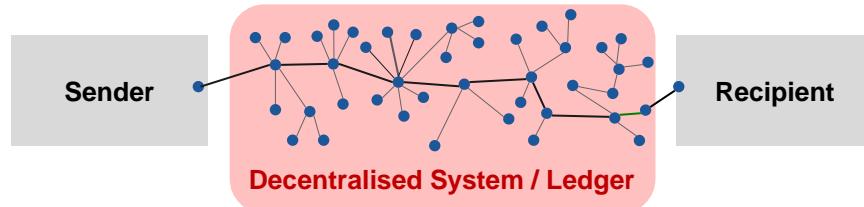
- The actual transfer is not instantaneous: funds may take several hours or even days to move from the sender’s account to the receiver’s account
- If the sending and recipient banks do not hold reciprocal accounts the payment must be sent to a clearing house or correspondent bank for the assurance of payment for the recipient, adding costs and delays
- The complex structure of requesting the recipient bank to demand payment makes the process more vulnerable to fraud using exposed sender credentials

Decentralised payment schemes leverage cryptographic protocols to transfer value virtually in a secure, low cost, near-instantaneous manner

What are decentralised payment schemes?

- Decentralised networks utilise a common set of protocols to allocate tasks across many individual nodes rather than via a central point
- Email is an example of a decentralised system that uses a common protocol (SMTP) to distribute mail between a vast number of servers
- Decentralised payment systems allow users to transmit value between users, typically secured by a set of cryptographic processes
- Most decentralised payment schemes use a single distributed ledger and denominate payments between users in a native “currency,” often referred to as a “crypto-currency”

Illustrative Distributed Payment Network



How have decentralised schemes developed?

- Digital payment schemes are as old as the internet itself with many notable failures including Beenz, Flooz, and Dicash, and the most notable success being PayPal. However, all of these schemes utilised a centralised network requiring trust by users in a central counterparty
- In 2009 a pseudonymous whitepaper proposed the creation of a distributed ledger where transactions between participants could be processed in a trustless environment via a cryptographic process
- The implementation of this distributed payment protocol is the Bitcoin network and the native currency of the ledger are Bitcoins
- Since 2009 a range of service providers have emerged to support the acceptance of payments via the Bitcoin network
- At the same time, many competing schemes have launched, built on the same underlying concepts but employing different encryption technology or focusing on different use cases

What are some emerging decentralised schemes?



Digital currency run on decentralised payment network



Open-source low-cost (~1 / 1000th of a cent) payments protocol and instant exchange of any form of money or value



Open-source P2P Internet currency enabling instant, near-zero cost payments



Decentralised open source information registration and transfer system

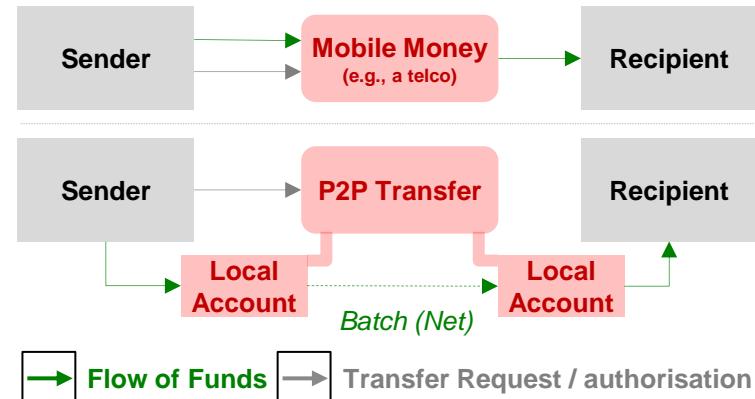
Characteristics of decentralised schemes

- Secured by cryptographic protocols
- Capable of near real-time settlement
- Very low transaction costs
- Frequently open source where changes are governed by a network of participants
- Transparency and traceability of transactions is typically superior to current systems but user identification may be weaker or nonexistent

Mobile monies and P2P value transfer networks rely on a trusted central party to transfer value rapidly across geographies, even in underbanked regions

What are non-traditional payment schemes?

- Mobile money refers to a network that supports payment from one user to another via a mobile device
- A mobile money service may be launched by any firm, not just a traditional financial institution. Mobile money services have been launched by network operators (MPESA) and online retailers (PayPal)
- Transactions may be denominated in a fiat currency or in a form of value issued by the central intermediary
- In developing countries mobile payment solutions have been deployed to extend financial services to the "unbanked" or "underbanked"



How have non-traditional schemes developed?

- In 2002, researchers noted that individuals in Uganda, Botswana and Ghana were spontaneously using airtime as a proxy for money transfer; transferring airtime to their relatives or friends who would then use or resell it
- In April 2007, Kenya's dominant mobile network operator, Safaricom, launched a new mobile phone-based payment and money transfer service, M-Pesa allowing users to deposit money into an account that can be accessed on their cell phones and send balances using SMS
- In January 2011, Transferwise launched a P2P cross-border money transfer service to aggregate and facilitate exchange of foreign currency and transfer needs at the interbank rate

What are some emerging non-traditional schemes?

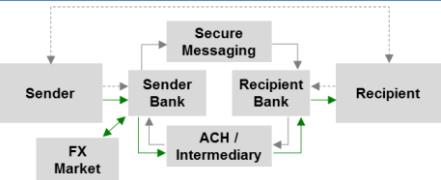
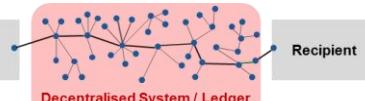
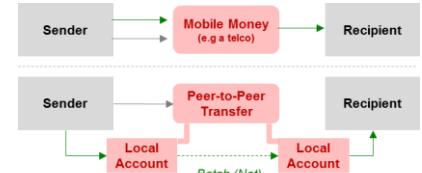


Characteristics of non-traditional schemes

- Transactions are completed rapidly and are highly transparent to both senders and recipients
- Transfer costs are very low and fees are highly transparent
- Many schemes are moving towards open systems, as they build in interoperability with other schemes and traditional outlets (e.g., ATM)
- Does not necessarily require a traditional bank account or well established financial infrastructure making them well suited for financial inclusion goals

While non-traditional payment schemes offer a greater level of efficiency than the traditional rails, their usefulness is dependent on the scale of adoption

How do decentralised and non-traditional schemes differ from traditional money transfer models?

	Traditional Model	Decentralised Schemes	Other Non-Traditional Schemes
Value Chain			
Key Characteristics	<ul style="list-style-type: none"> Processing of transfers is handled by correspondent financial institutions, often facilitated by payment schemes (e.g., SWIFT, Visa, MasterCard) Relies on a central clearing body Transfer is initiated by recipient bank 	<ul style="list-style-type: none"> Value transfer is recorded in a distributed ledger Transactions are managed by a distributed network of processors Sender initiates the transfer 	<ul style="list-style-type: none"> Value transfer is facilitated by a single trusted non-financial 3rd party Relies on the intermediary to keep records and settle the transfer Sender initiates the transfer
Advantages	<ul style="list-style-type: none"> Network is scalable and includes most existing financial institutions Proven ability to manage large capital flows on a global scale Large retail and institutional customer base who are familiar with the model 	<ul style="list-style-type: none"> Transfer history is transparent, traceable and practically unalterable Lower direct costs of transaction due to distribution across the network Lower exposure to conventional fraud Settlement is near real-time; no counterparty risk 	<ul style="list-style-type: none"> Simpler and cheaper transfers Improved user transparency Enables rapid or real-time settlement The reach of the intermediary may exceed that of financial institutions, particularly in developing countries
Shortcomings	<ul style="list-style-type: none"> Limited visibility into value flow for both senders and recipients Prone to fraud when the sender's credentials are exposed Transfer can take days and efficiency varies by countries / institutions High costs / number of intermediaries 	<ul style="list-style-type: none"> High volatility in the value of the native "currency" Regulatory scrutiny creates challenges to connecting with fiat currency ecosystems Anonymity of accounts / irreversibility of transfers creates security issues Higher exposure to unconventional fraud (e.g., large-scale hacking) 	<ul style="list-style-type: none"> Scalability is dependent on the availability / adoption of the intermediary platform Cross border flows of funds can create regulatory challenges

These emerging non-traditional payment schemes will create competitive pressure for the value transfer rails to become faster, cheaper and more borderless

Key characteristics of the future value transfer systems



Global

Geographical distance as a factor in transferring value will continue to narrow and even under-banked regions will be connected



Fast

The time it takes to transfer value between two accounts will be significantly reduced



Transparent

The flow of funds will become increasingly visible and traceable



Secure

The opportunities for fraudulent activities will be largely reduced



Reduced Costs

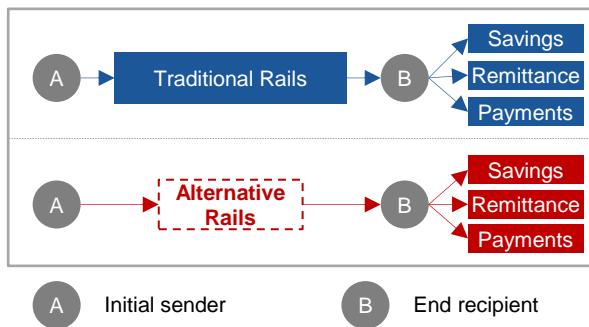
The cost to execute transfers will be minimised with the streamlined and automated rails

In achieving these future state characteristics, how will the evolution of decentralised or non-traditional payment schemes change the role of traditional financial institutions?

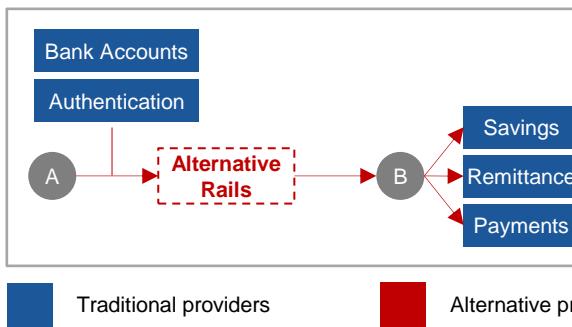
How will the evolution of decentralised or non-traditional payment schemes change the role of traditional financial institutions?

Potential changes to the role of traditional institutions

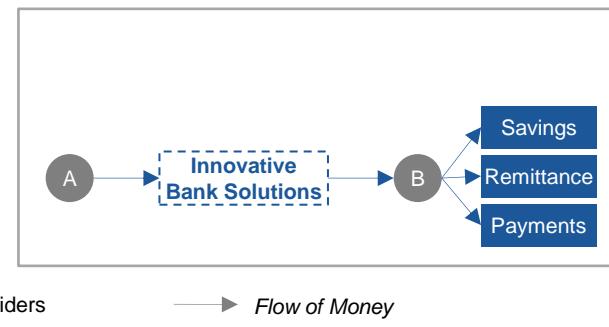
1 Compete with an alternative network of financial providers



2 Facilitate alternative payment schemes as complements



3 Provide leaner, faster payment options within the existing network



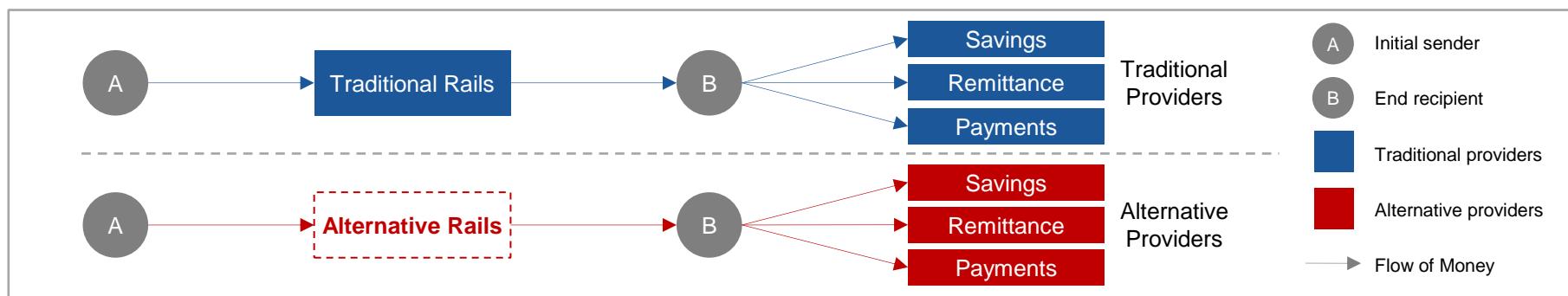
- A **network of innovative financial services providers** (e.g., authentication, remittance, savings / lending, insurance, merchant payments) emerge **around alternative payment schemes**
- These services provide customers a **meaningful alternative** to financial institutions by **keeping money entirely within the alternative schemes**

- **Traditional institutions** launch financial products that are **connected to alternative payment scheme ecosystems** (e.g., Bitcoin savings accounts, mobile money insurance)
- Financial institutions may also act as a **gateway** to alternative payment schemes (e.g., authentication)

- Alternative payment schemes act as a **catalyst** for traditional institutions to develop new solutions
- Leveraging **elements of alternative schemes**, traditional institutions build more streamlined rails for the movement of money
- These solutions reduce the advantages of alternative payment schemes and **retain the flow of money within** the traditional financial network

- The following scenarios illustrate potential outcomes generated by the innovations discussed in this topic, particularly in response to the key question above – they are not meant to be future predictions
- These scenarios are illustrations of particular aspects of the potential future and are not meant to represent a complete view of the market and competitive landscape – in many cases, some or all scenarios could be realised at the same time

Scenario 1: Incumbent institutions compete with an alternative network of financial providers (1 / 2)



Narrative

With new start-ups providing protection against fraud and fluctuation in value, decentralised schemes (e.g., Bitcoin) gain momentum as a set of rails to transfer value between individuals. In less developed countries, alternative payment schemes (e.g., M-Pesa) become the dominant solution for the under-banked population.

New entrants emerge to manufacture and distribute financial products with a compelling value proposition (e.g., savings accounts, insurance policies, merchant solutions) denominated in the native currencies of these alternative payment networks. As the result, customers no longer need to transfer money out of the scheme to consume these products, further reinforcing the network.

Summary of impact

- A network of innovative financial services providers (e.g., savings / lending, insurance, authentication, merchant payments) emerge around alternative payment schemes
- These services provide customers a meaningful alternative to traditional financial institutions by keeping money entirely within the alternative schemes
- Traditional rails and alternative schemes will stay mostly separated with limited points of interaction

Case studies



Bitcoin exchanges allow customers to securely and quickly transfer value within the Bitcoin network. Bitcoin financial services providers (e.g., bitpay – merchant processor, Coinbase – wallet), in conjunction with those exchanges, strive to provide a competitive value proposition for customers to retain value within the Bitcoin ecosystem



Mobile money solutions (e.g., M-PESA) have led to an increase in financial product offerings from innovative new entrants, across various financial services functions from insurance to savings

Scenario 1: Incumbent institutions compete with an alternative network of financial providers (2 / 2)

Necessary conditions for the scenario

- Low volatility in native currency of the alternative scheme(s)
- A strong rationale for widespread consumer adoption of the alternative scheme(s)
- A strong rationale for widespread merchant adoption of the alternative scheme(s)
- Regulatory acceptance of alternative currency products and low friction transfers between alternative currency and fiat currency stores of value
- Provision of sufficient and efficient entry points into alternative scheme(s)

Implications of the scenario on...

Customers

- More willing to engage in cross-border commerce
- Finances are split between native and alternative currencies, creating undesirable complexities

Incumbents

- Lower floats as customers shift funds into alternative payment networks
- Price competition with various alternative currency offerings

Overall Ecosystem

- Creation of a parallel ecosystem
- Development of regulatory institutions or expansion of existing regulatory bodies to oversee financial transactions in alternative ecosystems

Opportunities and risks associated with the scenario

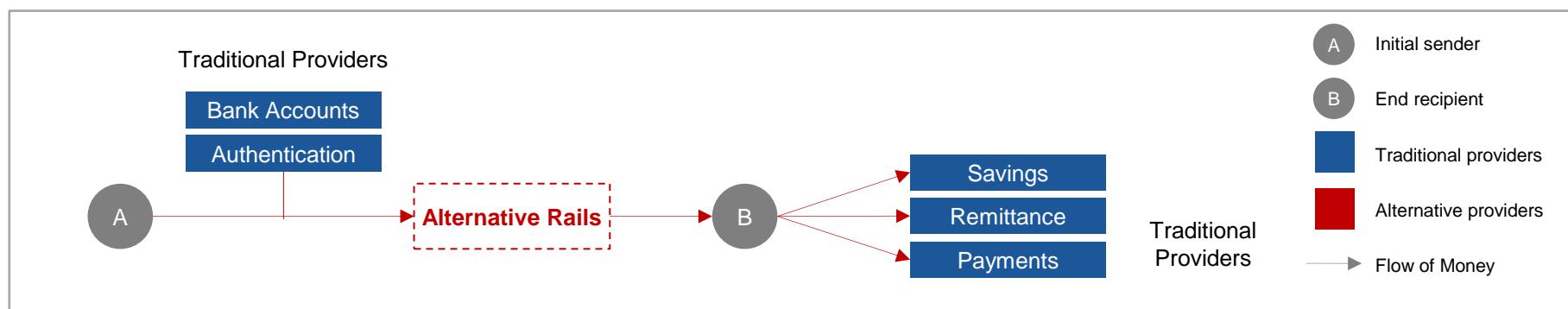
Opportunities

- Competition between established and new ecosystems drives innovation and improvements in both

Risks

- Security of stored alternative currencies is a challenge with a history of significant breaches (e.g., Mt. Gox)
- Regulatory redress in alternative schemes has a number of unsolved challenges
- Unstable alternative currencies lead to “foreign” exchange exposure on domestic transactions

Scenario 2: Incumbent institutions facilitate alternative payment schemes as complements (1 / 2)



Narrative

As the popularity of decentralised and other non-traditional payment schemes grows within customer segments, incumbent institutions make it easier for their customers to transfer value into and out of the alternative rails. Gradually, these institutions leverage their current products and capabilities to begin playing a greater role as a gateway to non-traditional payment networks rails and financial products denominated in alternative currencies (e.g., a Bitcoin denominated bank account).

Alternatively, incumbent institutions could adopt non-traditional schemes as an internal settlement rail to improve efficiency and customer experience. Once these rails are in place, it would be easier for financial institutions to offer products for non-traditional schemes.

Summary of impact

- Traditional institutions launch financial products that are connected to alternative payment scheme ecosystems (e.g., Bitcoin savings accounts, mobile money insurance)
- Financial institutions may also act as a gateway to alternative payment schemes (e.g., authentication)
- Traditional institutions are involved in both alternative payment schemes and traditional rails and in some cases, act as points of interaction

Case studies



Fidor, an online full-service bank, has adopted the Ripple protocol for all internal settlement processes to improve efficiency. If usage of the Ripple protocol were to expand to other banks, it could be easily used for real-time payment and settlement between these institutions with no automated clearing house or correspondent banks required.



CIC, a traditional insurer, launched micro-insurance products (e.g., funeral insurance) that accept payment, and pay out claims in M-Pesa balances to target the under-banked population. These products allow CIC to build loyalty and brand recognition with a future customer base.

Scenario 2: Incumbent institutions facilitate alternative payment schemes as complements (2 / 2)

Necessary conditions for the scenario

- Strong business case for financial institutions to offer products and services connected to alternative schemes (e.g., customer demand vs. reputational risks)
- Trust in reliability, security and sustainability of alternative payment schemes

Implications of the scenario on...

Customers

- Expands the universe of choice between traditional and alternative schemes
- Potential for lower fees to transfer value within the financial system

Incumbents

- Shift from higher margin traditional products to low margin alternative products
- Possibility of a higher level of regulatory scrutiny
- Changes to existing technologies, processes and business models to adapt to alternative schemes

Overall Ecosystem

- Increased focus on cyber security
- Potential for new competition among institutions from different geographies

Opportunities and risks associated with the scenario

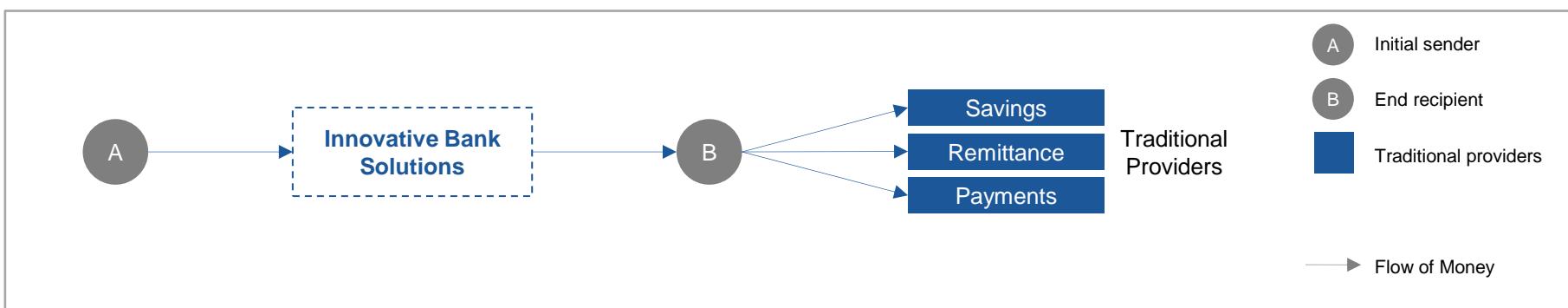
Opportunities

- Improved direct connectivity among institutions as others adopt same alternative schemes
- Ability to leverage financial institution's existing core capabilities to provide better services than alternative competition (e.g., KYC, AML)
- Opportunities for increased efficiency in foreign exchange
- May support financial institutions in providing a more borderless experience for their customers

Risks

- Exposure to security and volatility risks associated with alternative schemes
- Significant regulatory exposure as some alternative schemes are not well understood yet
- Increased reputational risks in case of alternative schemes' failure

Scenario 3: Incumbent institutions provide leaner, faster payment options within the existing network (1 / 2)



Narrative

Increasingly perceiving alternative payment schemes as a threat, traditional financial institutions have intensified efforts to transform their payment and settlement rails. Financial institutions may make major upgrades to existing payment and settlement systems or build on top of them, employing existing or proprietary message sets. Alternatively, financial institutions may leverage innovations developed by alternative payment networks (such as the block chain) to achieve these goals but elect to stop short of using the alternative networks themselves.

As transferring value within the existing financial ecosystem becomes cheaper, faster, more transparent and more global, the incentives for customers to use payment rails from non-traditional providers will decrease in the face of uncertainties associated with these options.

Summary of impact

- Alternative payment schemes act as a catalyst for traditional institutions to develop new solutions
- Leveraging elements of alternative schemes, traditional institutions build more streamlined rail for the movement of money
- These solutions reduce the advantages of alternative payment schemes and retain the flow of money within the traditional financial network
- As a result, alternative payment schemes do not reach maturity and cease to be a serious threat of disintermediation

Case studies



A number of national retail financial institutions launched consortiums to provide a P2P money transfer service to their customers. While some of these services still rely on traditional settlement rails, adoption of more streamlined technologies and processes can improve these transfers making them lower cost and near-real-time.

Scenario 3: Incumbent institutions provide leaner, faster payment options within the existing network (2 / 2)

Necessary conditions for the scenario

- Sufficient competitive pressure for incumbents to invest in development of new rails or major improvements to existing infrastructure
- Incumbents must possess technical capabilities to build and maintain new rails
- Sufficient cooperation among financial institutions and other infrastructure providers globally to set up widely accepted standards, potentially augmenting existing standards to expedite adoption
- Regulatory comfort with new technologies and standards adopted

Customers

Implications of the scenario on...

- Ability to receive higher standard of customer experience without relying on less proven systems
- Receive better prices but potentially not as low as under more disruptive solutions

Incumbents

- Limited disruption of operations or customer relationships
- Improved efficiency in operations
- Introduction of new types of risks and necessary controls
- Potential costs to integrate with new networks

Overall Ecosystem

- Development of leaner, more efficient global system for transfer of value

Opportunities and risks associated with the scenario

Opportunities

- Ability to achieve efficiency and improvements without adding uncertainty of introducing new parties and assets

Risks

- Difficulty implementing new technologies and processes may lead to unforeseen consequences
- Risks of not being able to establish appropriate, widely accepted standards

What does this mean for financial institutions?

Key implications and remaining questions

“Safe Bets” – Likely Implications Under All Scenarios

- ! **Revised margin structure:** Margins on the current payment and settlement transactions will need to be restructured as competitive pressure grows from alternative rails
- ! **Global implementation:** Global settlement infrastructure and emerging markets may present the largest immediate opportunities for the development of alternative rails of payment and settlement given regulatory complexity of developed local markets
- ! **Changing role of trusted intermediaries:** As highly accurate and efficient alternative rail designs are implemented, the role of traditional intermediaries (e.g., payment networks) as a trusted party may diminish
- ? What are the new roles that trusted intermediaries will play in the future and how will they address key limitations and weaknesses with today's alternative payment and settlement rails?
- ? How will the new or improved rails for transferring value be deployed, tested and rolled out to minimise unwanted disruption

Scenario 1: Compete with an alternative network of financial providers

- ! **Loss of visibility into customer transactions:** As more financial transactions are conducted via alternative rails, financial institutions will lose visibility into payment history to asset / loan portfolio aspects of some or most of customers' finances
- ? How will financial institutions assess customers' finance and provide appropriate products when they lose visibility into transactions on alternative rails?

Scenario 2: Facilitate alternative payment schemes as complements

- ! **New sets of risks:** As financial institutions participate in the further development and usage of alternative rails, they will face a new set of risks around reputation, security and compliance that are not under their direct control
- ? What are the new risks associated with alternative rails for value transfer, and how will they be managed and mitigated by financial institutions?

Scenario 3: Provide leaner, faster payment options within the existing network

- ! **Importance of industry collaboration:** Due to the network-based nature of payment and settlement rails, working with other financial institutions at a global level will become more critical to ensure seamless connectivity for customers
- ? What is the appropriate participation model for incumbent institutions in establishing new infrastructure and standards for value transfer?

Insurance

How will disaggregating forces across the value chain transform the insurance industry?

Executive Summary

Context / Innovation

- A number of emerging forces are creating pressure across the insurance value chain, with the potential to redefine the structure of the market
- The rise of online aggregators and the potential entry of technology players could disaggregate the distribution of personal and small commercial policies and separate insurers from the ownership of customer relationships
- The development of autonomous vehicles and advanced sensors will inherently reduce risk with home and auto while the proliferation of sharing economies will homogenize risks. These and other forces are standardising and commoditising individual risks

Future of Insurance Value Chain

- New sources of capital and investment management capabilities, such as hedge funds and investment banks, are aggressively moving in to the insurance industry through innovative securitisation products, offering more cost-effective options to fund policies
 - As the insurance value chain is disaggregated and commoditised, the importance of scale as a source of efficiency may increase, leading to market consolidation
 - Increased use of commoditised personal insurance products in cross sell, along with blurring lines of property ownership, may support the rise of extremely broad multi-line policies
 - Disaggregation of the mass personal lines market may also lead to insurers shifting their focus to niche and commercial markets where traditional capabilities like actuarial skill, underwriting and personal relationships can make bigger differences to performance

Key Implications

- In order to remain competitive in the face of a disaggregating value chain insurers will need to reconsider which core competencies they will invest in to maintain a strong competitive position

The industry has been slowly evolving over the past couple decades, adopting customer centric innovations from other financial services functions

What are the core capabilities of insurers today?

- Insurance is typically considered one of the functions within financial services where the adoption of innovation has been the slowest
- However, over the past decade many innovative practices such as digital channels and process automation have been gradually adopted by many insurers. This has been especially true in personal lines of business while large commercial lines have continued to focus on establishing a “personal touch” across the value chain

- Traditional broker / agent in-person distribution faces significant competitive pressures from digital channels in personal lines
- Distribution partnerships with banks and retailers through white-labelling and over-the-counter products have become increasingly popular
- In some geographies, customer-centric high-touch services have emerged to provide differentiated claims experience (e.g., rapid response teams)
- The adoption of digital channels has begun to replace manual time-consuming processes to empower customers and / or workforce



- Innovation labs within insurance companies are being established to combine brand and product managers with technological and analytical resources
- New products increasingly require integration with 3rd party data providers
- Advanced statistical models are being deployed to understand the correlation between measurable factors and risk (actuarial) using historical data
- A large portion of pricing risks with collected data (underwriting) has been automated over the years to improve accuracy and speed, especially with the advent of out-of-box solutions
- Insurers traditionally deploy their own capital and premiums collected to reserve funds for future claims and invest the rest in various classes of assets to earn investment income. They also reinsurance a portion of their business to reduce exposure to catastrophic risks
- The amount of reserve capital required and allocation of investment assets allowed are mandated by regulatory bodies and limits insurers' underwriting capacity

A number of emerging forces will lead to pressure on the insurance industry across the value chain (1 / 2)

Key pressures across the insurance value chain

Advancing technologies, changing customer preferences and the market landscape are enabling a number of innovations and trends, which create pressure across the insurance value chain

e-Aggregators

Online aggregators that allow customers to compare prices and purchase insurance products online may displace traditional distribution channels as customer preferences change and more insurance products are commoditised (e.g., UK P&C market)



R&D/ Product Manufacturing



Self-driving cars

Fully or partially self-driving cars are emerging leveraging smart sensors, connectivity and machine-to-machine communications. This will considerably reduce the risks associated with driving and may shift the principal of insurance from drivers to manufacturers

Entry of tech players

Technology providers with brand recognition and trust surpassing financial institutions may enter the insurance distribution market, leveraging their extensive data and distribution capability. Google acquired a UK e-aggregator BeatThatQuote charging insurers up to \$54 per click



Distribution



Underwriting

Sharing economy

As sharing economies emerge from pay-as-you-go rentals to shared vehicles and houses, the concept of ownership may radically change, challenging traditional insurance models developed based on one-to-one ownership structure

Claims



Risk Capital & Investment Mgmt.



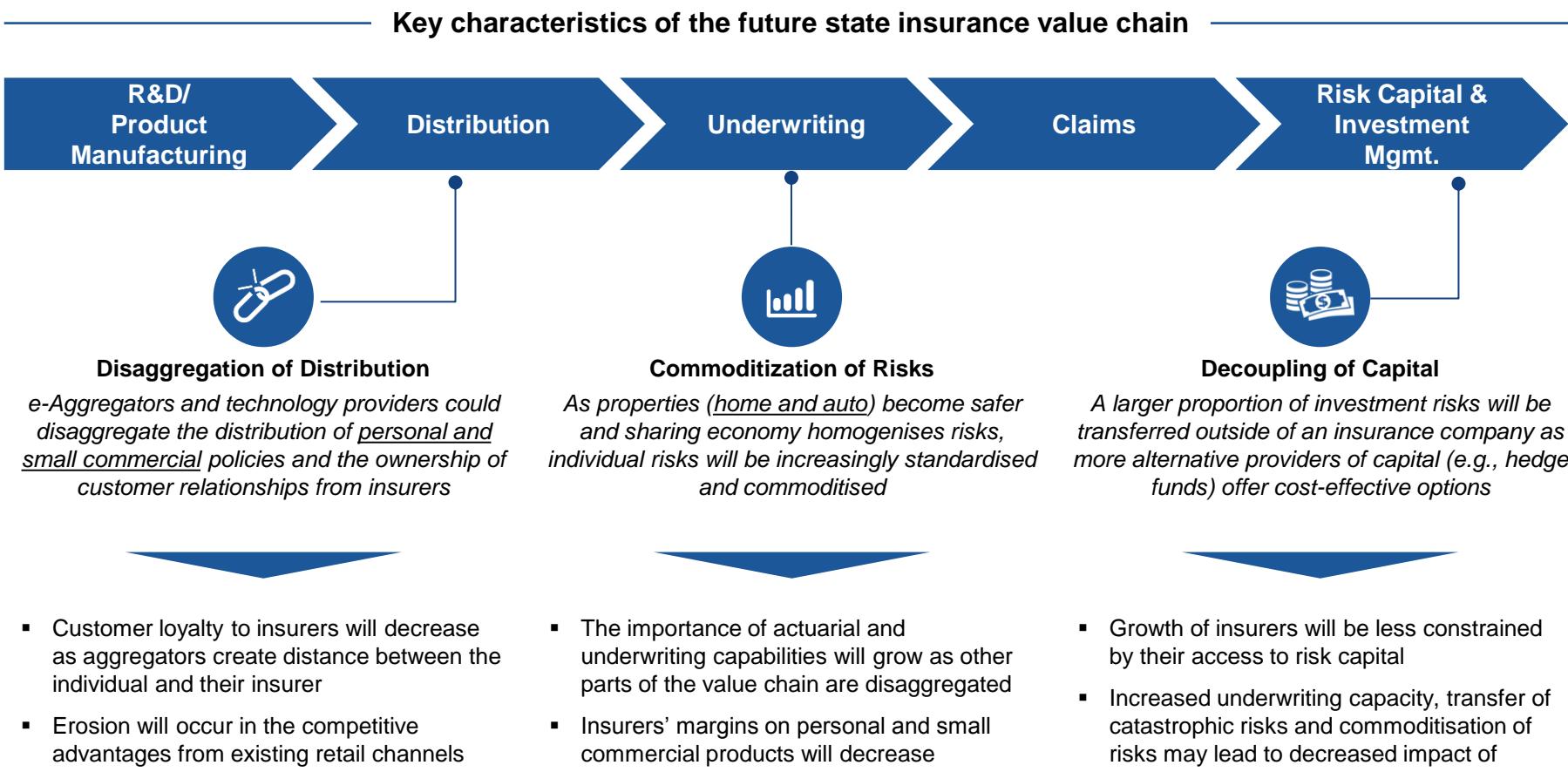
Entry of hedge funds

Driven by a low interest rate environment and access to premiums, hedge funds and alternative sources of capital are moving closer to the insurance value chain by setting up reinsurers, providing additional funding options for insurers

Impact on all Insurers

Impact on P&C insurers

As the result, the insurance value chain will be increasingly disaggregated in the future, changing the nature of the insurance business

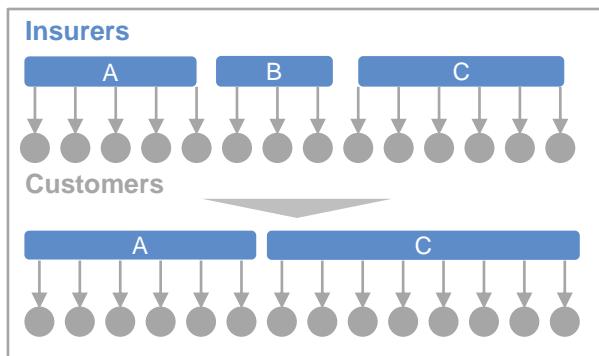


How will disaggregation across the value chain change the insurance landscape in the future?

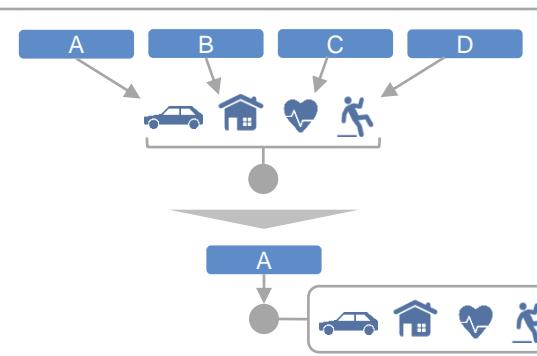
How will disaggregation across the value chain change the insurance landscape in the future?

Potential changes to the insurance landscape

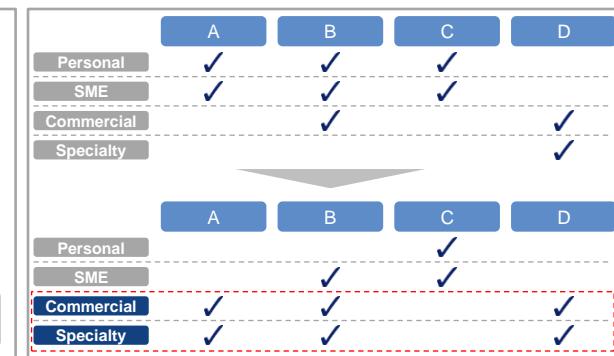
1 Consolidation of the market by mega insurers



2 Rise of multi-line policies



3 Shifting focus to niche market and commercial lines

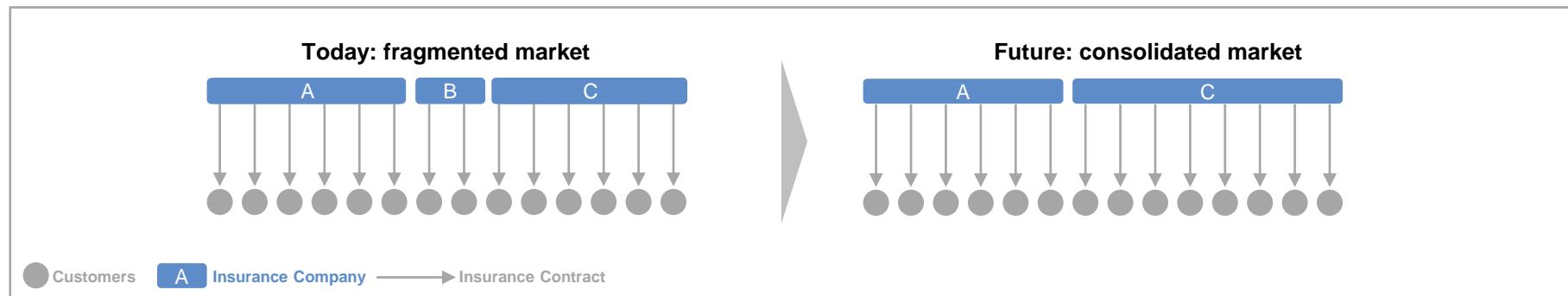


- With increasingly homogenised risk profiles and commoditised personal insurance policies, the **importance of scale** to drive efficiency will grow, leading to the **market consolidation**
- Disaggregation of distribution to technology platforms will enable insurers to **scale rapidly** in a cost-effective manner
- Widened access to capital through securitisation and alternatives will generate **excess underwriting capacity** for insurers to support rapid growth and consolidation

- Personal insurance products that are commoditised in the future will be increasingly **used as a bundle to cross sell** other more profitable products
- As the concept of ownership blurs in the sharing economy, the concept of cross sell may expand so that **an insurance policy encompasses all risks associated with the customer**, rather than specific asset
- Increased connectivity may allow “personal” insurance policies to be **adjusted frequently** to match customers’ usage patterns

- The following scenarios illustrate potential outcomes generated by the innovations discussed in this topic, particularly in response to the key question above – they are not meant to be future predictions
- These scenarios are illustrations of particular aspects of the potential future and are not meant to represent a complete view of the market and competitive landscape – in many cases, some or all scenarios could be realised at the same time

Scenario 1: Consolidation of the market by mega insurers (1 / 2)



Narrative

As a homogenisation of risk profiles leads to margin pressures and a price sensitive market (particularly in more commoditised segments such as personal auto) insurers who can achieve economies of scale will be able to provide lower prices and gain market share. In order to gain scale, M&A activities among insurers will proliferate and insurers will partner with non-traditional companies, such as technology platforms, to distribute their products. This will allow customers to compare prices and products more readily and accelerate commoditisation of the market. Insurers may also actively reinsurance their businesses using securitisation and alternative capital sources to minimise regulatory burdens and stabilise their margins.

Summary of impact

- With increasingly homogenised risk profiles and commoditised personal insurance policies, the importance of scale to drive efficiency will grow, leading to the market consolidation
- Disaggregation of distribution to technology platforms will enable insurers to scale rapidly in a cost-effective manner
- Widened access to capital through securitisation and hedge funds will generate excess underwriting capacity for insurers to support rapid growth and consolidation

Case studies



Increased transparency via online channels and limited investment returns have put significant pressure on pricing in the US auto insurance industry, driving a rapid consolidation over the past 10 years. Even absent notable M&A activities, large insurers who can afford big marketing and R&D budgets have grown rapidly; leveraging their superior customer acquisition capabilities and a price advantage derived from economies of scale. As a result, the share of top 10 auto insurers in the United States has grown from 59% in 2000 to 71% in 2012.

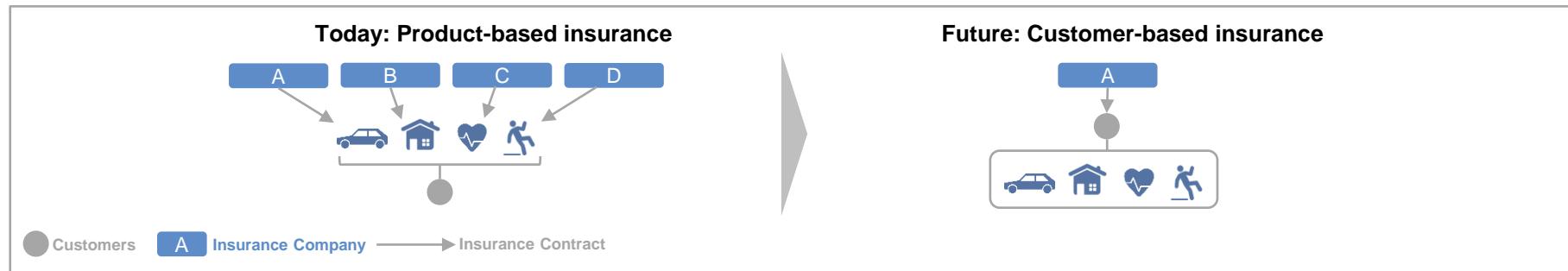
Scenario 1: Consolidation of the market by mega insurers (2 / 2)

Necessary conditions for the scenario		Implications of the scenario on...	
▪ Regulatory allowance of the consolidation of the market (i.e., resolution of anti-trust issues)		Customers	▪ Reduced choices for and differentiation among insurance products
▪ Ability to realise the benefits of scale, particularly in terms of cost efficiencies and underwriting accuracy improvements		Incumbents	▪ Potential for higher prices due to lower competition
▪ Personal lines customers continue to perceive insurance as a commoditised products		Overall Ecosystem	<ul style="list-style-type: none"> ▪ Margins expand for surviving insurers as competition is lowered ▪ Smaller insurance companies are at risk of becoming takeover targets ▪ Decreased impetus for innovation and diversification as smaller players exit the market

Opportunities and risks associated with the scenario

Opportunities	Risks
<ul style="list-style-type: none"> ▪ Consolidation leads to reduced transaction costs due to economies of scale ▪ Cost savings from efficiency gains can be passed on to customers via lower prices 	<ul style="list-style-type: none"> ▪ Oligopolistic structure may lead to potential collusion among large players, leading to price increases ▪ Mega insurers may bear more systemic risk resulting in increased regulatory pressures

Scenario 2: Rise of multi-line policies (1 / 2)



Narrative

Today insurers frequently cross sell commoditised, low margin products with their higher margin peers (e.g., the bundling of low margin auto insurance with higher margin home insurance). As the commoditisation of risks accelerates across various products, multi-line insurers may focus more heavily on bundling and cross selling products to achieve economies of scale and build customer loyalty.

Leveraging the more granular and individualised data available through connected devices, insurers may ultimately be able to take product cross selling to its logical extreme; offering a single insurance policy covering all (or a very wide range) of an individual's risks.

Summary of impact

- Personal insurance products that are commoditised in the future will be increasingly used as a bundle to cross sell other more profitable products
- As the concept of property ownership blurs in the sharing economy, the concept of cross sell may expand so that an insurance policy encompasses all risks associated with the customer, rather than risks associated with specific assets
- Through increased connectivity, the “personal” insurance policies may be adjusted more frequently to add, subtract or modify coverages to match the customers’ individual usage patterns

Case studies



Farm Family has introduced the concept of aggregate flexible contract to small / medium enterprises, concentrating on rural and suburban area, and targeting specific risks surrounding certain sectors (e.g., Special Farm Package 10 for agriculture owners). On the personal insurance side, many multi-line insurers offer bundling discounts to customers to promote cross sell across personal auto, home and life policies, with auto and home cross sell being more popular among customers, yet multi-line contracts are still not widely adopted.

Scenario 2: Rise of multi-line policies (2 / 2)

Necessary conditions for the scenario

- Insurance companies need to be able to assess and cover a wide range of risks for individuals
- Insurers need the ability and capacities to modify coverage and pricing in real-time
- Customers must trust in insurers' ability to evaluate and cover their risks comprehensively and fairly

Customers

Implications of the scenario on...

- Peace of mind knowing that a broad range of situations are covered by a single contract
- Potential loss of control over details and choices around specific insurance coverage
- Potential premium reduction driven by vertical consolidation

Incumbents

- Requires a full suite of products offering to participate in the market
- Economies of scale driven by vertical consolidation
- Potential challenges for mono-line and niche insurers regarding their competition with multi-line insurers

Overall Ecosystem

- Expansion of coverage range for each individual
- Minimum size/capabilities required to participate in the market increases

Opportunities and risks associated with the scenario

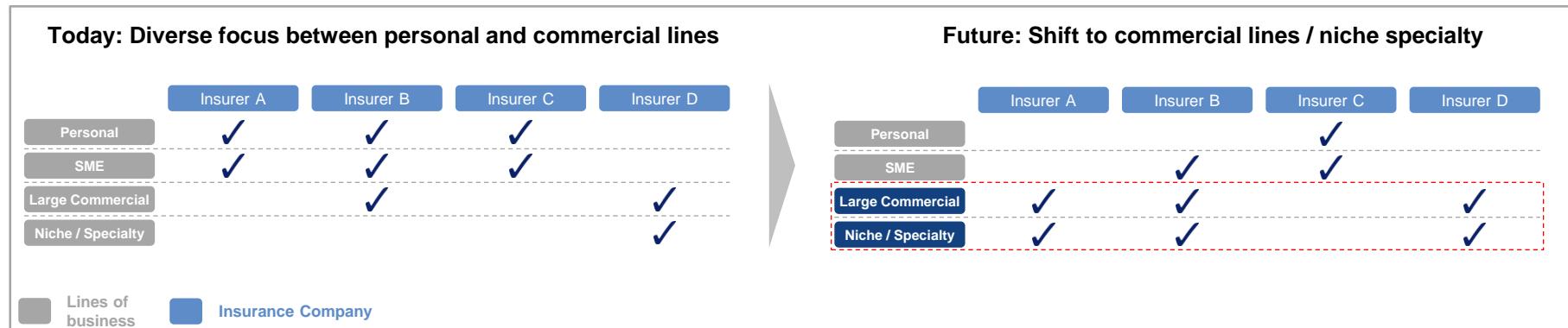
Opportunities

- Shifting from insuring "things" to insuring "people" is more aligned with who is actually exposed to risks
- Mono-line and niche insurers may partner with each other or evolve into product-specific reinsurers with deep product knowledge

Risks

- Risk of adverse selection by customers is exacerbated by insurers expanding into areas where they have less experience
- Potential for certain individuals to oversubscribe to insurance

Scenario 3: Shifting focus to niche market and commercial lines (1 / 2)



Narrative

As access to granular data and sophisticated underwriting become necessary conditions for personal insurers to survive, those with insufficient scale to compete may choose to specialise in specific market segments. These segments will tend to require in-depth historical knowledge and niche distribution networks based on factors such as demographics (e.g., cancer patients), sector (e.g., medical SME), or region (e.g., Manhattan). Multi-line insurers who sell both personal and commercial policies today may also choose to exit the commoditised personal insurance market and focus more heavily on the commercial market, where their specialised capabilities can lead to higher margins and growth / customer retention.

Summary of impact

- Disaggregation of the personal lines value chain may lead some insurers to shift their focus to niche markets where traditional capabilities (e.g., actuary and underwriting) can make bigger differences in performance and profitability, or pivot toward an increased focus on commercial lines
- In these markets, distribution and underwriting will continue to be relatively more manual and the insurers' expertise will not be easily replicated or replaced

Case studies



Bought by Many, a UK-based insurance start-up, brings together customers with specific insurance needs (e.g., age, illness, residence location, profession) to represent their needs to insurers and promote the creation and distribution of specialised insurance products designed for them. Bought by Many matches customers who do not fit commoditised insurance policies to insurers who are willing to specialise in certain customer segments.

Scenario 3: Shifting focus to niche market and commercial lines (2 / 2)

Necessary conditions for the scenario

- Niche markets and complex commercial lines must continue to require special capabilities that take time and investment to develop
- Margins for niche markets and complex commercial lines need to be attractive
- Mechanisms for insurers to exit their existing commitments in non-niche markets

Customers

Implications of the scenario on...

- Fewer suppliers of commoditised insurance products, potentially resulting in a marginal price increase
- Proliferation of the niche market results in development of products that meet special needs

Incumbents

- Increased competition in the most profitable niche and commercial markets
- Less competitive intensity in commoditised markets as companies exit

Overall Ecosystem

- Bifurcation of the ecosystem into commodity and niche markets with different characteristics

Opportunities and risks associated with the scenario

Opportunities

- Opportunity to encourage insurers to leverage their sophisticated underwriting capabilities to understand and insure against more complex risks (e.g., unhealthy population)
- Increased need for reinsurance as insurers focus more on specific, concentrated markets

Risks

- Greater risks for catastrophic losses as the concentration of insurers around niche risks increases

What does this mean for financial institutions?

Key implications and remaining questions

“Safe Bets” – Likely implications under all scenarios

- ! **Reduced customer stickiness:** With insurers' ownership of customer relationship further disaggregated and personal lines products further commoditised, customers will become more fickle and creating customer loyalty will become increasingly difficult
- ! **Self-insurance models:** The overall revenue for the insurance industry will be reduced as the agents of the commoditising forces (e.g., self-driving car manufacturers, sharing economy platforms) gain scale and begin to self-insure
- ! **Competitive benchmarking:** Insurers' ability to scan and benchmark against competitors' pricing models and strategies will become more important as customers gain visibility into prices from multiple insurers via digital distribution platforms
- ? How will insurers create customer loyalty and stickiness going forward as the insurance products become increasingly commoditised and new, digital entrants disaggregate customer relationship?
- ? What role will insurers play in supporting the self-insuring agents of commoditising forces in response to the erosion of the premium base?
- ? How can the insurance industry cultivate innovation ecosystem amidst risk-averse culture in order to proactively manage the disaggregating forces instead of reacting to them?

Scenario 1: Consolidation of the market by mega insurers

- ! **Regulatory complexity:** As mega insurers emerge across multiple regulatory jurisdictions, their burden to comply with various regulatory regimes will increase

Scenario 2: Rise of multi-line policies

- ! **Acquisition of capabilities:** Many mono-line insurers today may face challenges in acquiring expertise and capabilities to effectively provide multi-line policies
- ? What capabilities will insurers need to develop in order to quickly and accurately assess and respond to changes in customers' risks?

Scenario 3: Shifting focus to niche market and commercial lines

- ! **Relationship-driven distribution:** Insurers' ability to build and closely manage relationships with customers and distribution partners, potentially via human workforce, will become more important again to penetrate niche and commercial markets

Insurance

**How will an ever more connected
world impact the value delivered by
insurance providers?**

Executive Summary

Context / Innovation

- Increasing adoption of connected devices in cars, homes and lifestyles presents an opportunity for insurers to expand the use of telematics, i.e., the integration of telecommunication and information processing

Future of Personal Insurance

- Expansion of the telematics insurance models through connected devices and platforms will create channels for insurers to better understand their customers and engage more closely with them
 - Connected devices can allow insurers to track and continuously refine individual risk profiles, enabling more accurate underwriting of individual risks and more personalised products
 - Insurers can also evolve into a risk manager for clients by interacting more frequently with their customers and proactively participating in risk management through their customers' connected devices
 - Furthermore, insurers could leverage the individualised data gathered through connected devices to gain a fuller view of customers' identities and lifestyles, and work with retailers and external parties to deliver relevant, and financially beneficial, offers to customers

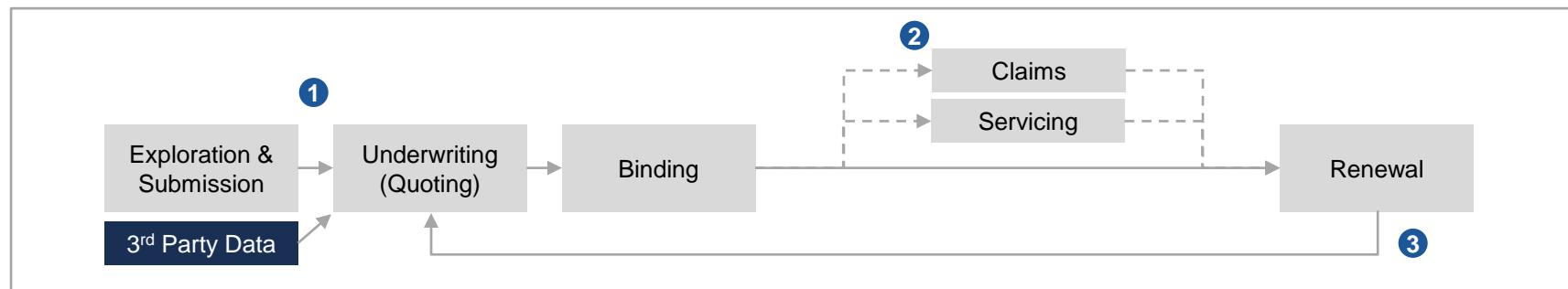
Key Implications

- To reap the benefits of new business models enabled by connected devices, insurers must work closely with device and service providers and must also define acceptable boundaries in utilising customer data

The business model for property & casualty (P&C) and health insurance has been refined over the centuries, but improvement opportunities still exist

Traditional P&C and health insurance processes

- Traditionally, P&C and health insurance policies have been priced based on predictions made using historical information and best in class statistical models



- Risks are priced based on the data customers submitted and some 3rd party data, including **historical data and predictive indicators**, against loss models and clusters created by insurers based on historical statistics
- After binding, insurers and customers **do not interact** until renewal unless specific events are triggered such as claims (e.g., accidents) or servicing (e.g., address change)
- Customers' usage and losses are reflected in their risk profile only in the underwriting process during the **next renewal cycle**

Improvement opportunities in the traditional P&C and health insurance model

Backward-looking

Despite the gradual improvement on the accuracy of loss prediction models, losses are predicted using historical indicators. Most pricing models do not adjust to real-time individual behavioural and usage data.

Limited interactions

Profitable, claim-free customers typically do not interact with insurers until renewal, limiting insurers' ability to demonstrate value to them and develop stickiness

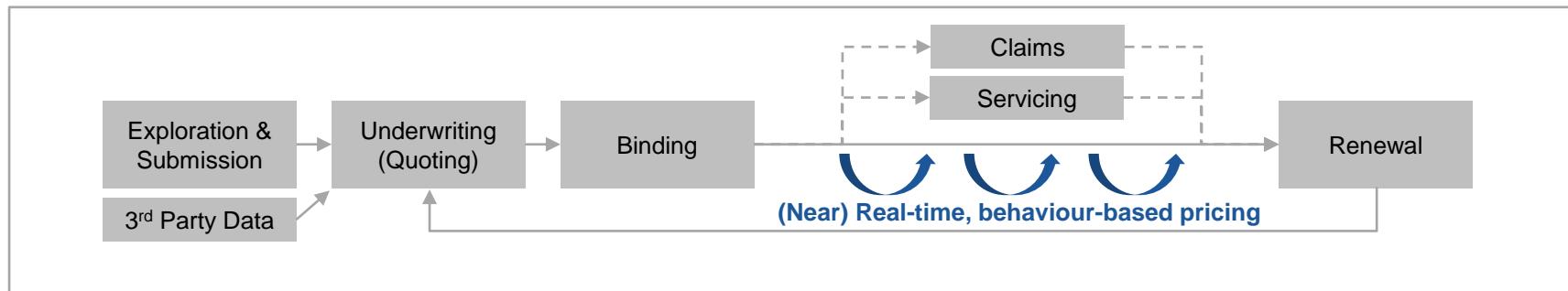
Passive

Insurers only react to customers' predicted risk profiles upon binding and at renewal, with little to no visibility into proactive risk management opportunities throughout the policy term

Telematics offers a promising proposition to P&C and health insurers and customers, but its adoption is slow due to a number of factors

What is telematics?

- First introduced in the mid-2000s, telematics insurance products leverage the GPS technology and wireless communications to enable auto insurers to collect usage and behaviour data of their customers in real time or near-real time
- Leveraging such data, insurers charge customers' premiums based on their usage of the vehicles and current driving behaviours instead of typical fixed premiums, given the strong correlation between usage of vehicles and risks
- Today's telematics devices have evolved to measure a variety of additional behavioural factors from rapid acceleration to air bag deployment



Benefits of telematics

- **Pricing Accuracy:** Insurers' risk models become more accurate as individual, empirical and near real-time data is used combined with historical predictions based on segmentation
- **Lower Claims:** Telematics products incentivise safer behaviours among customers as premiums are linked directly to the behaviours and reduce the overall claims losses for insurers
- **Personalisation:** As usage and behavioural data accumulates, the insurance premium becomes increasingly personalised to each customer, resulting in lower premiums for customers and customer stickiness for insurers

Factors inhibiting adoption of telematics

- | | |
|-------------------|---|
| Device | ▪ Installation of physical tracking devices creates an additional "moment of truth" when customers may abandon adoption of telematics |
| Selection | ▪ Only predominantly low-risk customers sign up for telematics-based insurance contracts and high-risk customers opt out, deterring insurers' economics |
| Delays | ▪ Gathering and utilisation of data is usually delayed due to connectivity, costs and analytical power |
| Incentives | ▪ Discounts often do not serve as sufficient incentives for customers to adopt and share personal data |

Connected devices and platforms emerging across cars, homes and lifestyles present an opportunity to improve and expand the telematics insurance models

Drivers behind the emergence of connected devices



Smarter, cheaper sensors



Internet-of-things



Communication protocols



Advanced analytics

Innovations creating potential opportunities for the connected insurance model

1. Connected Cars

- Run on operating systems (apps can be installed) and are connected to the internet
- Gather and transmit information on every part of the vehicle
- Communicate with other cars to prevent accidents



2. Connected Homes

- Monitor key metrics (e.g., temperature) and automatically modify the environment accordingly based on learning
- Identify risk factors (e.g., smoke) and take adequate actions for prevention / triaging
- Communicate with the environment to adapt to surrounding environments



3. Connected Lifestyles

- Quantify, track, monitor and manage daily activities through wearable devices
- Identify trends, patterns and recommendations based on quantified data
- Measure, track and analyse vitals relevant for specific conditions and illness



4. Standardised Platforms

- Increase interoperability; facilitate data gathering, management and utilisation; and improve coordination among connected devices



Key advantages

Easier utilization of data

Gathered data can be shared easily via connectivity and data-based services can be easily provided as apps through platforms (i.e., a tap to install and opt in)

Real-time communication

Data from vehicles, properties and individuals are gathered and analysed in real-time to provide timely, relevant insights and information to users

Mix-and-match of data

Data from multiple sources can be combined and analysed to create more comprehensive and accurate understanding of users

Proliferation of connected insurance models will create channels for P&C and health insurers to better understand and engage more closely with their customers

Key characteristics of the future connected insurance business model



Personalisation

Increased measurability and availability of personal data will allow insurers to refine their understanding of customers' risks from cluster-based approach to individualised pricing



Accuracy

With better understanding of each individual's risks, the pricing accuracy of insurers will improve and more customers will pay premiums appropriate for their risks (i.e., less cross-subsidisation among customers)



Transparency

As customers' usage and behaviours become more measurable, insurers will gain greater visibility into the circumstances surrounding claims and the opportunities for fraud will decrease



Data-Rich

Insurers will become a critical custodian of customer data as they gain access to behavioural data on their customers (e.g., vehicle movement), above and beyond historical and static data available today (e.g., type of vehicle owned)



Engagement

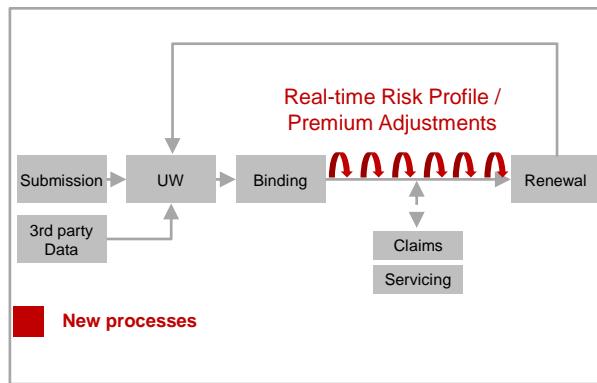
Insurers will be able to access additional channels to engage with their customers through mobile and other connected platforms and generate more relevant content for their customers based on data

As insurers are enabled with additional data and communication channels from connected devices and platforms, how will the value delivered by insurance companies evolve?

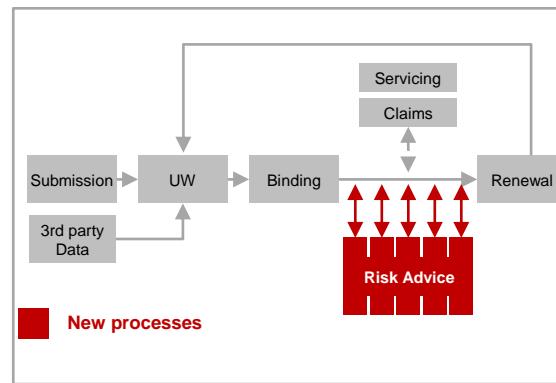
How will increasing levels of connectivity impact the value delivered by insurance providers?

Potential value proposition of connected insurers

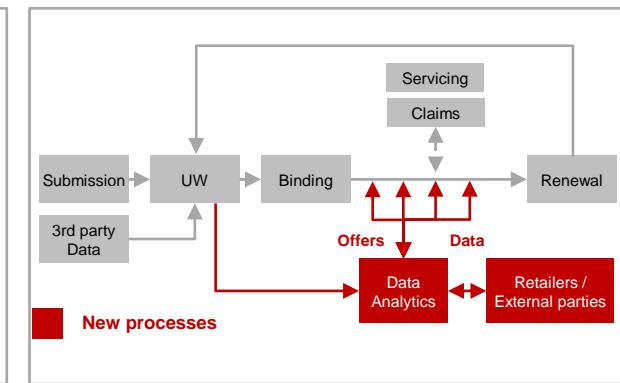
1 Personalisation of insurance policies



2 Active management of the insured's risks



3 Broker of personal data



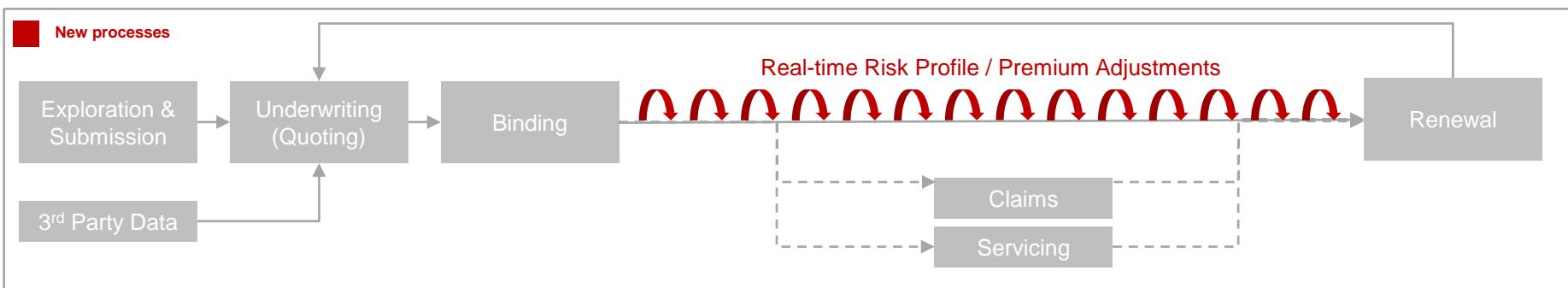
- Connected devices allow **insurers to track and continuously refine individual risk profiles** with empirical data, enabling more accurate underwriting of individual risks
- Furthermore, connected devices enable a **channel for consumers to purchase event-based coverage** to personalise their policies for better protection

- Connected devices create a bilateral channel for insurers to **interact more frequently with their customers** and proactively get involved in **managing their customers' risks** (e.g., health consultation based on data gathered through wearables)
- By developing '**concierge**' functions, insurers can actively **manage their client's risk, lower losses** and deliver additional value to customers

- Connected devices allow insurers to **gather ongoing behavioural data** from their customers to **gain a fuller view** of customer identity and lifestyle
- Working with retailers and other external parties, insurers use the increased knowledge on their customers to **deliver relevant, financially beneficial information** (e.g., offers)

- The following scenarios illustrate potential outcomes generated by the innovations discussed in this topic, particularly in response to the key question above – they are not meant to be future predictions
- These scenarios are illustrations of particular aspects of the potential future and are not meant to represent a complete view of the market and competitive landscape – in many cases, some or all scenarios could be realised at the same time

Scenario 1: Personalisation of insurance policies (1 / 2)



Narrative

A wider adoption of wearable devices (e.g., wristbands) and smarter home sensors (e.g., smart thermometers), as well as the development of aggregation platforms, allows insurers to expand usage-based offerings to home and health policies. As the result, customers pay premiums that are more customised to their risk profiles and usage.

In the automotive space the adoption of standardised platforms and improved sensors enables insurers to create app-based telematics offerings that customers can easily sign up for. Through these apps, customers can purchase additional coverage for specific events.

Summary of impact

- Connected devices create a real-time stream of more granular, individualised, empirical data, enabling insurers to track, analyse, understand and continuously refine individual risk profiles for more accurate underwriting of individual and organisational risks
- Telematics and usage-based-insurance become readily adoptable through the elimination of the need for physical devices and the development of standardised platforms
- Increased connectivity via mobile creates a channel for consumers to purchase event-based coverage to personalise their policies for better protection

Case studies



Leading mobile platforms are creating standardised platforms that enable the development of apps that can be installed across many vehicles from different automakers. These apps can enable real-time gathering of granular driving data



Wearable devices that can track users' lifestyle data are gaining popularity and a number of portable health solutions to track key vitals are being developed. Mobile OS and device makers have also begun to introduce platforms to connect and aggregate data from these devices



Smarter sensors and control devices (e.g., fire alarms, thermostats) are gaining popularity in households and aggregation platforms are emerging to establish connection among and provide central management of those devices and sensors

Scenario 1: Personalisation of insurance policies (2 / 2)

Necessary conditions for the scenario

- Widespread adoption of personal connected devices
- Sophisticated analytical capabilities to use real-time data streams to constantly update underwriting of risks
- Collaboration between regulators, insurance companies, device manufacturers and telecommunications operators
- Customers willing to share additional personal data with insurers

Customers

Implications of the scenario on...

- More customised insurance premiums and coverage
- Premiums that are more reflective of true personal risks – less cross-subsidisation between customers

Incumbents

- Increased focus on data ownership
- Need to create partnerships with other ecosystem players
- Complete redevelopment of underwriting models

Overall Ecosystem

- Personalised insurance products allow less comparability between insurers

Opportunities and risks associated with the scenario

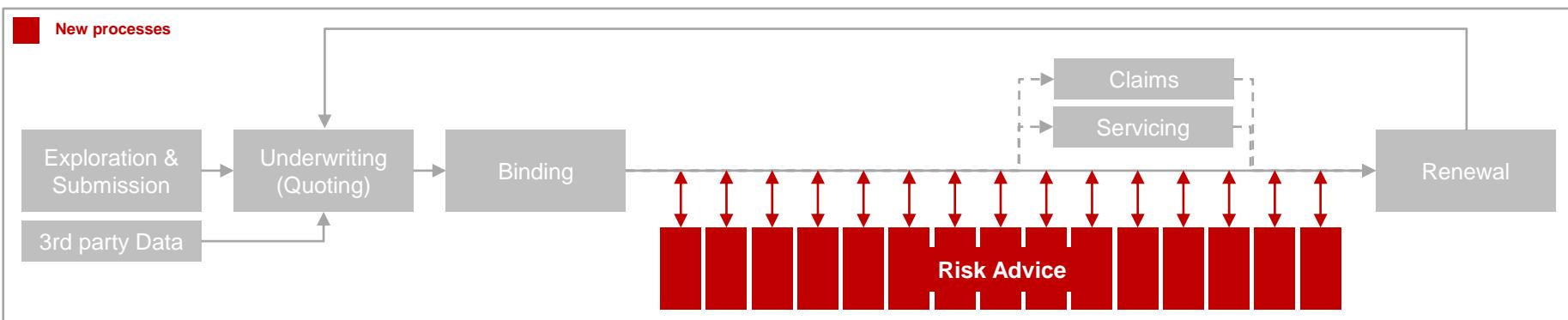
Opportunities

- More accurate underwriting and premium calculation on the basis of available individual data
- Increased stickiness of customers to their insurers

Risks

- Management and protection of sensitive, personal data generated by connected devices
- As cross-subsidisation decreases, accessibility to insurance becomes a concern for high-risk customers
- Red-lining customers who elect not to participate in or are excluded from personalised insurance based on data from connected devices

Scenario 2: Active management of the insured's risks (1 / 2)



Narrative

Utilising driving patterns gathered from connected cars and 3rd party data (e.g., weather), insurers send warnings and advice via in-car applications to support safer driving by their customers

As health insurers gain more granular data on customers' lifestyles and better understand indicators for future illness, they arrange health consultants to high risk customers via mobile apps

As a result, customers benefit by avoiding accidents and illness and find their insurance policy more valuable, whereas the frequency and magnitude of losses are reduced for insurers

Summary of impact

- Collection and analyses of more granular data allows insurers to more accurately understand behavioural risk factors and predict near and long-term increases in risk
- Connected devices create a bilateral channel for insurers to interact more frequently with their customers and proactively get involved in managing their customers' risks before events occur
- By evolving into a manager for their client's risks, insurers can lower losses while delivering additional value to customers

Case studies



Marmalade Insurance, a UK based insurance company, targets less-experienced driver segments with its telematics offering by providing feedback and e-learning based on driving behaviour to promote safer driving



Vitality Health's app encourages its customers to voluntarily track and share lifestyle data with the insurer. The app then provides analysis and feedback based on the gathered data, and rewards customers for healthier lifestyle choices with gifts and other benefits

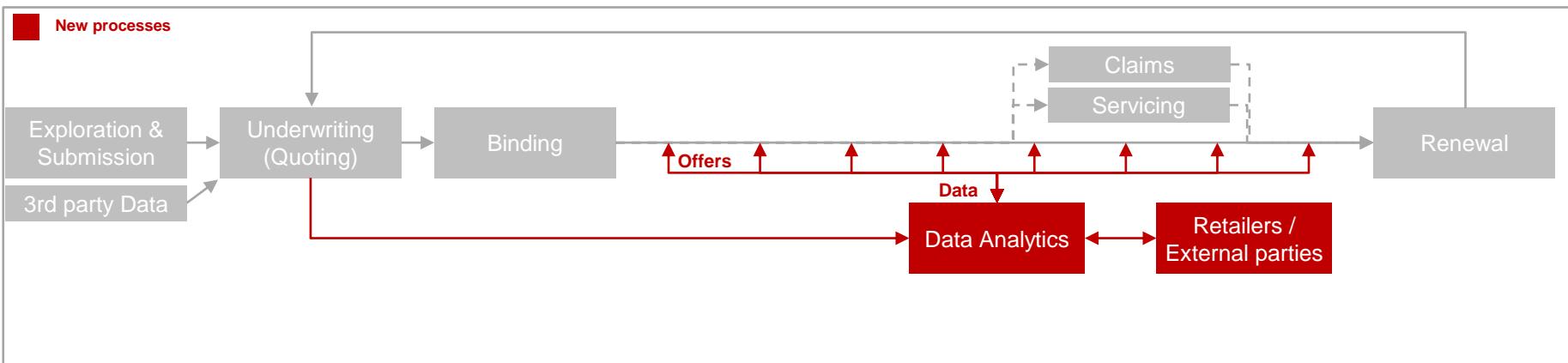
Scenario 2: Active management of the insured's risks (2 / 2)

Necessary conditions for the scenario		Implications of the scenario on...	
▪ Development of advanced analytical capabilities to predict future risks	Customers	▪ Reduce risks and better manage future risks through insurers' advice	
▪ Clear understanding of liabilities associated with advice	Incumbents	▪ The implementation of 'concierge' functions becomes a core value proposition	
▪ Customer trust in insurers to manage their risks and provide advice	Overall Ecosystem	▪ Increased focus on behavioural indicators of risks (i.e., what matters and when to engage)	
		▪ Build customer loyalty by becoming partners to customers	
		▪ Decrease in the overall risk pool of the participating customers through active management of individuals' risks	

Opportunities and risks associated with the scenario

Opportunities	Risks
<ul style="list-style-type: none"> ▪ Opportunity for insurers to evolve into a service provider that offers differentiated services to customers (e.g., health consulting) ▪ Lower claims due to proactive management of risks and longer-term customer education 	<ul style="list-style-type: none"> ▪ Dealing with losses resulting from policy holders rejection of advice ▪ Dealing with losses resulting from absence of advice or the delivery of incorrect advice ▪ Risk of fraud from customers gaming the connected systems

Scenario 3: Broker of personal data (1 / 2)



Narrative

Insurers already gather static data on customers' properties (e.g., make of car, house location, age). Connected devices will allow insurers to track their customers' behaviour with sufficient granularity to create a comprehensive picture of their identity and lifestyle. Automotive insurers will be able to predict future erosion of tires and collaborate with auto parts retailers to send discount offers to replace tires based on the make of vehicles. Home insurers could utilise customer data to predict a vacation approaching and offer discounts on travel packages as well as travel insurance. These offers will provide additional financial value to customers, encouraging loyalty and supporting proactive risk management.

Summary of impact

- Connected cars, homes and health devices will allow insurers to gather ongoing behavioural data from their customers, which can be combined with existing asset data to better understand customers' identity and lifestyle
- Working with retailers and other external parties, insurers can use the improved knowledge of their customers to deliver relevant, financially beneficial information to customers, which can incent them to better manage their risks

Case studies



While many P&C insurers already partner with retailers to offer relevant discounts, the use of behavioural data is still limited.

Insure the Box, a UK auto insurer, leverages telematics devices installed on cars to provide theft recovery services.

Scenario 3: Broker of personal data (2 / 2)

Necessary conditions for the scenario

- Insurers gain customer trust as guardians of personal data by clearly demonstrating alignment of interests with customers and providing sufficient value in exchange for their personal data
- Compliance with existing and future regulations on usage of personal data

Implications of the scenario on...

Customers

- Financial incentives from individualised offers

Incumbents

- Decrease in claims and losses
- Potential for partnership revenue
- Halo effect with customers based on providing additional value

Overall Ecosystem

- Increased competition for partnerships
- Early-movers may benefit from locking up partnerships

Opportunities and risks associated with the scenario

Opportunities

- Incentives may support lower risk behaviour by policy holders (e.g., not delaying tire replacement)

Risks

- Data might be misappropriated by external parties
- Risk of losing customers' trust, particularly if relevance of offers is low

What does this mean for financial institutions?

Key implications and remaining questions

“Safe Bets” – Likely implications under all scenarios

- ! **Real-time data and analytics:** Insurers' ability to gather and analyse data in real-time will become more essential to enabling and optimising the benefits of connected insurance models
- ! **Strategic role of insurance business:** As insurers gather behavioural data from customers and become more sophisticated in understanding risks, the role of insurance within retail financial institutions will become critical in understanding customers' financial status and needs (e.g., Bancassurance players may benefit significantly from insights generated from the connected insurance models)
- ! **Importance of customer lifecycle management:** As insurers' relationships with customers become stickier, it will become more difficult for insurers to steal market share. Capturing desirable customers early in their lifecycle will become critical to building revenue
- ? How will the individual behavioural data generated from connected devices be sourced? What issues will arise related to the aggregation and ownership of this new data?

Scenario 1: Personalisation of insurance policies

- ! **Reduced cross-subsidisation:** Insurers' current business model of cross-subsidising across customers will no longer be feasible when a majority of insurance policies and premiums are highly individualised
- ? How will insurers successfully demonstrate the value of new offerings to early adopters given their lack of historical data and limited experience analysing these data streams
- ? How will less-desirable customers be served as insurers become able to exclude them, particularly considering the public nature of some insurance products (e.g., health, auto)?

Scenario 2: Active management of the insured's risks

- ! **Separation of distribution and customer management:** Insurers will need to develop direct digital channels to interact with customers and manage their risks, regardless of their distribution strategies and channels (e.g., brokers)
- ? How will the insurers incentivise customers to participate in the connected models of insurance and modify their behaviours as they play a more proactive role in managing customers' risks?

Scenario 3: Broker of personal data

- ! **Merchant relationships:** In order to deliver relevant value to customers, insurers' ability to manage relationships with merchants will become more critical, which is not a core capability in the insurance industry today
- ? Where will the new boundaries lie in selecting desired customers and utilising their data to generate value (e.g., 3rd party offers) while ensuring fairness and privacy?

Deposits & Lending

**How will emerging alternative models
of lending change the market
dynamics of traditional lenders?**

Executive Summary

Context / Innovation

- Following the financial crisis, lower risk appetites among retail banks have significantly limited access to traditional bank intermediated lending. This is particularly true among sub-prime borrowers
- Over the same period of time alternative lending platforms leveraging P2P models have experienced rapid growth. These platforms use alternative adjudication methods and lean, automated processes to offer loans to a broader base of customers and a new class of investment opportunities to savers

Future of Savings & Lending

- As competitive pressures from alternative lending platforms grow, the overall savings and lending industry will be forced to compete
 - Alternative lenders could successfully move upstream to replace traditional institutions in intermediating prime loans while traditional lenders, restricted by legacy processes and high capital requirements, lose share
 - Alternatively, traditional institutions and alternative platforms may continue to cater to different classes of investors and borrowers, especially with growing partnerships between smaller traditional institutions and alternative platforms
 - Traditional institutions could also transform their processes and technologies, potentially absorbing alternative platforms, to adopt the key features of alternative lending business models

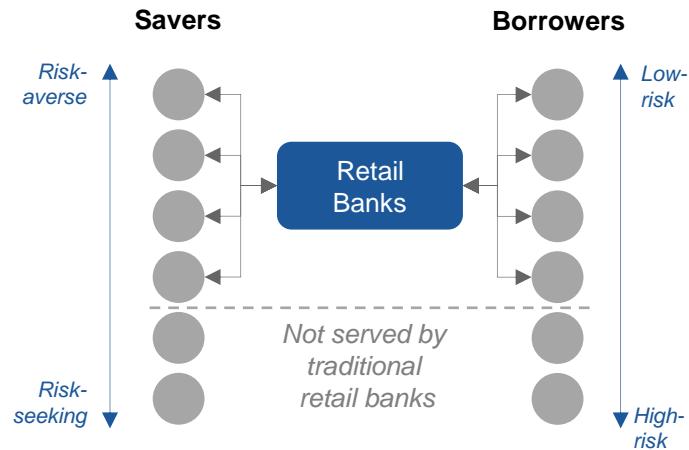
Key Implications

- Emerging alternative lending models create both competitive threats and evolutionary opportunities for financial institutions, making it important for incumbent institutions and alternative platforms to develop more integrated partnerships and learn from and share each other's capabilities

In a risk-averse economy, retail banks' model of intermediating savers and borrowers has reduced accessibility to loans for subprime customers

How do financial institutions facilitate lending activities today?

- Retail banks receive savings from their account holders and provide interest on the savings in return. In most countries, regulators mandate banks to insure and hold minimum reserve on the savings held
- Using the saved funds, retail banks originate loans to borrowers and receive interest in return. The availability of loans and the interest rates are determined by the adjudication of borrowers' risk profiles, typically using credit scores
- Typically, interest received on loans are higher than interest paid on savings to account for default risks and other operational costs
- The breadth of borrowers served is dependent on each bank's risk appetite, which is generally related to the size and scale of the banks (e.g., riskier borrowers tend to be served by tier 2/3 banks or balance sheet lenders)



Evolution of traditional lending models

- Following the 2008-2009 global financial crisis, customer trust surrounding financial services quickly dissipated
- Regulators also mandated increased safety measures around loans (e.g., higher capital requirements) which resulted in many banks tightening loan requirements
- This mutual loss of confidence created a lending gap, leaving a considerable portion of borrowing needs underserved by financial institutions
- Furthermore, customer preferences in financial services are rapidly changing, demanding more transparency, efficiency and control over their savings and loans

Key characteristics of traditional models

Limited Access

A growing lending gap limits the availability of loans to individuals and companies with higher risk profiles

Slow Speed

Traditional adjudication processes with multiple layers of approval limits the banks' ability to process loans in timely manner

Margin for Error

Traditional adjudication models and credit scores tend to miss suitable lending opportunities in a virtual economy

Poor Customer Experience

Highly manual adjudication processes and requirements fall short of increasing expectations on customer experiences

Limited Control

Borrowers have limited visibility and control over the uses of funds and interest rates earned

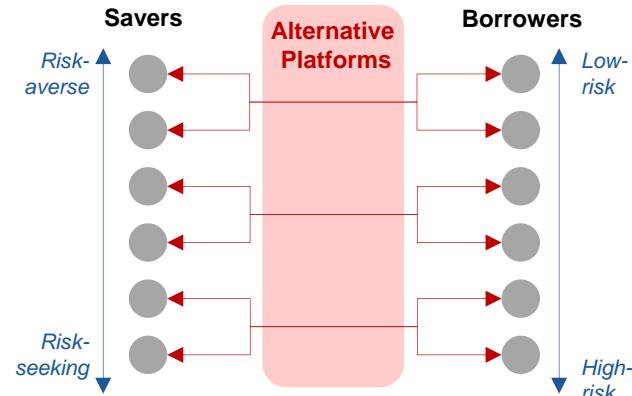
Low Return

Operational inefficiency and reduced risk appetite of banks result in low returns on savings

Alternative lending platforms leverage P2P models and lean operations to offer seamless services to a broader base of customers

Description of alternative lending models

- Alternative lending institutions have emerged to fill gaps in the traditional lending model. New industry players are emerging across the globe, showcasing a myriad of value propositions and strategies that are challenging traditional business models
- Online and P2P (P2P) lending platforms provide customers low-cost, fast, flexible, and more customer-oriented alternatives to mainstream retail banking that traditional financial institutions once dominated
- While the business models of alternative lenders often differ from one another, most providers directly link borrowers and lenders, employ advanced adjudication methods and streamline processes



Key characteristics of alternative lending platforms



P2P

- Alternative lenders leverage online platforms and legal contracts to provide direct matching of funds between savers and borrowers
- By acting as online marketplaces P2P lenders facing lower funding costs than traditional depository lenders



Alternative adjudication

- Alternative lending platforms assess the creditworthiness of borrowers based on metrics beyond the credit scores used by traditional lenders (e.g., social data)
- Most alternative lenders also refine their risk engine more frequently than traditional lenders to incorporate feedback based on empirical analysis



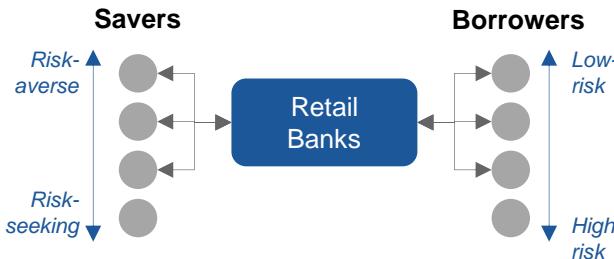
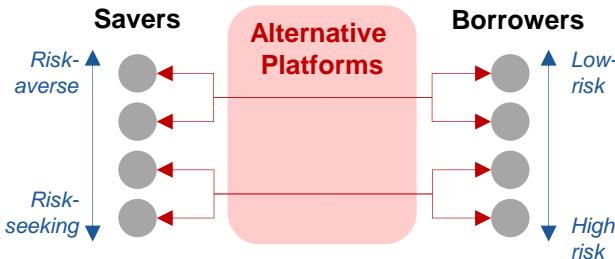
Lean, automated processes

- Alternative lending platforms are free of legacy processes and technologies, allowing them to onboard and assess borrowers and lenders in a more streamlined fashion
- At most alternative platforms, assessment of borrowers is at least partly automated against predefined rules for fast, transparent processing



Traditional and alternative lending models differ significantly in their flexibility and allocation of risk

- Traditional lending intermediaries (e.g., retail banks) take risks themselves and leverage their scale to provide stability to lenders (depositors), however their focus is typically limited to low-risk borrowers and they charge high fees (in form of interest spread). Therefore the needs of risk-seeking savers and high-risk borrowers are not fully served by traditional banks
- Alternative lending platforms typically provide an online marketplace where lenders have the flexibility to pick and choose a desired risk portfolio. The marketplace generates lenders' scores and typically takes a cut of loan originations and ongoing loan revenues but does not directly take risks

	Traditional lending intermediaries	Alternative lending platforms
Ecosystem		
Description	<ul style="list-style-type: none"> Traditional intermediaries hold savings from retail, commercial and institutional clients and provide interest in return Using those funds, traditional intermediaries originate loans to borrowers based on their creditworthiness and earn interest (the differential between interest, or "spread" is the intermediary's return) 	<ul style="list-style-type: none"> Alternative lending platforms directly match lending needs of borrowers with willing lenders (individuals or institutions) Contractual obligations exist directly between borrowers and lenders and platforms provide mere intermediation and adjudication Alternative platforms are compensated through originations fees or a percentage of interest payments
Advantages	<ul style="list-style-type: none"> Lenders' savings are protected by the intermediaries' reserves and by deposit insurance schemes The complete pooling of savings and loans most effectively mitigates individual default risks 	<ul style="list-style-type: none"> Lending processes and risk profiles are transparent to both borrowers and lenders Traditionally underserved borrowers gain access to loans and diverse risk appetite of lenders is met Reduction of transaction costs
Limitations	<ul style="list-style-type: none"> Lenders do not have flexibility to determine the desired level of risk and return Primary focus on low risk loans exclude higher risk borrowers, depending on the market conditions 	<ul style="list-style-type: none"> Investments may be more susceptible to individual default risks even with portfolio approach, especially for smaller investments Guarantees on the investments are limited

Alternative lending platforms are creating competitive pressures to savings and lending industry to become more transparent and customer friendly

Key characteristics of future deposits and lending models



More Accurate Underwriting

Adverse selection by lending intermediaries with superior underwriting capabilities will lead to a broader adoption of alternative credit indicators for adjudication and pricing



Increased Access

Use of alternative adjudication and diversification of lenders will provide more lending options to a broader spectrum of borrowers (e.g., "thin file" borrowers)



Control and Transparency

Lenders will gain more control over the return on their savings based on their risk appetite and more visibility into the flow of their savings



Reduced Costs for Borrowers/ Increased Return for Savers

As the understanding of risk profiles of borrowers is improved, the margins of lending intermediaries may be pressured, resulting in lower cost of obtaining loans for borrowers and increased return for lenders



Fast and Customer Friendly

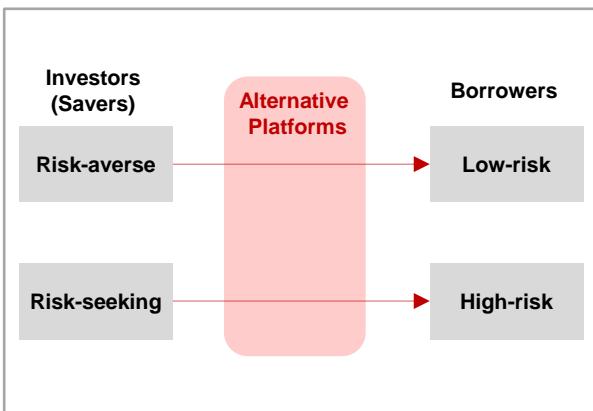
Streamlined and automated processes expedite loan processing and improve customer experience for borrowers

While enabling these future state characteristics, how will emerging alternative models of lending change the market dynamics of traditional lenders?

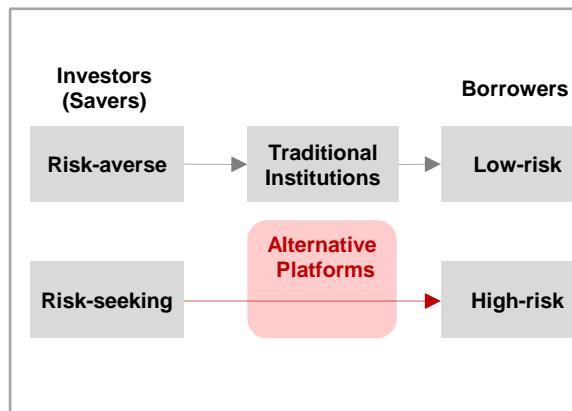
How will emerging alternative models of lending change the market dynamics of traditional lenders?

Potential roles of alternative lending platforms

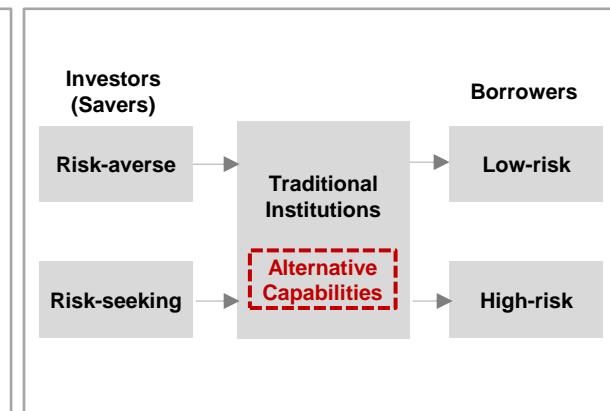
1 Disintermediation of traditional intermediaries



2 Complementing traditional intermediaries



3 Driving change within traditional intermediaries



- Alternative platforms successfully **move upstream** to replace traditional institutions in intermediating **risk-averse savers and low-risk borrowers**
- Restricted by legacy processes / technologies and reserve requirements, **traditional institutions lose their share** to leaner and more consumer-friendly alternative lending platforms

- Traditional institutions and alternative platforms continue to **cater to different classes** of investors and borrowers
- Some smaller institutions with limited lending bandwidth may **partner with alternative lenders** through customer referral and capital investments to **address the underserved needs** of their customer base

- Traditional institutions **transform their processes and technologies** or absorb alternative platforms to adopt the key features of alternative lending business model
- Traditional institutions serve as a lending intermediary **for both low-risk and high-risk borrowers**, building on their trust and reliability among customers

- The following scenarios illustrate potential outcomes generated by the innovations discussed in this topic, particularly in response to the key question above – they are not meant to be future predictions
- These scenarios are illustrations of particular aspects of the potential future and are not meant to represent a complete view of the market and competitive landscape – in many cases, some or all scenarios could be realised at the same time

Scenario 1: Disintermediation of traditional intermediaries (1 / 2)



Narrative

As the position of alternative lending platforms in the high-risk lending market matures, alternative lending marketplaces will gain sufficient customer trust and reputation to attract more risk-adverse investors and low-risk borrowers. The ability of alternative lending platforms to offer borrowers lower interest rates and a more streamlined customer experience will also help attract and retain low-risk borrowers.

As lending marketplaces move upstream to prime lending markets they may evolve to become the primary origination point for consumer lending and an investment destination for a portion of bank's deposit float.

Summary of impact

- Leveraging alternative adjudication methods, streamlined processes, and lower overhead, alternative lenders successfully move upstream and emerge as a cheaper and faster direct competitor to traditional lending institutions in the low-risk lending space
- Entrenched by legacy processes / technologies and capital requirements, traditional institutions do not adapt quickly enough and lose share to leaner and more consumer-friendly alternative lending platforms

Case studies



Launched in 2005 as the world's first P2P lending service, Zopa targets only prime lenders as determined by its adjudication model, and competes with traditional institutions on rates / returns and a more seamless origination process. In 2014, Zopa achieved a default rate of 0.38 percent, significantly lower than traditional institutions.



Launched in 2006, CreditEase started as a Chinese P2P lending service, aiming to bridge urban lenders with excess funds and an underbanked rural population with borrowing needs. Building on its success CreditEase has grown to offer other financial products and services, such as wealth management products for high net worth customers.

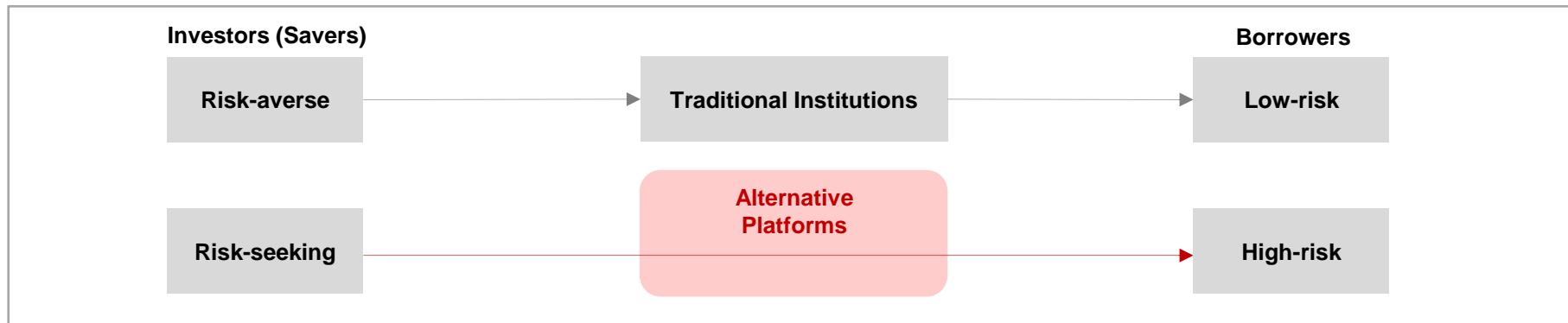
Scenario 1: Disintermediation of traditional intermediaries (2 / 2)

Necessary conditions for the scenario	Implications of the scenario on...		
<ul style="list-style-type: none"> Sufficient customer knowledge and trust in alternative lending platforms by both borrowers and lenders Relevant authorities need to be comfortable with alternative lending platforms accounting for a significant portion of total loans originations Increased liquidity of investments through the development of secondary markets (allowing them to compete with money market funds and other highly liquid savings products) 	Customers	<ul style="list-style-type: none"> Customers across the spectrum gain ability to select desired risk / return mix Some investments become more susceptible to default risk 	
	Incumbents	<ul style="list-style-type: none"> Loss of market share to alternative lending platforms Reduced ability to cross-subsidise financial products Negative impact on capital ratio as deposits erode 	
	Overall Ecosystem	<ul style="list-style-type: none"> Loss of savings accounts may lead to losing shares in other products 	

Opportunities and risks associated with the scenario

Opportunities	Risks
<ul style="list-style-type: none"> Creates a new asset class once critical mass for liquidity is achieved 	<ul style="list-style-type: none"> Uncertainty around the stability of the ecosystem in a high interest rate environment Overhead costs for alternative lending platforms may increase as their scale grows, eroding their cost advantage Conflict of interest may arise as alternative lending platforms act as rating agencies within their marketplace but also benefit from the origination of new loans

Scenario 2: Complementing traditional intermediaries (1 / 2)



Narrative

Unable to build sufficient customer awareness / trust, particularly in the market for low-risk lending, alternative lenders enter into partnerships with existing financial institutions. Traditional financial institutions are able to refer high-risk borrowers who do not meet minimum lending requirements to alternative platforms, thereby helping those customers fulfill their financing needs without the risk of losing other elements of their business (e.g., deposit accounts, credit cards) to another traditional financial institution.

Some smaller, and more regional, institutions may also find it beneficial to “park” excess funds with their lending marketplace partners as a mechanism for diversifying their lending portfolios.

Summary of impact

- Traditional institutions and alternative lending platforms continue to cater to different classes of investors and borrowers – traditional institutions cater to the low-risk market based on trust, and alternative platforms cater to the high-risk market based on access
- Some traditional institutions with limited lending bandwidth may partner with alternative lenders to meet the underserved needs of their customer base, by referring customers or investing excess capital
- Overall, more customers gain access to savings and lending products that best suit their needs as the industry becomes more diversified

Case studies



In 2014, Lending Club (an alternative lending platform) and Union Bank (a U.S. regional bank) formed a strategic alliance. Under the agreement, Union Bank plans to purchase personal loans through the Lending Club's platform and work with the platform on the co-creation of new credit products. Through the partnership, Union Bank can meet the borrowing needs of its sub-prime customer segments while earning higher interest on its strong balance sheet.

Scenario 2: Complementing traditional intermediaries (2 / 2)

Necessary conditions for the scenario	Implications of the scenario on...		
<ul style="list-style-type: none"> Continued regulatory acceptance of alternative lending models serving the sub-prime market Alternative lenders do not gain sufficient awareness / trust from the low-risk borrower and investor base Banks continue to have a limited appetite for high-risk lending 	Customers	<ul style="list-style-type: none"> Customers are more likely to trust alternative lending platforms as they become associated with established financial institutions 	
	Incumbents	<ul style="list-style-type: none"> The ability to serve high-risk customers without risking losing other business lines (e.g., transaction accounts) The ability to earn originations revenue from high-risk borrowers without taking high risks 	
	Overall Ecosystem	<ul style="list-style-type: none"> Expansion of credit without disruption of traditional industry structure and lending models 	

Opportunities and risks associated with the scenario

Opportunities	Risks
<ul style="list-style-type: none"> Opportunity to create a more inclusive financial ecosystem and mechanisms for customers to build / rebuild creditworthiness without the main financial ecosystem taking direct risks 	<ul style="list-style-type: none"> Reputational risks for traditional institutions who partner with alternative lenders Established institutions that refer customers to alternative lending platforms may fuel the growth of those platforms, allowing them to evolve into more direct competitors

Scenario 3: Driving change within traditional intermediaries (1 / 2)



Narrative

Responding to the threat of alternative lending platforms, traditional institutions transform their technologies and processes and / or acquire the alternative platforms. This allows traditional institutions to leverage alternative adjudication methods, deliver a more streamlined lending process, and improve efficiency to potentially offer lower interest rates. It will also allow them to selectively cater to more borrowers that traditionally fell in underserved categories.

Summary of impact

- Traditional institutions transform their processes and technologies or absorb alternative platforms to adopt the key features of an alternative lending business model, such as alternative adjudication and streamlined processes, to provide compelling value proposition to customers
- Traditional institutions successfully create financial products beyond savings products to cater to the borrowing needs of high-risk borrowers and provide the desired level of return to risk-seeking lenders

Case studies



Advanced Merchant Payments (AMP) helps traditional financial institutions transform and supplement their adjudication models with alternative methods to improve underwriting accuracy of small / medium enterprise loans. For instance AMP enables financial institutions to leverage merchant acquiring data in adjudication, which is more accurate indication of a company's cash flow and readily accessible by financial institutions.

Scenario 3: Driving change within traditional intermediaries (2 / 2)

Necessary conditions for the scenario

- Sufficient pressure from alternative lending platforms on traditional intermediaries to justify significant investments in new business processes and IT infrastructure
- The ability of traditional financial institutions to achieve cost competitiveness with alternative lending platforms by adopting alternative adjudication and process improvements

Implications of the scenario on...

Customers

- Significant improvement in customer experience and availability of loans / investment opportunities without customers having to change service providers

Incumbents

- Ability to directly serve their customer base's borrowing needs, even for the high-risk customers
- Improved profitability due to adoption of alternative adjudication methods
- Reduced leakage during lending application process due to streamlined straight-through processing

Overall Ecosystem

- Incumbents remain dominant with minimal changes to ecosystem but significant improvements are made in the efficiency of the lending process

Opportunities and risks associated with the scenario

Opportunities

- Accessibility to the financial system can be extended to more customers without changing the overall ecosystem
- Financial institution's ability to more accurately understand risks associated with borrowers and loans will improve

Risks

- Potential risks might be created by channelling additional credit volume through the traditional financial institutions
- Reputational risks associated with running alternative lending platforms that specialise in high-risk loans

What does this mean for financial institutions?

Key implications and remaining questions

“Safe Bets” – Likely implications under all scenarios

- ! **Erosion of deposits and investment products:** As savers leverage alternative lending platforms as short and medium-term investment vehicles, erosion will occur among traditional deposits and investment products (e.g., money market funds) offered by traditional institutions, ultimately leading to some balance sheet shrinkage
- ! **Distributed credit:** Customers' savings and credit portfolios could become distributed over a large number of alternative platforms with varying reporting standards, making it difficult for financial institutions to measure each customer's creditworthiness on a consistent basis
- ? How will retail banks continue to maintain their ability to serve lending needs of customers as the erosion of deposits to alternative lending platforms leads to a smaller balance sheet?
- ? How will retail banks continue to accurately and consistently assess creditworthiness as customers' loan portfolios become distributed and the measurement of creditworthiness becomes increasingly diversified?

Scenario 1: Disintermediation of traditional intermediaries

- ! **Pressure on spread:** Intensified competition driven by alternative lending models will create pressure on spread earned between interest paid to savers and earned from borrowers, leading to margin pressure on financial institutions
- ? How will traditional institutions offer competitive interest rates to both savers and lenders against the disintermediated business model of alternative lending platforms?

Scenario 2: Complementing traditional intermediaries

- ! **Reduced diversification of customers:** As risk-tolerant savers and high risk borrowers switch to alternative lending platforms, the profiles of customers served by traditional institutions will become increasingly homogenised
- ? How will traditional institutions participate in the alternative lending market to meet the needs of their customers who are currently underserved (e.g., direct entry, investment vehicle, distribution partnership)?

Scenario 3: Driving change within traditional intermediaries

- ! **Diversification of products:** In order to compete against diverse lending platforms and serve various needs of savers and borrowers, traditional institutions will need to diversify savings and lending products from today's one-size-fits-all approach
- ? In addition to the adoption of alternative adjudication models and streamlined processing, how will financial institutions meet increasingly diversified needs of savers and borrowers nurtured by alternative lending platforms?

Deposits & Lending

What will be the future role of financial institutions in response to continually shifting customer preferences?

Executive Summary

Context / Innovation

- Driven by generational shifts and rapid consumer adoption of technology, customers' channel preferences for financial products and services are shifting rapidly
- These changing customer preferences have manifested in a number of innovations, from the development of virtual banks to the evolution of mobile banking capabilities, and the development of "banking as platform" movement

Future of Primary Accounts

- As customer expectations for financial institutions continue to rise, financial institutions will be required to create a fuller virtual experience that is more customer driven, potentially changing the role of primary account providers
 - Increasing customer demand and growing trust with tech companies may enable non-traditional firms that excel in creating digital customer experiences to assume control of the customer relationship, while traditional institutions focus on manufacturing financial products
 - Full-service virtual banks could offer a comprehensive suite of financial products by partnering with a range of niche alternative providers (e.g., P2P lenders, automated asset managers); allowing the network of alternative providers to compete directly with full-service retail banks
 - In the future financial institutions could leverage virtual channels to offer frequent customer interactions and non-financial value-adds above and beyond needs-based transactions to strengthen customer relationships

Key Implications

- As customers' demands continues to grow, it will become increasingly difficult for financial institutions to cater to all the needs of customers. In the future – financial institutions should consider what portion of their business they would like to retain and what partnerships can deliver better value to customers

These changing customer preferences have manifested in a number of innovations emerging across primary account providers

What are the key innovations manifested by shifting customer channel preferences?



Virtual Banks

- “Direct Banks” first emerged in the 1990s based on telephone banking and have since evolved to become more “virtual,” relying on online / mobile channels
- Most virtual banks established to date have been subsidiaries of large traditional financial institutions, targeting their price-sensitive customer segments
- Today, improved technology is allowing virtual banks to offer new and compelling value propositions beyond just lower cost



Evolution of Mobile Banking

- Rapid adoption of mobile devices has led many financial institutions to quickly add digital channels for basic transactions
- However, these channels often struggle to meet customers’ demands for fully functional mobile platforms
- Free of legacy systems, non-traditional players are emerging to offer mobile apps that make financial transactions even more effortless for customers (e.g., P2P money transfer, photo bill payment, voice recognition)



Banking as Platform

- Legacy systems and competing priorities limit the speed at which traditional players can offer innovative online and mobile tools; particularly for smaller institutions where the cost to deliver a full suite of solutions to meet diverse customer needs can be prohibitive
- Banking-as-platform movement aims to standardise APIs across financial institutions allowing 3rd party developers to easily build and integrate customer-facing enhancements to the institutions’ core offerings

Case studies



Fully virtual “community” bank in Germany, offering innovative products such as game currency wallet and high degree of social media integration

Other Examples



SIMPLE



by Raiffeisen Bank International

Case studies



Provides financial institutions with a mobile / online solution that enables fast, easy and low cost consumer to consumer money transfer via email and text across institutions

Other Examples



Mitek



Runs an app store for its customers to download a wide range of additional functionalities to its core online and mobile platform by exposing its API to external developers

Other Examples



YODLEE

As customer expectations continue to rise, the primary accounts industry will become more virtual and customer-driven

Key characteristics of the future banking experience



Full Virtual Experience

Virtual channels will evolve beyond basic transactions to provide broader functionality such as onboarding and servicing



Customer-Driven

As customers become more tech savvy, the value propositions and customer experiences of financial institutions will be increasingly shaped by customer demands



Higher Expectations

Banks will need to cater to heightened expectations of customers who are accustomed to the seamless customer experiences offered by technology providers



Segment-based

Service offerings will evolve to target and meet the needs of each segment or community, moving away from one-size-fits-all mass market approach



Externalised

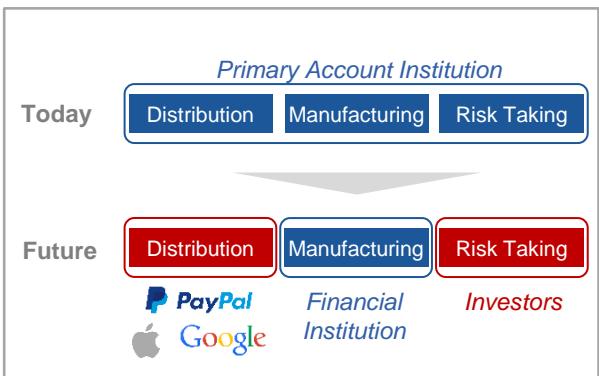
Financial institutions, especially the smaller and newer organisations, will shift away from in-house approach to relying on external providers to deliver online and mobile solutions in a timely manner

What will be the future role of financial institutions in response to continually shifting customer preferences?

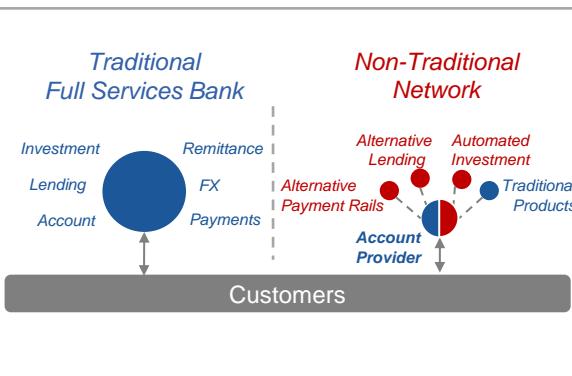
What will be the future role of financial institutions in response to continually shifting customer preferences?

Potential impact of shifting customer channel preferences

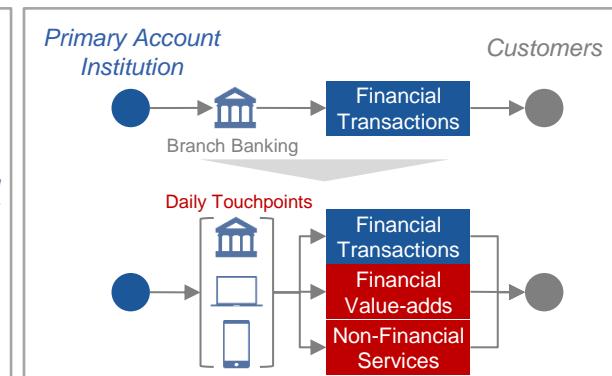
1 Disaggregation of customer relationship ownership



2 Enabling the ecosystem of non traditional providers



3 Embedding closer into customers' daily lives



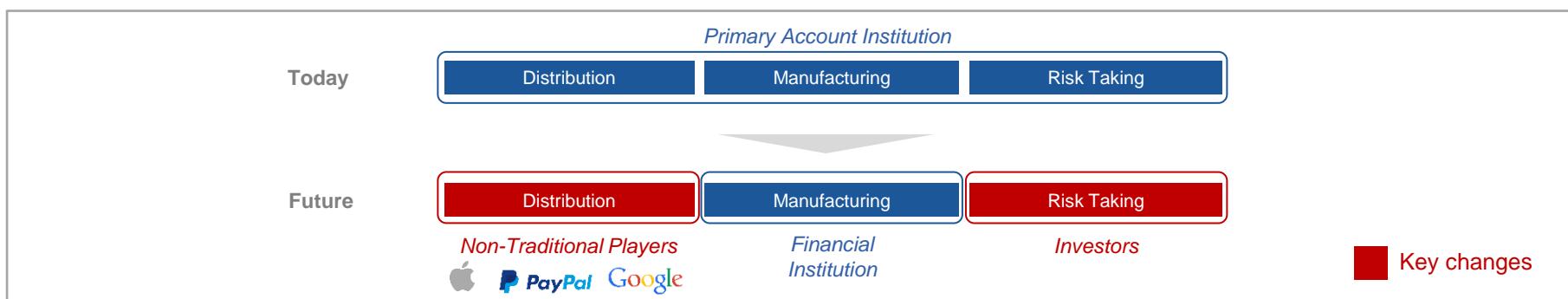
- Increasing customer demand and growing trust with technology companies enable **non-financial companies** that excel in creating digital customer experience to **disaggregate distribution** of financial services and **ownership of customer relationships**
- Traditional financial institutions evolve to become **providers of financial products**, focusing on sophistication of the products with **excess capacity**

- “Light” or virtual financial institutions emerge that only focus on **account management**, offering a comprehensive suite of financial products by **partnering** with a range of **niche alternative providers** of financial services (e.g., alternative lending, alternative payment rails, etc.)
- These partnerships allow a **network of alternative providers** of financial services to **compete directly** against incumbent full-service retail banks

- Financial institutions leverage virtual channels to offer **frequent interactions** with **customers**, above and beyond today's needs-based transactions, to **strengthen customer relationships**
- Virtual channels enable financial institutions to offer not only **financial value-adds** but also **non-financial services** to customers (e.g., concierge services for high value customers) without significantly increasing costs

- The following scenarios illustrate potential outcomes generated by the innovations discussed in this topic, particularly in response to the key question above – they are not meant to be future predictions
- These scenarios are illustrations of particular aspects of the potential future and are not meant to represent a complete view of the market and competitive landscape – in many cases, some or all scenarios could be realised at the same time

Scenario 1: Disaggregation of customer relationship ownership (1 / 2)



Narrative

A partnership is launched between a financial institution with no retail banking presence and a technology player with existing customer relationships, customer trust, and an expertise in the creation of online experiences. Together these partners leverage their respective expertise in a seamless digital customer experience and manufacturing financial products to create a new kind of online financial experience complete with a full suite of financial products.

The structure of the partnership allows the technology player to increase their access of data and centrality to the lives of their customers with limited pressure on their balance sheet or increased regulatory exposure.

Summary of impact

- In the face of rising customer expectations for a highly flexible, intuitive and personalised service across multiple platforms, new and existing players who are accustomed to providing these sort of solutions disaggregate the manufacturing of financial products from the ownership of customer relationships
- Traditional financial institutions evolve to become manufacturers of financial products, shifting freed capacity from distribution to focus on manufacturing sophisticated or highly personalised products

Case studies



DISCOVER®

Many leading technology players chose to enter the mobile payments space by partnering with established financial institutions and leveraging white-label products. This allowed them to focus on their own expertise in customer interactions (e.g., marketing, UX, offers) while relying on their financial partners' infrastructure and capabilities. PayPal's mobile payment solution used Discover's payment network infrastructure for acquiring, approval, clearing and settlement, while a core component of Google Wallet's mobile offering involves a virtual pre-paid Visa card issued by US Bancorp.



us**bancorp**

Scenario 1: Disaggregation of customer relationship ownership (2 / 2)

Necessary conditions for the scenario

- Non-traditional market players must be perceived as highly trustworthy and must provide a sufficiently superior offering to justify a change in financial institutions
- Seamless integration among players involved in the value chain

Customers

Implications of the scenario on...

- Significantly improved customer experience
- Changes the ways customers perceive their banks and technology providers

Incumbents

- Acceleration of existing shifts in the dominant distribution strategy away from branch based sales
- Pressure on retail banks to cannibalise existing business by creating competing partnerships
- Loss of customer ownership and commoditisation of core services drives decreased bargaining power

Overall Ecosystem

- Potential for consolidation of financial service product providers
- Pressure on regional players with limited ability to partner with technology providers

Opportunities and risks associated with the scenario

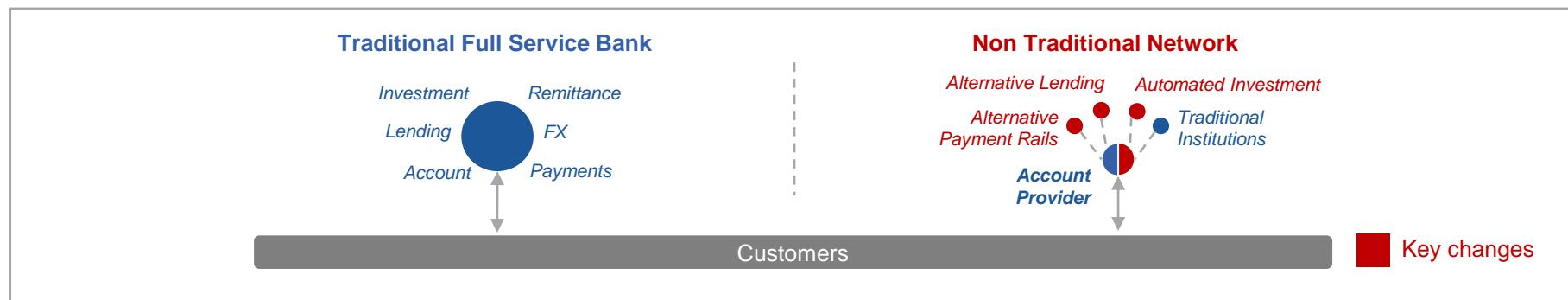
Opportunities

- Financial institutions will be able to develop a broader suite of more sophisticated products as they focus solely on manufacturing
- Potential for financial products and services to integrate more seamlessly with other services offered by technology players
- Financial institutions no longer need to worry about customer experience management

Risks

- Financial institutions may lose control over the ownership of customers and become at the disposal of technology providers
- Customer loyalty and stickiness may erode as customers gain more visibility and can more readily compare financial institutions and products
- Technology players may lack regulatory familiarity with requirements on product sales and the emergence of more personalised financial products may create regulatory uncertainties

Scenario 2: Enabling the ecosystem of alternative providers (1 / 2)



Narrative

Alternative providers of niche financial services continue to mature and become reliable alternatives to offerings of traditional institutions. Initially, connections develop among these niche providers through bi- or multi-lateral partnerships. Eventually, some traditional banks shift their focus to managing customer relationships as “depositories of trust” and serve as a central platform for connections to niche providers’ products. Alternatively, digital wallets (e.g., Google Wallet, PayPal) or online marketplaces (e.g., Money Supermarket, Amazon) may evolve to become those central platforms.

These network of non-traditional niche providers collectively meet customers’ banking needs and compete with traditional full service banks. They also provide the ability to seamlessly mix and match niche providers that fit the clients needs in a fashion not possible within today’s full service financial institutions.

Summary of impact

- “Light” or virtual financial institutions emerge that only focus on account management, offering a comprehensive suite of financial products by partnering with a range of niche providers of financial services (e.g., alternative lending, alternative payment rails)
- These partnerships allow a network of alternative financial service providers to compete directly with full-service retail banks
- Customers are able to select the products that best fit their needs and pay transparent fees since financial products are not cross-subsidised

Case studies



Simple is a low cost, virtual-only bank that provides primary account services to its customers with a focus on improving customers’ ability to save, budget and control their spending. Simple has partnered with a number of traditional and emerging financial institutions to provide fuller functionalities to customers: Visa to facilitate payments (debit cards), Venmo to enable mobile payments, Bankcorp and CBW to deposit savings in FDIC-insured products, and Allpoint to provide a fee-free access to ATM networks.

Scenario 2: Enabling the ecosystem of alternative providers (2 / 2)

Necessary conditions for the scenario

- Existence of account providers with the ability and incentive to connect with many competing providers of financial services
- Services and products of alternative niche providers must in aggregate fulfill the core requirements of most clients
- The network of alternative niche providers must provide a sufficiently compelling value proposition for customers to consider changing financial institutions
- Account providers must be able to act as a trusted verifier of services offered by alternative niche providers
- Regulatory comfort with significant growth in the use of alternative niche products

Customers

Implications of the scenario on...

- Creation of market for each product class leads to increased choice and potentially lower prices

Incumbents

- Greater control over the selection of financial products

Overall Ecosystem

- Lower loyalty to financial institutions
- Increased competition with alternative niche providers who are now able to achieve greater scale
- Challenge to pricing of cross-subsidised products with increased competition from mono-line products
- Pressure to integrate with 3rd parties to deliver cheaper and more customer friendly solutions

- Alternative niche providers gain access to the main population and form more meaningful pressures for financial institutions to innovate

- Markets for each product become more modular

Opportunities and risks associated with the scenario

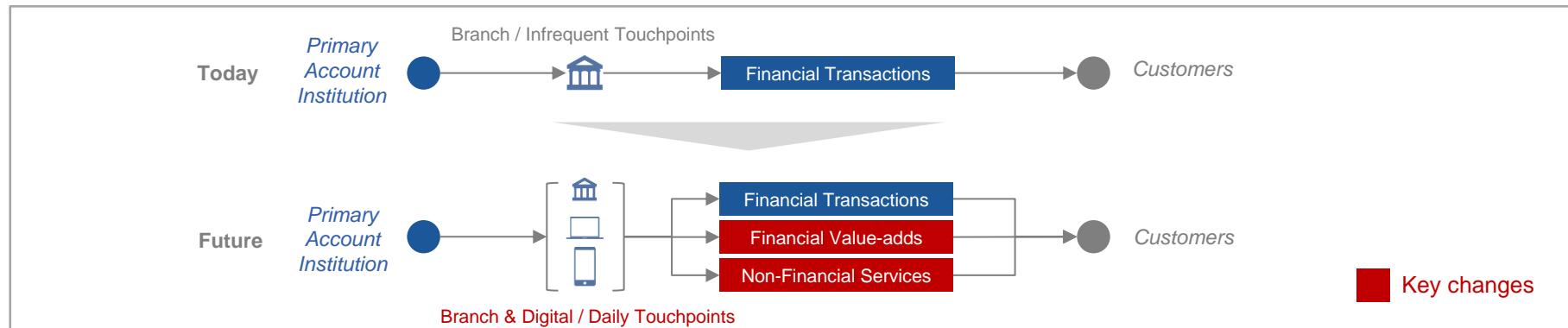
Opportunities

- Decrease in cross-subsidisation will benefit the consumers of those products and services that are currently subsidising other products
- Increased pressure for innovation within each product line

Risks

- With increased choices, customers may face cognitive challenges to select the right products and providers for them
- Liability may be unclear in cases of fraud or service failure
- Non-bank virtual account providers may lack sufficient understanding of risks associated with niche products
- Decrease in customer loyalty and stickiness

Scenario 3: Embedding closer into customers' daily lives (1 / 2)



Description of the scenario

To meet evolving customer demands, financial institutions actively explore innovations in mobile and other virtual channels' transactional services. Empowered by smarter machines that can emulate human-human interactions, financial institutions automate previously high-touch, high-value services and deliver them through virtual channels to increase touchpoints with customers.

Financial institutions also build on their core competencies today and extend them to tangent spaces (e.g., extending secure management of finances to personal data / identity management) to play a bigger role in customers' lives and improve customer loyalty and retention.

Potential development stories

- Financial institutions leverage virtual channels to offer frequent enriched interactions with customers above and beyond today's needs-based transactions in order to strengthen customer relationships
- Virtual channels may present an opportunity for financial institutions to evolve their role from providing financial transactional and value-add services to delivering non-financial services to customers (e.g., concierge services for high value customers, custodian of data, identity management) without significantly increasing costs

Case studies

Transactional Innovation



Voice recognition and command



Cardless ATM withdrawals



Provide instant digital receipts



Location-based reward offers



Augmented reality new home finder



Digital lockbox for important documents

New Services

Scenario 3: Embedding closer into customers' daily lives (2 / 2)

Necessary conditions for the scenario		Implications of the scenario on...	
▪ Continued competitive pressure from disruptors on incumbent institutions to innovate	Customers	▪ Access to new and better integrated quasi-financial services	
▪ Financial institutions' ability to understand customers' unidentified needs and develop competitive offerings to cater to them	Incumbents	▪ Importance of the traditional branch as a source of customer interaction will decrease	
	Overall Ecosystem	▪ Pressure to acquire or develop new capabilities	
		▪ Improved stickiness of customers	
		▪ Expansion of the role of financial institutions in customers' lives	
		▪ Non-cost differentiation of product offerings	

Opportunities and risks associated with the scenario

Opportunities	Risks
<ul style="list-style-type: none"> ▪ Opportunities to solidify customers' trust in financial institutions by playing bigger roles ▪ Opportunities to use 3rd party services to create more literate, better protected clients 	<ul style="list-style-type: none"> ▪ New risks and liabilities may arise as financial institutions expand to offer quasi-financial services ▪ Potential to leave out customers unfamiliar with / unwilling to adopt technologies as financial institutions' distribution strategies change

What does this mean for financial institutions?

Key implications and remaining questions

“Safe Bets” – Likely implications under all scenarios

- ! **Reduced cross-subsidisation:** Whether they are anchored around non-traditional players or financial institutions, financial products and services will increasingly be offered on a stand-alone basis limiting incumbent institutions' ability to competitively cross-subsidise
- ! **Partnership with non-traditional players:** Financial institutions' ability to work with non-traditional players will be come essential to creating new distribution channels, providing competitive product offerings and enabling non-traditional services
- ! **Redefining the role of financial institutions:** Financial institutions will need to realign their long-term strategy based on how they define their shifting role with varying emphasis on product manufacturing and creation of customer experiences
- ? How will the emergence of competitive unbundled products and resulting limits on cross-subsidisation impact the overall structure and business model of retail financial institutions?

Scenario 1: Disaggregation of customer relationship ownership

- ! **Reduced access to customer data:** As customers consume financial services on a a-la-carte basis, financial institutions will no longer own the majority of individuals' financial data, limiting their ability to independently create more compelling products and services
- ? What will be the products and services that anchor customer relationships to retail financial institutions in the future; particularly as customers move toward “shopping” for financial products through technology players (e.g., Amazon, Google)?

Scenario 2: Enabling the ecosystem of non traditional providers

- ! **Reduced control over customer experience:** Even though financial institutions may still act as a gateway, their ability to control end-to-end customer experience will be reduced
- ? What will be the core value proposition of traditional financial institutions to customers compared to technology players, considering traditional institutions' strengths as perceived by customers?
- ? How open and collaborative will financial institutions choose to be with other institutions and new entrants considering the trade-offs between control and agility?

Scenario 3: Embedding closer into customers' daily lives

- ! **New set of risks:** As financial institutions evolve their core offerings to stay more relevant in customers' daily lives, they may need to expand to unfamiliar and less-defined areas, which may generate new risks and compliance issues that are not common to financial institutions today
- ? What tangential products and services could financial institutions offer in the future, leveraging their strengths (e.g., custodian of customer data)?

Capital Raising

How will the evolution of distributed capital raising impact the role of traditional intermediaries?

Executive Summary

Context / Innovation

- Traditionally, capital raising activities have been facilitated by specialised financial institutions, leveraging their deep expertise to identify and support investment opportunities. Access to investments in these intermediaries has been limited to select high net worth and institutional investors
- In the face of growing interest in start-ups and digital democratisation, a series of alternative funding platforms have emerged, widening access to capital raising activities and providing funding to a greater number of companies and projects

Future of Alternative Funding Platforms

- While these alternative funding platforms are not likely to replace the traditional capital raising ecosystem in the short or medium term, their growth could change the role of incumbent institutions
 - Alternative funding platforms may solidify their position as a key capital raising intermediary for higher risk seed-stage companies, which would increase their access to funding and increase the number of new firms eligible for venture capital
 - Alternative platforms could also evolve to focus on investors with motives beyond financial return. They could help funnel capital to low-return opportunities that would not have qualified for investment from traditional venture capitalists but provide non-financial returns to crowd investors (e.g., alternative energy projects or local development projects)
 - Alternative capital raising platforms could also provide a channel for larger companies to raise capital directly from their customers base, potentially reducing costs while supporting customer engagement

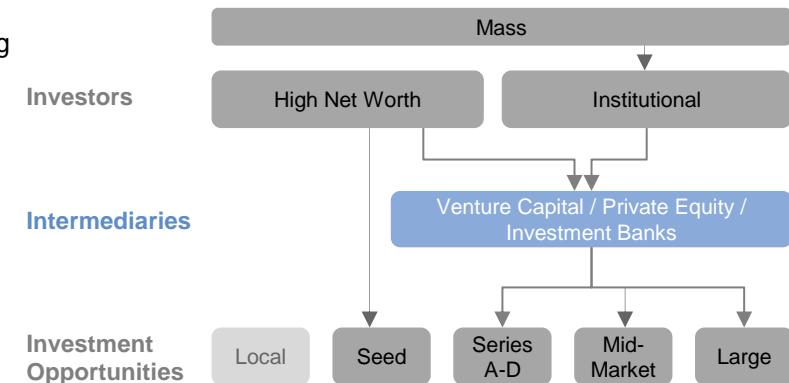
Key Implications

- The opportunities created by the proliferation of alternative capital raising platforms likely outweigh the risks they pose to incumbent institutions as they enable a more diversified pipeline of investment opportunities to support a richer innovation ecosystem

Capital raising has been traditionally facilitated by specialised institutions with deep expertise, but individual investors have limited access so far

How do financial institutions facilitate capital raising activities today?

- While smaller loans for small / medium enterprises are directly issued by retail / commercial banks, larger capital needs of companies are typically fulfilled by issuing equity or debt through a specialised intermediary like an investment bank
- Unlike lending transactions where loans are issued from the banks' balance sheet, investment banks facilitate the structuring, marketing and sales of equity or debt capital to potential investors and charge a fee to the issuing company (in certain cases, banks participate as an investor by buying shares / bonds, managing investors funds or providing a lending facility)
- Issuing companies directly pay back principal and interest on debt or pay dividends for equity to the investors
- Layers of financial institutions, from venture capital to investment banks, specialise in and focus on various stages of businesses to facilitate capital raising



Emerging pressure on traditional lending models

- Increased connectivity, the success of internet start-ups, changing consumption behaviours and increasingly entrepreneurship-friendly policies have fueled a rapid increase in the number of start-ups, making effective screening and selection processes by traditional funding options (e.g., venture capital) increasingly difficult
- To maintain control and agility, rapid growth companies continue to delay accessing the public pool of capital via IPOs, aided by policies and regulations permitting widening of investor base without going public (e.g., Jumpstart Our Business Startups Act (JOBS Act))
- As a result, an imbalance is created between supply and demand for capital in the private market, calling for alternative models to provide the funding required

Key challenges with traditional models

Limited Access

Access to capital can be limited by the size, history and relationships of a business

Standardised Measurement

Appeal to investors is determined strictly by risk / return and funding may be limited for opportunities with alternative propositions

Timely Supply of Capital

Lengthy structuring and fulfillment process may limit timely access to capital

Loss of Control

Businesses may lose control over key decisions to investors and individual investors do not have direct control over their investments

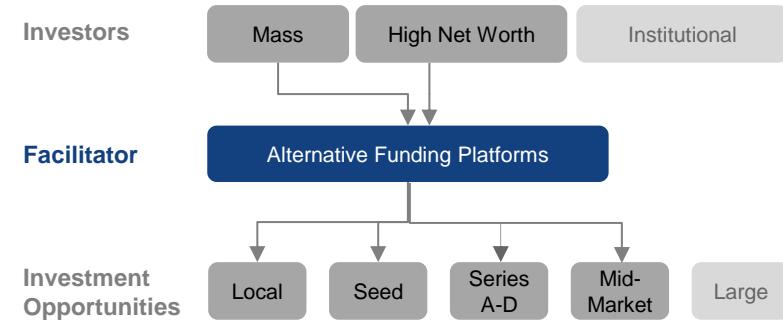
Potential for Inadequate Funding

The ability to meet funding needs at a fair price can be deterred by the capability of the intermediating institution

Alternative funding platforms enable the crowd to play a bigger role in providing capital to investment opportunities

Description of alternative funding platforms

- Alternative funding platforms provide an opportunity for businesses to interact directly with individual investors to widen options for raising capital
- Instead of providing investment advice or directly marketing investments in equity or debt capital, alternative funding platforms aggregate investment opportunities, provide a standardised view of the opportunities and facilitate legal structuring of equity or debt issued
- The rating of investment opportunities are conducted through the wisdom of the crowd (i.e., minimum target must be met for successful funding) or by allowing more experienced individual investors to lead the investment activities, instead of using credit rating agencies or sell-side analysts



Key characteristics of alternative funding platforms



Crowd Based

- Alternative funding platforms provide a marketplace for individual investors to directly discover and invest in investment opportunities
- Investment opportunities are typically only funded when a pre-determined target is met, to weed out less credible or less promising opportunities through "crowd's approval"



Empowering Individuals

- Some alternative funding platforms leverage the expertise of more experienced individual investors in certain fields (e.g., angel investors) by providing them an opportunity to lead funding for desired investments
- Some platforms allow these "lead" investors to gain additional income through fees, similar to carries paid to general partners of private equity firms

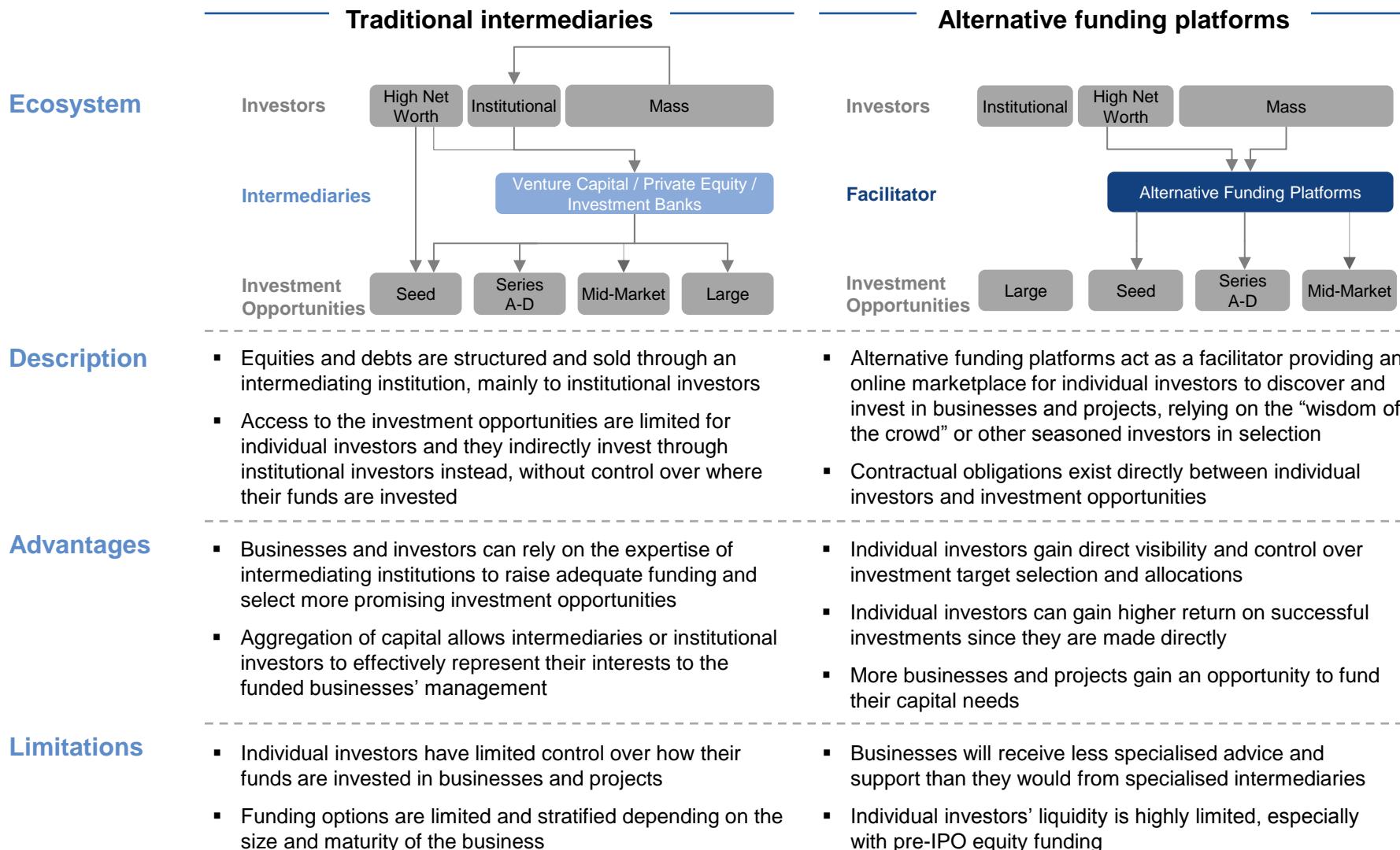


Customisation

- Alternative funding platforms provide a number of customisable parameters for businesses to adjust and easily design funding options desirable for them (e.g., term, equity share)
- Moreover, some platforms allow businesses to build in unique clauses, such as rewards, to make them appealing to investor segments



While traditional capital raising intermediaries directly structure products or investment money for their customers, alternative platforms act as a marketplace



The proliferation of alternative funding platforms will make the capital raising market more diversified and accessible

Key characteristics of the future capital raising market



Increased Accuracy

As more individual investors get involved in funding decisions, the business' prospects will be tested from multiple perspectives. This "wisdom of the crowd" may improve the accuracy of overall investment decisions



Increased Access

As more individual investors receive opportunities to directly fund businesses, more businesses and projects will gain access to potential funding options



Increased Control

Individual investors will gain more control over where their investments flow and determine whether they want direct control over investment decisions



Reduced Costs

As individual investors participate directly in funding without going through intermediaries, their cost to invest will decrease, but the impact to overall profitability remains unclear



Diversified Options

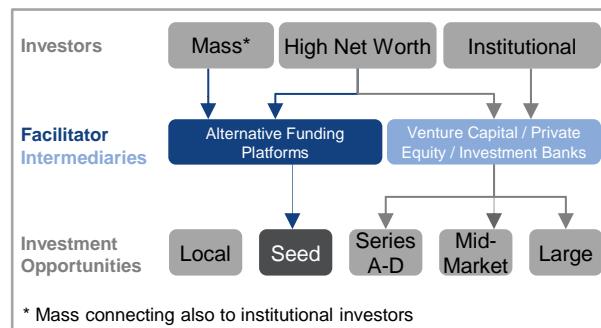
Businesses will be able to structure equity or debt more flexibly to meet funding needs and will offer more diversified incentives to potential investors to increase appeal

In enabling these future characteristics, how will the evolution of distributed capital raising impact the role of traditional intermediaries?

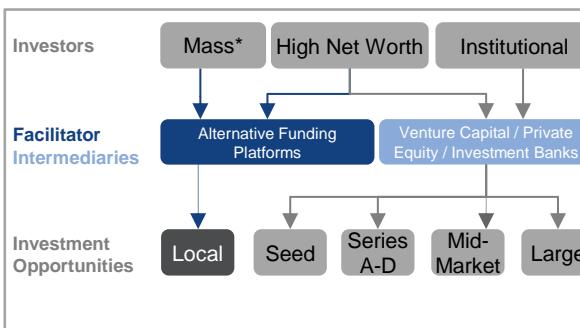
How will the evolution of distributed capital raising impact the role of traditional intermediaries?

Potential role of alternative funding platforms

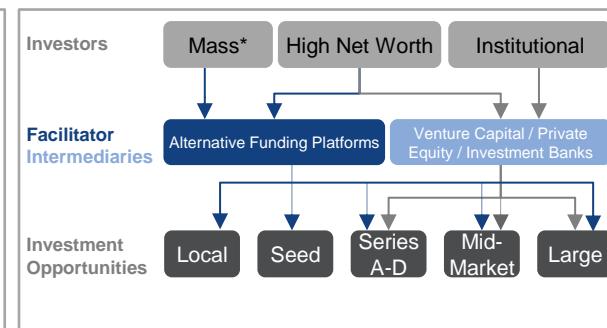
1 Incubator of seed-stage companies



2 Provider of funding to lower return investments



3 Evolution into an alternative funding option for larger companies



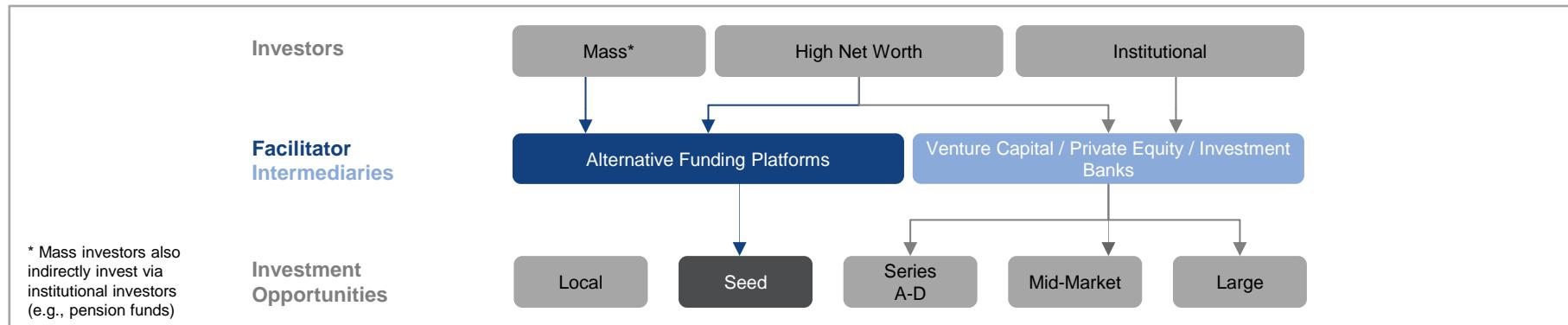
- Peer-based funding platforms solidify their position as the capital raising intermediaries for **higher risk seed-stage** companies
- Extending funding opportunities to more seed-stage companies makes the overall capital raising ecosystem richer by **increasing** the number of **investment opportunities eligible for later stage venture capital financing**

- Peer-based funding platforms focus on investors with **motives beyond financial return** (e.g., sustainability and social responsibility interests) to provide capital to **low-return** investment opportunities that otherwise would not have qualified to raise capital through traditional intermediaries
- **Seed-stage** companies are funded by traditional angel investors and venture capitalists who can provide appropriate **guidance for growth**

- Larger companies leverage peer-based platforms as an alternative channel to **engage and raise capital from their customer base**
- In addition to benefiting from implicit marketing and increased customer loyalty, larger companies further **reduce costs of capital by providing non-financial incentives** to customers (e.g., future discounts)

- The following scenarios illustrate potential outcomes generated by the innovations discussed in this topic, particularly in response to the key question above – they are not meant to be future predictions
- These scenarios are illustrations of particular aspects of the potential future and are not meant to represent a complete view of the market and competitive landscape – in many cases, some or all scenarios could be realised at the same time

Scenario 1: Incubator of seed-stage companies (1 / 2)



Narrative

The popularity of peer-based funding platforms grows but remains focused on seed-stage ventures, with later stage firms opting to raise funds through traditional providers, such as venture capitalists, who are able to provide guidance and access to networks.

Within this environment early-stage companies can more easily test their product ideas, and gain exposure to potential customers, while later-stage companies can accelerate their growth through venture capital involvement. Some venture capitalists may partner with peer-based platforms as a sourcing channel for potential deals.

Summary of impact

- Peer-based funding platforms solidify their position as the capital raising intermediaries for higher risk seed-stage companies
- Private equity and venture capital firms move upstream to focus on Series A or later stage ventures, where their networks and guidance matter most and risks of failure are lower
- Extending funding opportunities to more seed-stage companies makes the overall capital raising ecosystem richer by increasing the number of investment opportunities eligible for later-stage venture capital financing

Case studies



Seedrs is an online peer-based capital raising platform for individual investors to discover and invest in seed-stage ventures. Investment opportunities at Seedrs provide equity shares to investors and only those investments that meet their funding target receive funding. Seedrs acts as a custodian for the individual investor's equity to protect their interests and enable further rounds of investment.

Scenario 1: Incubator of seed-stage companies (2 / 2)

Necessary conditions for the scenario

- Accumulation of a critical mass of investors who are interested in participating in peer-based funding models
- Investors have access to sufficient high-quality and accurate information to conduct due diligence
- Investors have sufficient financial literacy in order to understand high-risk investment opportunities
- Regulators to implement well-defined and well-balanced investor protection rules

Individual Investors

Implications of the scenario on...

- Diversify their portfolio adding on high-risk and potentially high return investments

Incumbents

- Increased level of engagement throughout the investment process

Overall Ecosystem

- Pressure on margin for angel investors and seed-stage venture capitals
- Increased maturity of investment opportunities
- Increased number of potential investment targets
- More diversified opportunities are funded fostering economic growth in financial markets

Opportunities and risks associated with the scenario

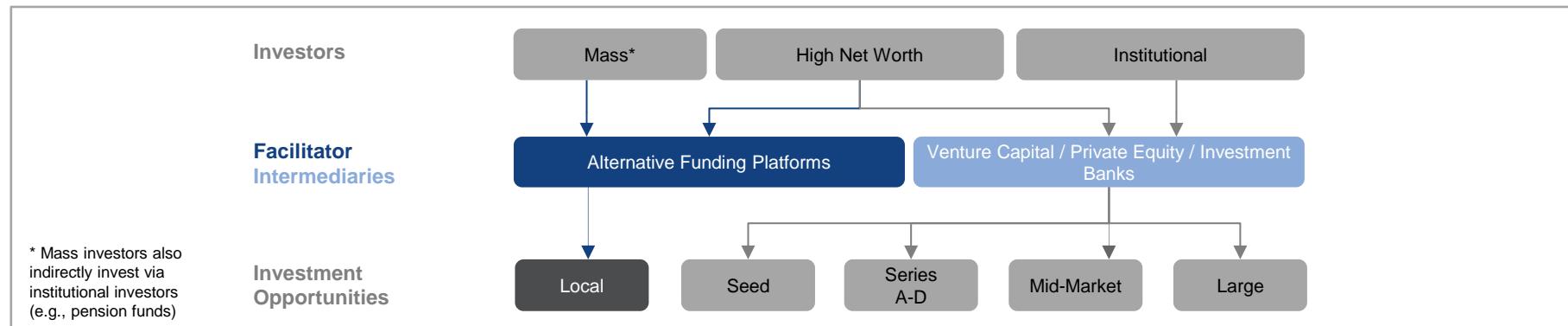
Opportunities

- Creates a channel to source investment opportunities for later-stage venture capitals that have been approved by the potential customer base (e.g., VC creating a crowd-funding platform to incubate seed-stage companies)

Risks

- Many investors may not understand the risks associated with even the most promising seed-stage investments thus increasing the risk and impact of fraud
- Risk of excessive dilution by venture capitals during later-stage funding rounds

Scenario 2: Provider of funding to lower return investments (1 / 2)



Narrative

Peer-based capital raising platforms that focus on seed-stage investment opportunities lose popularity among mass investors as they realise that the investment horizon is very long and the chance of a successful exit is extremely low.

Instead, peer-based platforms shift their focus to smaller projects that either have a higher chance of generating sustainable profits sooner, or can deliver benefits above and beyond financial return. Examples of non-financial returns include community development (e.g., funding expansion of a favorite coffee shop, funding re-paving local roads) and ideological pursuits (e.g., sustainable energy).

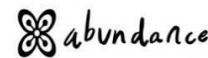
Summary of impact

- Peer-based funding platforms focus on connecting lower-return investment opportunities, which would not qualify for capital raising through traditional intermediaries, with investors with motives beyond financial return (e.g., empowering local community, sustainability)
- Seed-stage companies continue to be funded by traditional venture capitalists and angel investors who can provide appropriate guidance for growth
- Peer-based mechanisms are adopted by traditional intermediaries or high net worth individuals to encourage angel investor involvement

Case studies



Spacehive is a peer-based funding platform for civic projects, which enables local residents and businesses to fund community development projects (e.g., playgrounds, parks). Individuals with project ideas can directly pitch ideas to other residents through Spacehive and rally support and capital.



Abundance Generation is a peer-based capital raising platform for local or regional sustainable energy projects that are too small to be attractive to investment banks. The platform raises capital from environmentally conscious investors and facilitates issuance of debentures to create cash flow back to investors sooner.

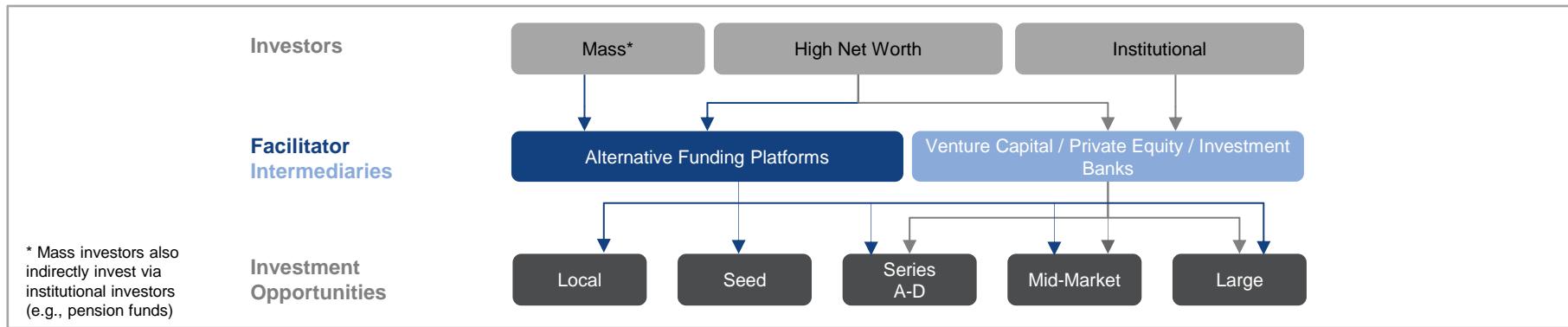
Scenario 2: Provider of funding to lower return investments (2 / 2)

Necessary conditions for the scenario	Implications of the scenario on...
<ul style="list-style-type: none"> Limited funding opportunities for local start-ups through traditional institutions Existence of communities that accept a lower than market return in order to make a project succeed 	<p>Individual Investors</p> <ul style="list-style-type: none"> Access to investments with low financial return but high social return Low cost capital for socially beneficial projects The ability for investors to closely identify with their investments
	<p>Incumbents</p> <ul style="list-style-type: none"> Traditional investors like government funding agencies can re-deploy funds to other investment targets Minimal overlap with traditional capital raising intermediaries
	<p>Overall Ecosystem</p> <ul style="list-style-type: none"> Potential erosion of businesses for commercial banks (e.g., balance sheet lending)

Opportunities and risks associated with the scenario

Opportunities	Risks
<ul style="list-style-type: none"> Provides funding to local and purposeful projects with high social return that would not be properly served by the traditional ecosystem Institutional investors could get access to investment opportunities they don't have access to today. This would help them meeting their triple bottom line goals 	<ul style="list-style-type: none"> Potential misallocation of funds to high profile but ineffective projects or over-concentration of funds into certain types of projects Potential for higher than expected rate of default on debentures for products unable to meet even the lower than market expectations

Scenario 3: Evolution into an alternative funding option for larger companies (1 / 2)



Narrative

Inspired by the ability of peer-based funding platforms to simultaneously raise funding and cultivate new clients, established companies partner with peer-based platforms to fund their growth. By engaging directly with customers large companies can gain exposure to potential customers and build deeper partnerships with exiting customers. Customers in turn feel that they are participating in the growth of their favourite businesses. Businesses can also further compensate or incentivise their customer-investor base by providing perks that go beyond interest or dividends, such as future discounts.

Summary of impact

- Large established companies utilise peer-based capital raising platforms as an alternative channel to raise capital directly from their customer base
- In addition to benefiting from implicit marketing and increased customer loyalty, larger companies further reduce direct cost of capital by providing non-financial incentives to customers (e.g., future discounts)
- Peer-based funding platforms develop into an alternative funding method that exists in parallel with the traditional capital raising ecosystem, potentially reducing traditional intermediaries' businesses

Case studies

Chilango, a UK-based fast food chain, structured a campaign to raise £1 million for expansion by selling four-year corporate bonds with an 8 percent unsecured, unlisted coupon through peer-based capital raising platform, CrowdCube. In addition to offering a financial return (8 percent coupon), Chilango offered a free burrito every week for the duration of the bond to investors who invested more than £10,000 and a voucher for two free burritos to investors with smaller investments. This campaign raised £2.16 million from 749 investors, exceeding the target as the largest funds raised on the CrowdCube platform.



Scenario 3: Evolution into an alternative funding option for larger companies (2 / 2)

Necessary conditions for the scenario	Implications of the scenario on...
<ul style="list-style-type: none"> Fully loaded cost of funding through peer-based platforms must be lower than the costs incurred in the traditional financial ecosystem Alternative funding platforms should be able to provide equivalent levels of information to mass market investors as institutional investors receive from intermediaries 	<p>Customers / Investors</p> <ul style="list-style-type: none"> Feel more personally involved with their favourite businesses Act as partners to investment target's strategic decisions Gain access to an asset class unavailable to individual investors today (e.g., corporate bonds) <p>Incumbents</p> <ul style="list-style-type: none"> Increased competition and potential margin pressure for commercial loans / investment banks <p>Overall Ecosystem</p> <ul style="list-style-type: none"> Introduction of new tool to raise capital may induce traditional institutions to innovate

Opportunities and risks associated with the scenario

Opportunities	Risks
<ul style="list-style-type: none"> Businesses can achieve non-financial gains (e.g., revealed preference in the market, marketing, customer loyalty) through financial activities 	<ul style="list-style-type: none"> Businesses issuing securities without professional advice from capital raising intermediaries risk underpricing and under-subscription Individual investors may lack financial sophistication to properly understand the covenants of financial products or assess a suitable return for the risks entailed Reputational risks for businesses when issues arise with their financial products

What does this mean for financial institutions?

Key implications and remaining questions

“Safe Bets” – Likely implications under all scenarios

- ! **Competition for investments:** While distributed capital raising platforms and traditional intermediaries may have limited overlap in investment opportunities, traditional intermediaries will need to compete for investments, especially from angel investors, against distributed platforms where investors can play more active roles
- ! **Shortening capital raising cycles:** With access to more diverse funding options, new companies will be able to grow at a quicker pace and the average time between funding stages will be shortened
- ! **Alternatives to wealth products:** As individual customers gain access to investment products with potential higher returns and / or better aligned to their interests, their mix of investments in traditional wealth management products will shift over time
- ? How will traditional institutions, from investment managers to investment banks, participate in distributed capital raising platforms to maximise the benefits from the broadened capital raising market (e.g., direct entry, sourcing partnerships, investment vehicles, valuation model)?

Scenario 1: Incubator of seed-stage companies

- ! **Changes to sourcing strategy:** Advantages of distributed platforms as a sourcing tool, such as testing with future customer base, will create pressure to traditional internally-driven sourcing models
- ? How will traditional intermediaries discover unique investment opportunities and generate exclusivity when most investment opportunities become visible to competition via distributed platforms?

Scenario 2: Provider of funding to lower return investments

- ! **Channel for new investment opportunities:** Distributed platforms may enable traditional institutions to directly participate in smaller investments without significant efforts (e.g., entry of hedge funds)
 - ? What are the hurdles that prevent traditional institutions from participating in smaller investments and how may distributed platforms resolve them?

Scenario 3: Evolution into an alternative funding option for larger companies

- ! **Importance of selection:** Traditional intermediaries' ability to provide value not linked directly to financing will become more important if they wish to maintain their current role
- ? What differentiated value will traditional intermediaries offer to compete against distributed platforms that successfully move upstream?

Investment Management

How will the empowerment of individuals through automated systems and social networks transform the business of investment management?

Executive Summary

Context / Innovation

- The wealth management industry has suffered from the loss of customer trust since the financial crisis. This trust has been slow to recover in the face of continued economic uncertainties
- In this environment, a number of disruptors, from automated wealth management services to social trading platforms, have emerged to provide low-cost, sophisticated alternatives to traditional wealth managers. These solutions cater to a broader customer base and empower customers to have more control of their wealth management

Future of Investment Management

- These innovations will create pressures for the wealth management industry to improve the value delivered while broadening access to more customers
 - Cheaper and faster online tools and automated services that originally catered to underserved customers may steal share from traditional wealth managers in the mass affluent market, pushing traditional managers to switch their focus to more personalised, relationship-based segments
 - Alternatively, automated investment management platforms could commoditise traditional high-value services and reduce the value delivered by wealth managers across all customer segments, enabling traditional wealth managers to focus on providing more personalised, bespoke services to a broader customer base
 - Empowered with intuitive and affordable tools, some individual investors may also gain sufficient level of sophistication to act as investment experts, selling and sharing their investment expertise via social trading platforms that erode the value of traditional wealth management professionals

Key Implications

- The emergence and growing popularity of automated wealth management services and customer empowerment tools will pose a tangible threat to the traditional practices of the wealth management industry. However, incumbent institutions who can embrace these innovations and streamline their processes will be able to provide higher value services to a broader customer base

The wealth management industry has suffered a significant loss of customer trust and increased regulatory scrutiny following the financial crisis

Overview of the wealth management industry

- Offered by variety of financial institutions, including private banks, registered investment advisors, bank brokers/ insurers
- Targets higher-end of customers with investable capital, such as ultra high net worth, high net worth and mass affluent customers



Advisory

- Investment allocation strategies
- Active money management (e.g., asset selection)
- Securities analysis



Brokerage

- Distribution of wealth products (e.g., mutual funds, ETFs, annuities, insurance products)
- Access to rare products and assets
- Brokerage account management



Value-Add Services

- Wealth transfer planning
- Estate / tax strategies
- Retirement planning
- Private banking

Recent developments in wealth management

- In recent decades, wealth managers have begun to expand their focus from high net worth to mass affluent segments
- Increased regulations on consumer protection requires banks to advise customers in a more structured way, raising the bar for new entrants
- Increased transparency into investment performance is allowing individuals to better compare products
- Continued economic instability has left customers uncertain about the economic outlook and reticent to pursue active strategies. This trend toward passive products has placed pressure on pricing

Key challenges in wealth management

Accessibility

- High fees limit access to wealth management services for mass and mass affluent clients

Customer Expectation

- Customers' expectations of personalisation, efficiency and low costs continue to grow

Agility

- Ability to meet customer needs is limited by organisation structures and technology infrastructure

Lack of Trust

- Customer trust has been slow to recover following the financial crisis

A number of disruptors are emerging to provide low-cost and sophisticated alternatives to traditional wealth managers to a broader customer base

Key innovations democratising wealth management



Automated Management and Advice

- Offers high-value advisory services on portfolio allocation and money management at low costs based on automated analysis
- Automates the management of a personalised investment portfolio based on individual needs
- Provides aggregated view and analysis of multiple accounts



Social Trading

- Empowers individual investors to build and share investment strategies and portfolios with other investors
- Empowers individual investors to share their opinions and gain market insights from the opinions shared by the crowd



Retail Algorithmic Trading

- Enables investors to easily build, test and execute trading algorithms with limited technical knowledge and infrastructure
- Provides platforms for sophisticated investors to share trading algorithms with others



Common characteristics of wealth management disruptions

Lower Barriers

Allow customers with fewer assets to receive financial advice by reducing the minimum investment threshold and management fees by leveraging automated algorithms

Algorithm-Driven

Commoditises previously high-value, manual-intensive services at a low cost via automation. This minimises the need for manual intervention

Customer Empowerment

Improves the financial literacy of customers by readily providing analysis of their financial position and empowering them with tools to easily create and execute investment strategies

Reliance on the Crowd

Leverages the capabilities existing within the crowd to create more accurate understanding of the market and provide low-cost alternatives to investment funds to customers

Disruptive innovation in wealth management pressures the industry to improve the value delivered to more customers

Key characteristics of the future of wealth management



Accessibility

More sophisticated wealth management services will become available to a broader customer base, including the mass affluent and mass market customers



Transparency and Control

Customers will gain greater visibility into their financials and how their money is invested and will be able to make adjustments to their financials more readily as more wealth management options become available



Convenience

Online and mobile channels will be increasingly leveraged to interact with customers and deliver higher value services, providing access to financial information on demand



Personalised

As algorithms used in managing wealth become more sophisticated, the degree of customisation and individualisation will increase for services delivered to mass affluent and mass market customers



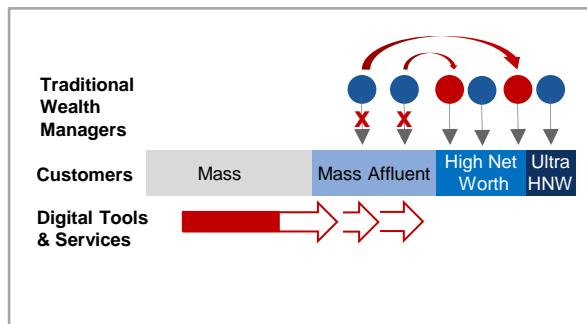
Low Cost

The cost of receiving advisory and management services will decrease as automation lowers the operating costs and new disruptive entrants spur competition in the market

As these disruptive innovations create pressures for the wealth management industry by empowering individuals, how will the wealth management landscape evolve?

How will the empowerment of individuals through automated systems and social networks transform the business of investment management?

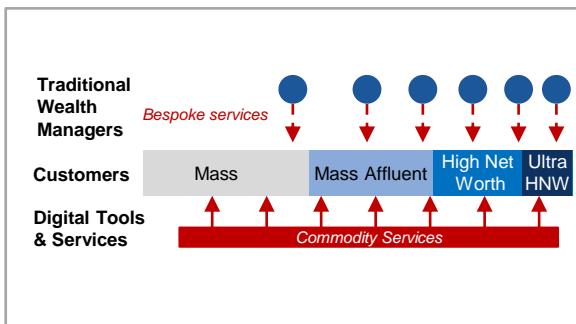
1 Erosion of the mass affluent market



- Cheaper and faster online tools and automated services that originally catered to underserved customers **steal share** from traditional wealth managers in the **mass affluent market**
- Wealth managers, who have been expanding their focus to the mass affluent market, **shift their focus** back to more personalised and relationship-based **high net worth individuals**

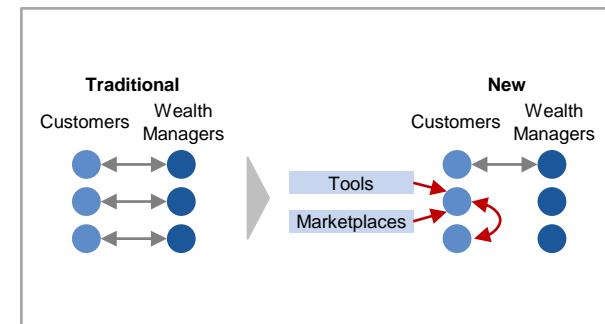
Potential impact to investment experts

2 Revamping the value proposition of wealth managers



- Automated investment management platforms **commoditise traditionally high-value services** (e.g., tax loss harvesting) and reduce the value delivered by investment managers even to high net worth customers
- Services provided by physical wealth managers evolve to more **personalised, bespoke** space, such as financial concierge services and the management of inter-generational wealth transfers

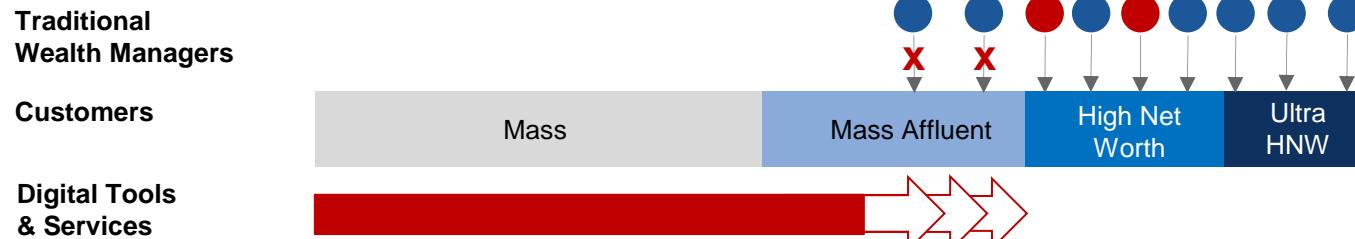
3 Lowering bars to act as an investment expert



- Empowered with intuitive, affordable and accessible tools, some **individual investors** gain sufficient level of **sophistication** to act as **investment experts** without the technical knowledge or infrastructure traditionally required
- The next generation of retail and social trading platforms offer effective means for individuals to **share or sell their investment expertise**, directly competing with traditional investment managers

- The following scenarios illustrate potential outcomes generated by the innovations discussed in this topic, particularly in response to the key question above – they are not meant to be future predictions
- These scenarios are illustrations of particular aspects of the potential future and are not meant to represent a complete view of the market and competitive landscape – in many cases, some or all scenarios could be realised at the same time

Scenario 1: Erosion of the mass affluent market (1 / 2)



Narrative

As automated wealth management services and online tools establish a solid track record they continue to develop their service offerings to encompass functionalities desired by the mass affluent segment.

Traditional wealth managers find their market share eroding as a growing number of mass affluent customers defect to lower cost automated options. Traditional wealth managers are forced to either develop their own automated solutions, accepting lower margins, or move upstream to higher new worth clients seeking a highly personalised experience.

Summary of impact

- Cheaper and faster online tools and automated services that originally catered to underserved customers move upstream and steal share from traditional wealth managers in the mass affluent market
- Wealth managers, who have been expanding their focus to the mass affluent market, shift its focus back to more personalised and relationship-based high net-worth individuals, intensifying the competition and improving the services offered to those customers

Case studies



Launched in December 2011, Wealthfront offers an automated investment service that consists of managing a diversified, continually rebalanced portfolio of index funds, along with tax loss harvesting, via fully automated algorithms. Unlike traditional wealth management companies, the minimum account size is small (\$5,000) and fees are extremely low; which reduces the hurdles for entry for the Millennial generation. Since inception, Wealthfront has penetrated above and beyond Millennial customers to gather \$1.5 billion in assets under management within three years.

Scenario 1: Erosion of the mass affluent market (2 / 2)

Necessary conditions for the scenario

- Customer trust and awareness of new market entrants
- New players' offerings must cater to sufficient portion of customers' needs to replace traditional wealth managers

Customers

- Access to more personalised and sophisticated services at a lower price
- Extended services for high net worth and ultra high net worth customers as incumbents move upstream
- Increased transparency into and control over their wealth

Incumbents

- Revenue and margin pressure as the mass affluent market is eroded
- Intensified competition in high net worth market as incumbents move upstream

Overall Ecosystem

- Competition will increase and pricing for advisory services will adjust accordingly
- Shift into low-fee, passive investment

Opportunities and risks associated with the scenario

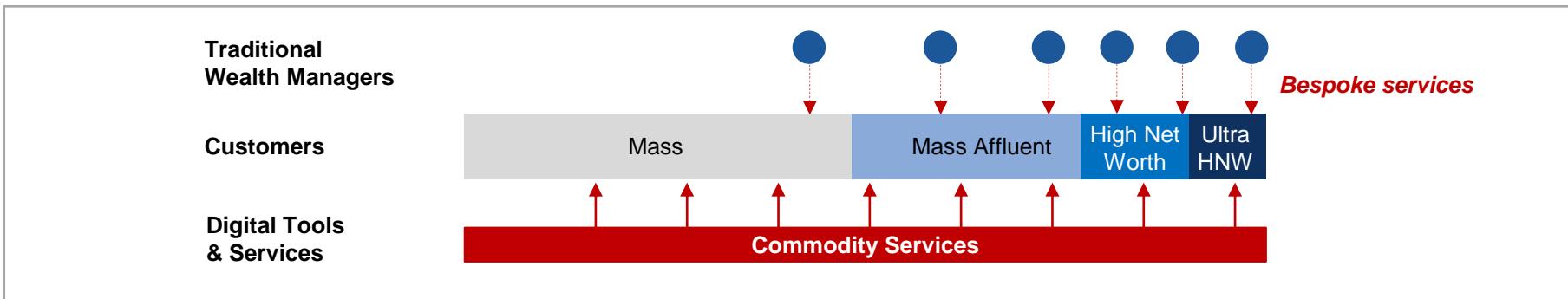
Opportunities

- Customers may make better, more educated choices based on a more holistic view of their financial situation
- Potential increase of market size as more customers get access to investment management services
- Mass consumers have access to different level of services which suits with their respective needs

Risks

- Lack of personal relationship means customers may make irrational financial choices in extreme situations (e.g., market crash)
- Risk of not receiving sufficient customer information to offer a suitably customised portfolio
- Shift to passive investment may increase market volatility and amplify losses during extreme events
- Potential impact to retail banks as their ability to cross sell wealth management products is reduced

Scenario 2: Revamping the value proposition of wealth managers (1 / 2)



Narrative

Automated investment management platforms commoditise a large portion of the wealth management transactions by automating standardised activities (e.g., asset allocation) and formerly high-value services (e.g., tax loss harvesting). However, the demand for in-person interactions and other specialised transactions continues to exist across the customer segment spectrum.

In order to remain competitive against automated platforms, traditional wealth institutions adopt and further develop automated functionalities, which in return free up capacity for in-person wealth advisors. Leveraging freed capacity, wealth managers can now offer more specialised, high-touch services to a broader customer base, improving the overall quality of services received by customers

Summary of impact

- Automated investment management platforms commoditise services once considered high-value and reduce the value delivered by investment managers even to high net-worth customers
- Services provided by physical wealth managers evolve to be a more personalised financial concierge and expand to provide specialty in areas such as intergenerational wealth transfer
- As incumbent institutions adopt improved automation, traditional wealth managers can free up capacity to expand their customer base

Case studies



Facing the threats of new automated investment services like Wealthfront, Charles Schwab announced the launch of its own automated investment service "Intelligent Portfolios" based on ETFs, featuring competitive capabilities like automatic rebalancing and tax loss harvesting, at no charge and with low minimum account threshold.

Scenario 2: Revamping the value proposition of wealth managers (2 / 2)

Necessary conditions for the scenario

- Incumbents must be able to acquire and implement new capabilities or be comfortable with partnering with automated service providers
- Incumbents must successfully identify and deliver on high-value services that can only be delivered through personal relationships

Implications of the scenario on...

Customers

- Reduced price for commoditised services and access to more sophisticated services
- Access to more differentiated offerings among financial institutions

Incumbents

- Pressure to differentiate from other institutions
- May face challenges in redeploying workforce to deliver different services than today

Overall Ecosystem

- Market structure will remain largely similar as existing players evolve
- Increased focus on non-price differentiation

Opportunities and risks associated with the scenario

Opportunities

- Opportunity to leverage freed capacity from automation to serve more clients
- Ability to scale automated service offerings in new markets once developed

Risks

- Customers may not find additional, “personal” offerings valuable, eroding institutions’ value proposition
- Incumbents risk not being able to successfully transform their workforce to adopt new business models
- Evolution of mass affluent-focused institutions to offer more bespoke services may create competitive pressure to upstream institutions

Scenario 3: Lowering bars to act as investment expert (1 / 2)



Narrative

Since the advent of online discount brokerages, the ability for individual investors to develop sophisticated strategies and participate in investment activities has grown continuously. Next generation tools (e.g., retail algorithmic trading platforms) are leveraging advanced algorithms, visualisation and cloud computing to eliminate traditional barriers like a need for programming skills.

These innovations are narrowing the gap between individual and professional investors and facilitating the emergence of marketplaces for trading strategies and algorithms, enabling some of these empowered individuals to steal share from traditional investment managers.

Summary of impact

- The next generation of retail and social trading platforms offer effective means for individuals to share or sell their investment expertise to other individual investors
- Sophisticated individual investors directly compete with traditional investment managers and aspects of the market for active retail investment management experience margin compression

Case studies



Quantopian allows sophisticated individual investors to build, test and execute algorithmic trading strategies with limited development knowledge and infrastructure, and manage other investors' investments for a fee.



Estimize gathers stock-performance opinion from professional and individual investors (buy-side) to create price estimates that would mimic the market reaction, without relying on sell-side analysts.

Scenario 3: Lowering bars to act as investment expert (2 / 2)

Necessary conditions for the scenario		Implications of the scenario on...	
▪ Sufficient track record of performance by investment experts to gain customers' trusts and overcome reputational barriers		Customers	<ul style="list-style-type: none"> ▪ Access to more diverse investment strategies at lower costs ▪ Ability to expand financial knowledge
▪ Competitive value proposition offered by investment experts in terms of return, risk and costs		Incumbents	<ul style="list-style-type: none"> ▪ Erosion of market share to investment experts and DIY customers ▪ Need to develop differentiated offering from individual investment experts ▪ Increased reliance on brand as a differentiator
▪ Regulatory control to ensure that accountabilities and disclosure standards are well understood by all parties		Overall Ecosystem	<ul style="list-style-type: none"> ▪ Creation of "prosumer" environment where consumers participate in production ▪ Increased churn of entries and exits into investment advisory roles by individual experts

Opportunities and risks associated with the scenario

Opportunities	Risks
<ul style="list-style-type: none"> ▪ Room for misalignment of interests by incumbent advisors is reduced due to increased competition 	<ul style="list-style-type: none"> ▪ Risk of less sophisticated customers overlooking tail risks associated with seemingly well-performing investment strategies ▪ Interests of marketplace platforms may not be aligned with the interests of investors, making it easier for fraudulent behaviour from investment experts ▪ Customers may feel overly confident or lose long-term view resulting in investment portfolios unsuitable to their needs ▪ Due to lower tolerance to short-term poor performance, customers may switch too frequently between investment strategies, leading to suboptimal return and incentivising bad behaviour among advisors

What does this mean for financial institutions?

Key implications and remaining questions

“Safe Bets” – Likely implications under all scenarios

- ! **Decoupling of advisory and products:** As more customers switch to automated advisors for more streamlined and cost-effective advisory services, the “one-stop” model of distributing financial institutions’ wealth products primarily via their advisory channels will become less effective
- ! **Eroding advantages of scale:** Traditional wealth managers’ scale-based advantages will erode as once manual processes are automated, virtual channels are utilised and core infrastructure become available at a low cost to new entrants
- ! **Increased competition:** The commoditising forces generated by new entrants will make more segments and services less profitable for traditional wealth managers and intensify competition among traditional players in more specialised segments or services
- ? How will wealth managers that used to distribute their own products via advisory channels change their distribution strategy as new entrants providing automated digital solutions erode their customer base?
- ? What are the differentiated services provided by traditional wealth managers that will remain difficult to automate and replicate by new entrants?

Scenario 1: Erosion of the mass affluent market

- ! **Erosion of deposits:** New entrants will begin to compete for mass or mass affluent customers’ deposits with retail banks
- ! **Importance of relationship:** As competition intensifies among traditional players in relationship-driven high / ultra net worth market, the role of in-person managers will become more critical
- ? How will retail financial institutions prevent the erosion of deposits to new wealth products that now offer lower threshold for entry?

Scenario 2: Revamping the value proposition of wealth managers

- ! **Empowering retail banks:** More retail banks will be able to meet most needs of wealth management customers through automated services
- ! **Organisational change:** Traditional players may face challenges in redeploying workforce to deliver different services and customer segments than today
- ? How will traditional institutions capture customers early on in their lifecycle as younger, mass affluent customers enter the wealth management market earlier through automated advisors?

Scenario 3: Lowering bars to act as an investment expert

- ! **Benchmarking challenge:** Benchmarking the performance of traditional wealth products will become increasingly difficult as distributed, constantly-changing group of prosumers become a source of competition
- ! **Importance of brand and trust:** In competing against prosumers who can generate similar return on investment, traditional institutions’ brand and customer trust will become a critical differentiator
- ? How will traditional investment managers change their competitive and workforce strategy as emerging platforms empower sophisticated individuals to compete directly with professional investors?

Investment Management

How will the externalisation of key processes transform the financial ecosystem?

Executive Summary

Context / Innovation

- Many processes within investment institutions are considered as “core” to their business operation. However, a new breed of process externalisation providers are using highly flexible platforms (typically based in the cloud) to provide financial institutions with increased efficiency and new levels of process sophistication / excellence

Future of Process externalisation

- As service providers externalise and consolidate processes previously considered core capabilities, the core competencies that differentiate winning financial institutions shift from process execution to more “human” factors (e.g., synthesis, decision making)
- External service providers could enable small and medium-sized organisations to better compete with large incumbents by providing them access to top-tier processes that were once unreachable due to lack of scale
- Some external providers that consolidate regulatory compliance capabilities may also create an opportunity to centralise communications to regulatory agencies. This would improve the speed at which financial institutions are able to respond to regulatory changes and ensure a higher level of compliance

Key Implications

- By exploring options to externalise a large number of redundant processes across institutions, firms will benefit from efficiency gains and increased sophistication
- However, financial institutions must consider which capabilities they should continue to focus on as a source of competitive advantage

Many processes within investment management institutions considered as core to their business today are facing various pressures

Core capabilities of investment institutions today

- Over the past few decades, externalisation of non-core processes (e.g., HR, finance) has been a major trend in the financial services industry to drive efficiency and operational excellence
- Despite this trend many processes, such as transaction monitoring, regulatory compliance and risk management continue to be perceived as mission critical or competitive differentiators and have remained in house



“Core” processes largely remaining in-house

“None-core” processes typically externalised

— Evolution of landscape impacting core processes —

- The notion of core internal processes can change when external providers emerge with the ability to complete the process more efficiently and with more sophistication than individual institutions
 - The ability to access and collect market data was once considered a critical internal competency for equity investments firms until external providers emerged to provide more standardised and comprehensive set of data (e.g., Bloomberg, Thomson Reuters)
- A number of issues are arising that impact the institutions' ability to excel across today's core processes:
 - Increased regulatory burden as a result of the 2008 financial crisis (e.g., the Dodd-Frank Act) and the introduction of stricter compliance requirements (e.g., anti-money laundering) has taken up a large amount of institutions' capacity
 - Legacy processes and systems built based on the physical computing environment continue to limit institutions' flexibility and agility in adapting to the rapidly changing market conditions and continuously evolving regulatory requirements

— Key challenges faced by institutions —

Capacity Constraints

Lost capacity on updates and maintenance limits the ability to invest in core capabilities

Limited Flexibility / Agility

Timely update of the processes and technologies is limited due to costs and efforts required

Scale-driven Barriers

Sophistication of capabilities is not feasible due to the institutions' scale and size

High Cost of Maintenance

Updating and maintaining processes and technologies are costly and time-consuming

Inconsistency

Fragmented, local legacy processes and technologies impede connectivity across the organisation

Complexity

Inflexible systems designed for past market environments result in added complexity to adapt to the current environment

The new breed of process externalisation providers are built on the technologies and philosophies behind Web 2.0

Key innovations enabling the new breed of process externalisation



Advanced Analytics

- Utilise advanced computing power, algorithms and analytical models to not only automate existing manual processes but also provide a new level of sophistication

AYASDI



Cloud Computing

- Leverage cloud technology to improve connectivity with and within institutions to facilitate data sharing, streamline implementation and maintenance of processes, and enable real-time processing



FUNDAPPS



Natural Language

- Integrate natural language technology into processes to make them more intuitive for end users, reducing the need for deep technical backgrounds



DUCO



Common models of the new breed of process externalisation providers



Platform

- Technology platforms, such as real-time databases and expert systems, that leverage automation to help users complete tasks faster and with fewer resources

NOVUSTM

OpenGamma

DUCO



As-a-Service

- Provide full externalisation of an entire capability, including automated and manual processes, as a service to institutions to minimise infrastructure investments required



FUNDAPPS



Capability Sharing

- Facilitate institutions to work with one another to share capabilities or easily integrate with new providers by constructing legal and technical standards and vehicles

OPENBANKPROJECT



eCo
Financial
Technology

For each capability within investment institutions that are considered “core”, process externalisation can effectively resolve key pain points experienced today

Illustrative transformative potential of process externalisation across core capabilities

	Data Collection	Analysis	Trade Strategy & Execution	Monitoring	Risk	Compliance
Current State Pain Points	<ul style="list-style-type: none"> Collection from multiple sources required for certain assets Processing of disparate formats required 	<ul style="list-style-type: none"> Reliance on manual modelling leading to human errors, lengthy turnaround time and capacity constraints to support more prudent decision making 	<ul style="list-style-type: none"> Trading strategy starts with hypotheses, requiring trial-and-error process Increasingly dynamic and complex trading landscape requires increased costs to achieve best execution 	<ul style="list-style-type: none"> Transactions are monitored post-trade in a batch process, focusing on coping with erroneous behaviours rather than preventing them 	<ul style="list-style-type: none"> Risk modelling and analysis is conducted by middle and back office functions with periodic reporting to front office, limiting its visibility on risk in real-time 	<ul style="list-style-type: none"> Constantly evolving regulations across geographies mean significant resources must be expended to ensure compliance processes are up to date and properly monitored
Benefits Offered by External Providers	<ul style="list-style-type: none"> Aggregating data collection from multiple sources and automating extraction not only improve efficiency, but allow greater influence over the sources of data 	<ul style="list-style-type: none"> Utilisation of advanced analytics and automation make analyses instant and more accurate, and allow institutions to test a greater number of opinions to support decision making 	<ul style="list-style-type: none"> Advanced analytics support automated data-driven trading strategy formation Automated execution providers improve the efficiency and quality of execution through connectivity with multiple venues 	<ul style="list-style-type: none"> Transactions can be monitored in real-time to ensure erroneous trades are identified and addressed in real time 	<ul style="list-style-type: none"> Automation of risk modelling and monitoring with user-friendly interfaces allows front office to directly engage in understanding and analysing risk in real-time 	<ul style="list-style-type: none"> Centralised compliance monitoring providers for specific types of regulations aggregate collection of changing regulations across multiple geographies with greater efficiency
Examples of New External Providers	NOVUS Novus aggregates performance and position data of funds from regulators and participating funds to provide a single point of access to fund of fund managers	KENSHO Kensho automates the modelling of investment scenarios to support decision makers with real-time projection of performance under various outlook assumptions	AYASDI Ayasdi utilises topological data analysis to draw out correlations and outliers from big data to inform hypothesis and trading strategy development	redkite RedKite monitors erroneous trading patterns in real-time (e.g., layering) to help organisations deal with noncompliant transactions instantaneously	OpenGamma OpenGamma provides an open source platform for real-time market risk mgmt. and analytics, allowing front office resources to control and manipulate calculation	FUNDAPPS FundApps organises regulatory information and delivers a cloud-based managed service to automate shareholding disclosure and monitor investment restrictions

The next generation of process externalisation not only brings efficiency, but also enables institutions to gain the level of sophistication unattainable by themselves

Key characteristics of the future state enabled by process externalisation



Automation

More processes will be automated and commoditised to free up capacity to invest in differentiating core capabilities



Flexibility / Agility

Updating and maintaining processes and technologies to adapt to the changing landscape will become quicker and more effortless



Sophistication

Leveraging scale, externalised processes will become more sophisticated than was possible within a single organisation



Consistency

Increased standardisation of processes, technologies and their interfaces will bring consistency across various operations and facilitate sharing of data



Reduced Costs

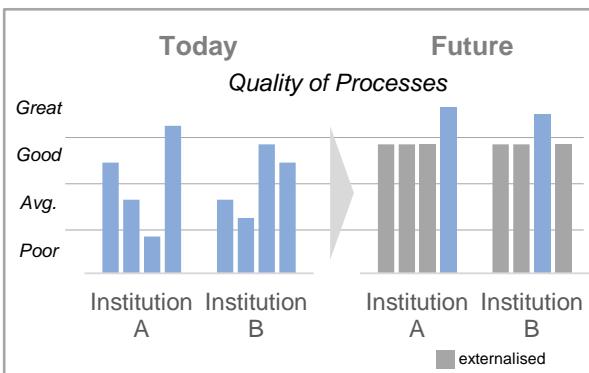
The costs to update and maintain processes and technologies will be reduced as they are shared among a number of institutions

Empowered by these benefits, how will the externalisation of key processes transform the financial ecosystem?

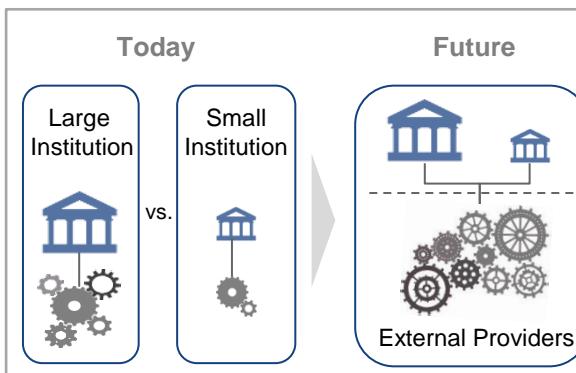
How will the externalisation of key processes transform the financial ecosystem?

Potential impact of process externalisation

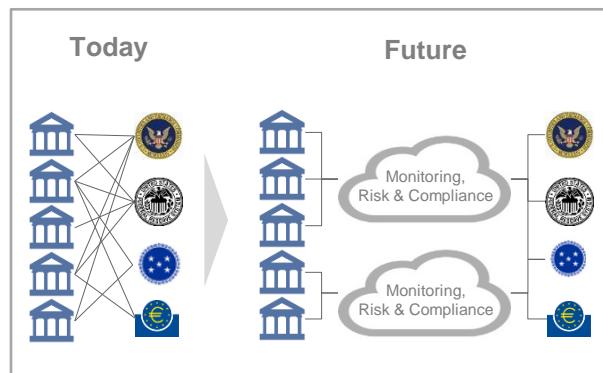
1 Redefined core capabilities of financial institutions



2 Level playing field for newer, smaller financial institutions



3 Centralised communications with regulatory agencies



- Service providers use advanced technologies to **externalise, consolidate and commoditise** processes that were previously considered **core capabilities**, in a more efficient and sophisticated manner
- As a result, **core competencies** that differentiate winning financial institutions shift from process execution to more **“human” factors** (e.g., synthesis, decision making)

- External service providers give **small and medium-sized organisations** access to **sophisticated capabilities** that were not previously attainable due to lack of scale
- By enabling small and medium-sized organisations to access top-tier processes, **barriers to entry are lowered** for new players and smaller existing players are able to compete with large incumbents on a **more level playing field**

- These providers improve the **speed** at which financial institutions are able to respond to regulatory changes, ensure a **higher level of compliance** via automation, and empower regulators to receive **consistent inputs** from financial institutions
- As more regulatory compliance and monitoring processes are outsourced to a small number of service providers, these firms can act as **centralised communication touch points** for regulators

- The following scenarios illustrate potential outcomes generated by the innovations discussed in this topic, particularly in response to the key question above – they are not meant to be future predictions
- These scenarios are illustrations of particular aspects of the potential future and are not meant to represent a complete view of the market and competitive landscape – in many cases, some or all scenarios could be realised at the same time

Scenario 1: Redefined core capabilities of financial institutions (1 / 2)



Narrative

Financial institutions begin to outsource select processes to specialised external firms who leverage advanced technologies to provide improved outcomes at a much lower cost. Efforts previously spent on managing these processes in-house can be deployed toward higher value activities that provide competitive differentiation.

As this pattern repeats over multiple processes, a financial institution's competitive position ceases to be defined by core operational excellence and instead is defined by which higher value activities they have chosen to focus on.

Summary of impact

- Service providers using advanced technologies provide options for financial institutions to externalise processes once considered core capabilities
- Competitive advantages derived from excellence in process execution will disappear as high quality process execution becomes a commodity available for purchase
- Financial institutions are required to redefine what capabilities differentiate them from other institutions with process execution taking a backseat to more "human" factors

Case studies

The ability to quickly and accurately model market projections and hypotheses through large quant teams has traditionally been a key advantage of large financial institutions. Kensho threatens that advantage by offering a next-generation analytics platform for the investment industry with massively-parallel statistical computing, scalable analytics architectures and user-friendly visual interfaces. By leveraging Kensho's platform, any investment institution can now rapidly model projections without an army of quantitative analysts; instead focusing more "human" capabilities like hypothesis generation and market insights.

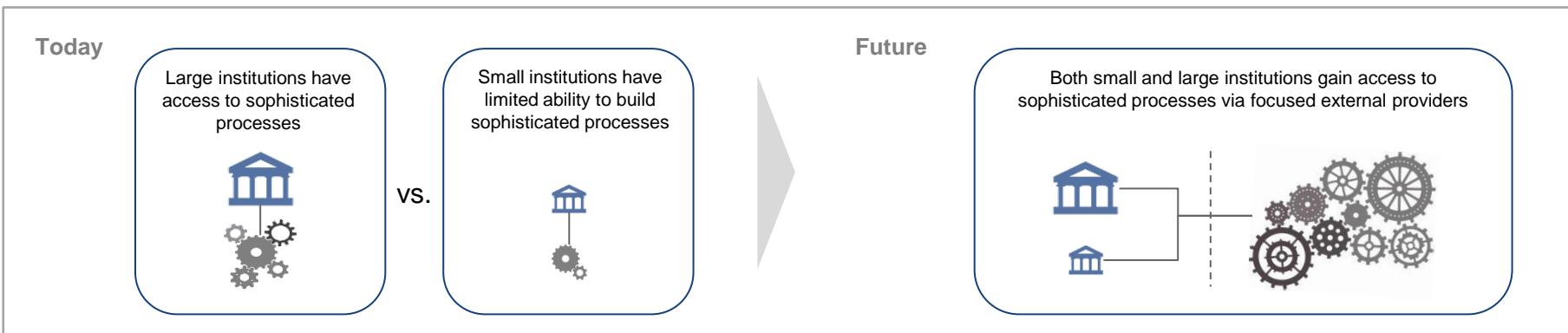
Scenario 1: Redefined core capabilities of financial institutions (2 / 2)

Necessary conditions for the scenario		Implications of the scenario on...	
▪ External service provider's ability to demonstrate a clear business case for financial institutions to outsource many core functions	Customers	▪ High quality service levels across most financial institutions	
▪ Clear definition of accountabilities and liabilities between financial institutions and their service providers	Incumbents	▪ Access to increasingly differentiated services / product offerings among financial institutions	
▪ Securing regulatory comfort by demonstrating financial institutions' control over the externalised processes	Overall Ecosystem	▪ Need to reallocate resources to develop new core capabilities ▪ Increased pressure to identify and develop new differentiating capabilities	
		▪ Emergence of a class of institutions specialising in externalising specific processes ▪ Increase in the average level of sophistication of processes across institutions	

Opportunities and risks associated with the scenario

Opportunities	Risks
<ul style="list-style-type: none"> ▪ Fewer process failures as they are externalised to more focused and specialised providers ▪ Emergence of institutions competing to excel in specific processes drives deeper specialisation ▪ Increased capacity for financial institutions to be innovative due to reduced focus on resource intensive core processes 	<ul style="list-style-type: none"> ▪ Centralisation of processes creates larger implications of process failures including continuity risks for banking in the case of a failure of an external service provider ▪ Risks resulting from potential lack of clarity surrounding accountabilities ▪ Loss of deep process knowledge within financial institutions may have unforeseen spill-over consequences in other areas of the business

Scenario 2: Level playing field for newer, smaller financial institutions (1 / 2)



Narrative

Once an external service provider has developed the tools for a financial institution to externalise a process, the cost of extending that service to additional financial institutions is typically very low and not dependent on the institution's size.

Small and medium-sized financial institutions capitalise on these economics to both improve their efficiency and radically increase the sophistication of their processes across the board. As process sophistication ceases to be a source of competitive advantage for large financial institutions, small and medium-sized institutions are able to increase their focus on differentiating capabilities.

Summary of impact

- External service providers provide small and medium-sized organisations access to sophisticated capabilities, which were previously unattainable due to lack of scale
- Barriers to entry into the market will be lowered and the playing field will be leveled with small and medium-sized organisations increasingly able to compete with large institutions

Case studies



Open Gamma uses an open source platform to provide real-time market risk management analytics to buy-side, sell-side and clearing institutions. While Open Gamma provides the platform free of charge, they offer support, consulting and training services to help institutions configure and modify the platform and select appropriate risk models. The platform includes a number of advanced functions not normally available to small institutions.

Through services like Open Gamma, new and small institutions no longer need to set up extensive support functions in middle and back offices to attain sophisticated capabilities and compete with larger institutions.

Scenario 2: Level playing field for newer, smaller financial institutions (2 / 2)

Necessary conditions for the scenario		Implications of the scenario on...	
▪ Externalisation providers must be able to provide suitable options for both small and large institutions	Customers	▪ Wider universe of options for financial services as customers' choice of institutions is no longer restricted by their scale	
▪ Clear definition of accountabilities and liabilities of financial institutions and their service providers	Incumbents	▪ Increased competition as smaller institutions gain a stronger competitive position	
▪ Securing regulatory comfort by demonstrating financial institutions' control the externalised processes	Overall Ecosystem	▪ A need to re-evaluate business models that are based on economies of scale	
		▪ Wider distribution of market share	
		▪ Increased monitoring burden to regulators as the number of players increase	

Opportunities and risks associated with the scenario

Opportunities

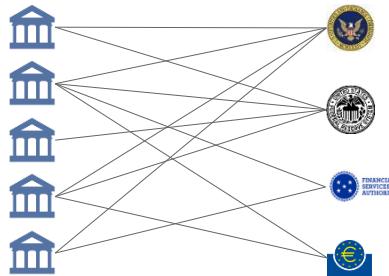
- Potential increase in diversification of strategies as smaller financial institutions are empowered to pursue innovative strategies
- Increased competition might lead to reduction of transaction costs for customers

Risks

- Risks to small and mid-sized players that their externalisation service providers will be acquired and internalised by large financial institutions
- Systemic benefits of scale, such as visibility into the market, may erode as the average size of institutions decreases

Scenario 3: Centralised communications with regulatory agencies (1 / 2)

Today



Future



Narrative

A number of niche service providers are emerging who are able to externalise processes related to specific regulations (e.g., restricted holdings, KYC). These firms are able to interpret regulatory changes and translate them into rules that can be applied across various financial institutions, improving regulatory compliance and the speed at which financial institutions can respond to regulatory changes.

As regulatory compliance within financial institutions becomes more closely integrated with these service providers, some regulators may choose to collaborate directly with them even to the point of issuing regulations in code rather than as policy documents.

Summary of impact

- More regulatory compliance and monitoring processes are outsourced to a small number of service providers with better connections to and understanding of regulations, reducing the compliance burden for financial institutions
- These compliance service providers can act as centralised communication touch point for regulators
- By solidifying their connections with regulators, these providers improve the speed at which financial institutions are able to respond to regulatory changes, ensuring a higher level of compliance

Case studies



FundApps organises regulatory information and delivers a cloud-based managed-service to automate shareholding disclosure and monitor investment restrictions across 100+ regulatory regimes on a daily basis. FundApps partners with a global legal service provider to monitor and translate changes in relevant regulations into rules on a daily basis.

If regulatory agencies partner with FundApps in the future, they could ensure consistent compliance across financial institutions, make dissemination of regulatory changes in disclosure regimes faster, and reduce the compliance burden faced by the industry.

Scenario 3: Centralised communications with regulatory agencies (2 / 2)

Necessary conditions for the scenario

- Buy-in from multiple regulators to collaborate with external service providers regarding regulatory topics will be necessary. Dealing with emerging risks like cyber security might be a good starting point
- Solid track record of performance and reliability demonstrated by externalisation business models
- Full accountability and liability for actions remain with financial institutions
- Critical mass of financial institutions externalise regulatory processes to a manageable number of service providers

Implications of the scenario on...

Customers

- Increased trust in financial institutions as overall compliance level increases

Incumbents

- Ability to respond faster, more easily and more cheaply to regulatory shifts
- Freed capacity from compliance processes to focus on the core competencies

Overall Ecosystem

- Higher, more consistent level of regulatory compliance
- Formalisation of externalisation providers as a core piece of the overall financial ecosystem
- Higher level of clarity in regulations

Opportunities and risks associated with the scenario

Opportunities

- Opportunities to improve the clarity of regulations across jurisdictions
- Cost for compliance and regulation, which tends to be very high in global institutions, potentially will be reduced
- Standardised data simplifies supervision for regulators

Risks

- Unclear how risks of regulatory capture will be influenced by externalised compliance models
- Amplification of non-compliant activities and unclear liabilities when centralised externalisation providers fail
- Decreased internal compliance expertise within financial institutions may have unintended consequences

What does this mean for financial institutions?

Key implications and remaining questions

“Safe Bets” – Likely implications under all scenarios

- ! **Loss of negotiating power and continuity:** As more capabilities, technologies and processes are externalised financial institutions will become increasingly dependent on 3rd parties for continuity
- ! **Skill loss of workforce:** Even though externalising less valuable capabilities will create efficiency, it may result in workforce skill loss over the long term and employees ability to develop a holistic view of financial services operations
- ? How will financial institutions participate in capability sharing with other institutions to balance efficiency with control (e.g., utility creation, co-development, 3rd party providers)?
- ? How will financial institutions prevent the loss of negotiating power and continuity as the next generation of process externalisation providers are often built on managed services models as opposed to today's vendor models?

Scenario 1: Redefined core capabilities of financial institutions

- ! **Organisational agility:** As innovative providers continue to streamline and commoditise previously high-value capabilities, creating an agile organisation will be critical to adapt to the changing landscape and realign core competencies
- ? What capabilities and processes will financial institutions focus investments on to create competitive advantages that cannot be replicated through the new process externalisation providers?

Scenario 2: Level playing field for newer, smaller financial institutions

- ! **Higher turnover of new entrants:** externalisation of processes will make it easier for new players to enter the market without significant infrastructure, increasing the turnover in the industry
- ! **Imperative for direct participation:** In order to sustain scale-driven advantages, large financial institutions will actively participate in creating, funding, and acquiring innovative externalisation providers
- ? What are the advantages that larger financial institutions may continue to benefit from when externalisation levels the playing field?

Scenario 3: Centralised communications with regulatory agencies

- ! **Limited regulatory interpretation:** When regulatory compliance is centralised and automated, regulatory models may shift from today's interpretation-based approach to more measurable, “black-and-white” approaches, reducing the room for regulations to be flexibly interpreted

Market Provisioning

How will smarter and faster machines transform capital markets?

Executive Summary

Context / Innovation

- As the popularity and profitability of high frequency trading declines, the next evolution of algorithmic trading may be dependent on smarter machines, allowing a broader class of trades to reap the benefits of automation and sophistication

Future of Smarter Faster Machines

- The proliferation of smarter machines will further shift the focus of machine-based trading to rapidly respond to real-life events
 - As the race for speed transitions to the development of strategies responding to real-life events, market makers' trading strategies may become more diversified as they access a vast amount of different data sources and infer different market conditions from that data
 - When trading algorithms become more intelligent by incorporating machine learning, the breadth and accuracy of their analyses will expand, and could result in convergence toward a single view of the market
 - Growing public discontent with algorithmic trading may lead to regulations on the use of automatic data feeds or smart machines in executing trades, reverting some parts of market-making activities to manual processes

Key Implications

- The development of smarter, faster machines in algorithmic trading will have varying implications on the market structure in terms of volume, liquidity, volatility and spread – the future of algorithmic trading must be approached with a new lens with respect to the benefits it can deliver to the ecosystem weighed against the new types of risks it might create

As the popularity and profitability of high frequency trading declines, the next evolution of algorithmic, machine trading remains in question

Overview of algorithmic trading and high frequency trading

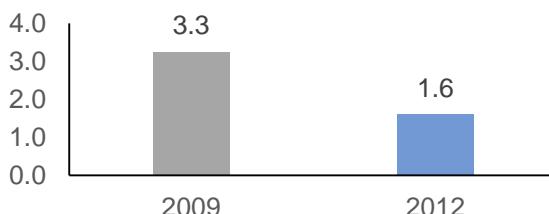
- The use of algorithms in trading activities has proliferated in lockstep with the evolution of computing power since its initial application for optimal portfolio determination in the 1970s and the emergence of fully automated algorithmic trades in the early 1990s
- Since then, the key focus of algorithmic trading has been on exploiting arbitrage opportunities in time and / or across venues by leveraging low latency access to the exchanges (i.e., high-frequency trading, autonomous market makers) and thereby providing liquidity to the market
- These high frequency traders largely replaced the market-making activities traditionally performed by broker dealers, who provided liquidity and made prices by manually coordinating offers and taking on the risks of buying and selling shares in return for spread
- While some trading firms and hedge funds use algorithms to achieve faster processing times for analysis of large datasets; price discovery and order execution remain the most active areas of high frequency trading



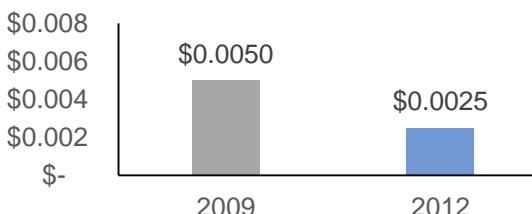
Declining popularity and profitability of high frequency trading

- High frequency trading reached its peak in 2009-2010, where those trades accounted for over 60 percent of all U.S. equities traded in volume
- However, the popularity and profitability of high frequency trading has significantly decreased due to lower volatility, improved liquidity, rising costs of trading infrastructure, and regulatory scrutiny

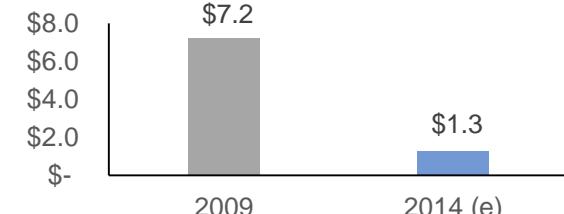
of High Frequency Trades per Day in United States
(in billions, est. by Rosenblatt Securities)



Average Profit per Share on HFTs
(est. by Rosenblatt Securities)



U.S. Revenue of High Frequency Traders
(in billions, est. by TABB Group)



Smarter, faster machines will allow broader types of trades beyond high frequency trading to reap the benefits of automation and sophistication

Smarter, faster machines' capabilities may shape the future of algorithmic trading



Machine Accessible Data

- Process news feeds through algorithms in real-time without human interpretation (machine-readable news)
- Discover major events faster than the news through social media / sentiment analysis



Event-Driven

- Input for algorithmic trading will shift from market information (i.e., movements in price) to real-life events
- The race for low latency will also shift to the access to real-life events leveraging faster connection to and interpretation of traditional and emerging news sources



Big Data

- Access extensive real-time data sets through specialised databases
- Uncover predictive insights on market movements based on correlations mapping
- Update and access insights in real-time through cloud-based analytics



Comprehensive

- The development of big data based analyses will allow traders to leverage broader and deeper sets of data in making trades
- More factors seemingly less relevant to the market / stock performance will be discovered and used for trading strategies



Artificial Intelligence / Machine Learning

- Ask questions, discover and test hypotheses, and make decisions automatically based on advanced analytics on extensive data sets
- Self-correct and continuously improve trading strategies with minimal human interaction through machine learning and prescriptive analytics



Automated

- The involvement of humans in the overall trading process may decrease as machines automate a wide range of core activities from hypothesising to decision making
- The accuracy, consistency and speed of trades will improve through automation and self-learning

Proliferation of smarter and faster machines will further develop traders' capabilities and transform the capital markets

Key characteristics of the future of trading



Agility

Real-life events will be reflected in the market price at a much faster speed as traders gain access to and act on news from new and traditional sources more quickly



Accuracy

The room for human error will decrease as more aspects of trading activities are automated. The quality of trading decisions will also improve as the machines used in researching, hypothesising and decision making self learn



Privileged

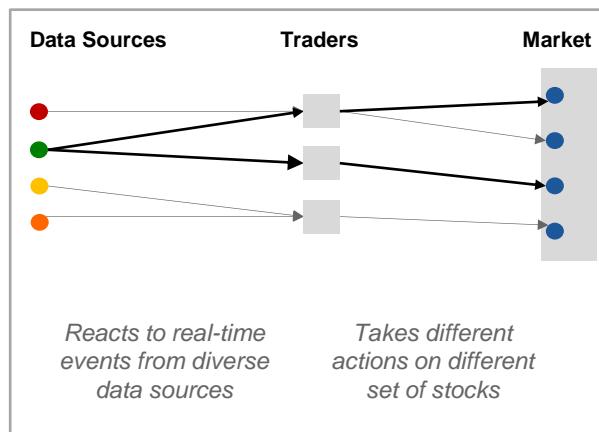
The gap between trading institutions and individual investors will increase as the increased infrastructure costs to compete in collecting, analysing and acting on information create barriers for individual investors

As smarter, faster machines improve the capabilities of traders, how will the capital markets transform?

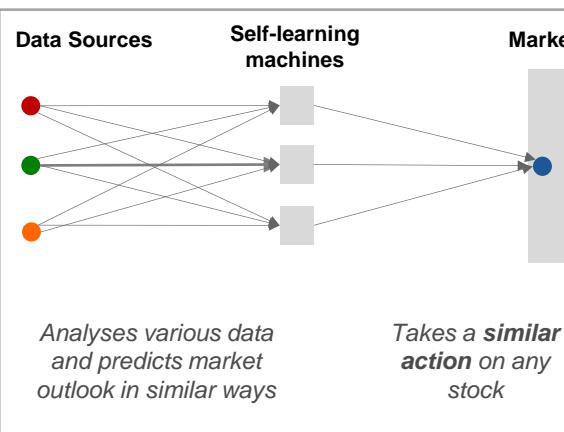
How will smarter and faster machines transform capital markets?

Potential scenarios enabled by smarter, faster machines

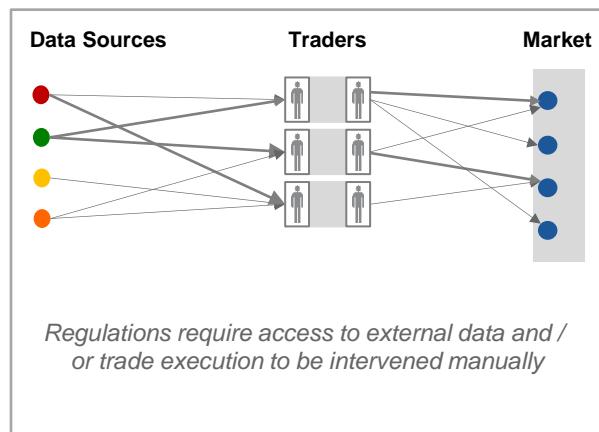
1 Diversification of trading strategies and tactics



2 Convergence of trading strategies and activities



3 Reverting to manual processes



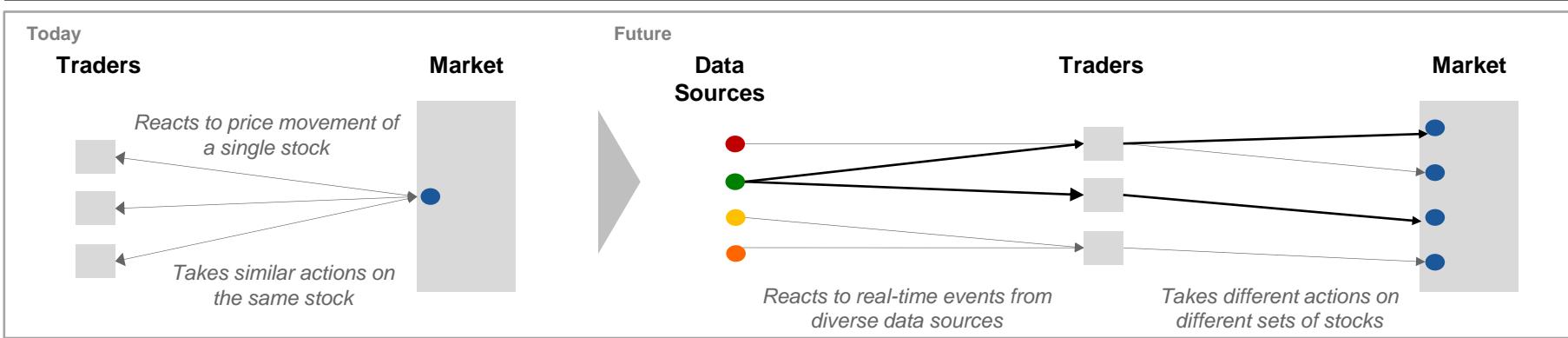
- The race for speed transitions from responding to price movements to the development of strategy **responding to real-life events** through big data analysis and machine readable news
- Algorithmic trading strategies become diversified** as they access different data sources and infer different market outcomes

- As trading algorithms become more intelligent and are able to access more complete sets of market data, their analyses **converge toward a single view** of the market
- As trading and market-making **strategies converge**, volume decreases and spreads tighten

- Growing public discontent with algorithmic trading leads to **regulations on the use of automated** data feeds and / or smart machines in executing trades
- Some parts of market making activities **revert to old, manual processes**, tangibly reducing the trade volume and the liquidity of the market

- The following scenarios illustrate potential outcomes generated by the innovations discussed in this topic, particularly in response to the key question above – they are not meant to be future predictions
- These scenarios are illustrations of particular aspects of the potential future and are not meant to represent a complete view of the market and competitive landscape – in many cases, some or all scenarios could be realised at the same time

Scenario 1: Diversification of trading strategies and tactics (1 / 2)



Narrative

As the benefits that can be earned from incremental investments in high frequency trading decrease, algorithmic traders will shift their focus to real-life events by connecting to new data sources available from social media feeds to machine readable news. (1) Due to the vast amount of data available, most algorithmic traders will focus on different events and triggers. (2) Unlike most high frequency trading strategies, the market reaction to real-life events is not certain and traders with different views, skills and analytical tools will make different decisions in face of the same data. As the result, the trading strategies and tactics of algorithmic traders will vastly diversify.

Summary of impact

- The focus of a race for speed moves from chasing price movements to responding to real-life events through big data analysis and machine accessible news
- Market makers' trading strategies become diversified as they access different data sources and infer different market outcomes
- Diversification leads to increase in intraday volatility and wider ask-bid spread

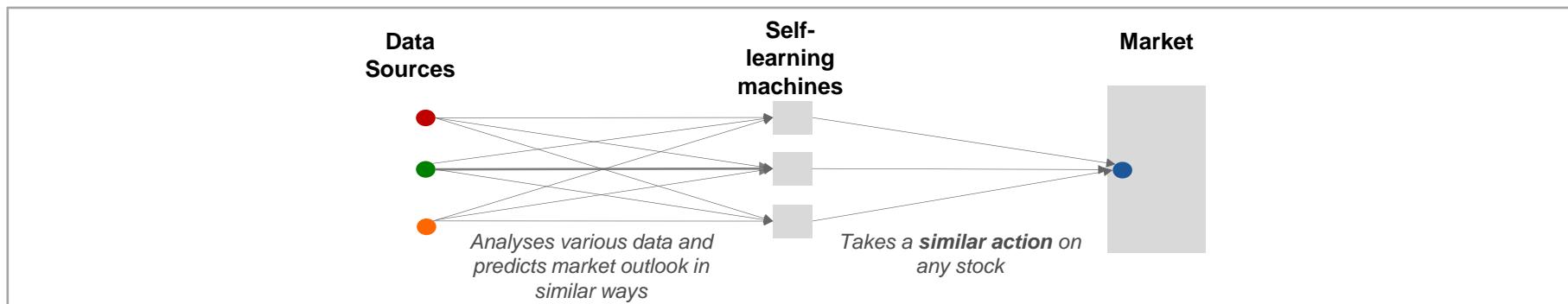
Case studies



New innovative services like Dataminr and SNTMNT enable traders to gain access to events and news that may trigger market movement (e.g., breaking news, M&A speculation) faster than the competition by utilising non-traditional data sources like social media / market sentiment and real-time analytics.

Leveraging these platforms, algorithmic traders can leverage their infrastructure to shift focus from reacting to stock price movements to monitoring and reacting to real-life events faster than other traders and investors in the market.

Scenario 2: Convergence of trading strategies and activities



Narrative

As access to a universe of real-time data feeds becomes essential to the execution of successful algorithmic trading strategies, the set of data used by traders converges with every trader using almost every available data source. At the same time algorithms become smarter incorporating machine learning and improving the accuracy of projections.

With algorithmic traders connected to similar data sources and smarter machines generating similar projections from those data, the variances among algorithmic traders' activities will decrease.

Summary of impact

- Accuracy of market projections by trading algorithms gradually improves as market makers gain access to broader sets of big data and more sophisticated machines
- Since each market maker's system accurately predicts the market movement, differences among various market makers' projections and trading strategies are eliminated
- As trading strategies converge, volume decreases and arbitrage opportunities effectively disappear

Case studies

AYASDI

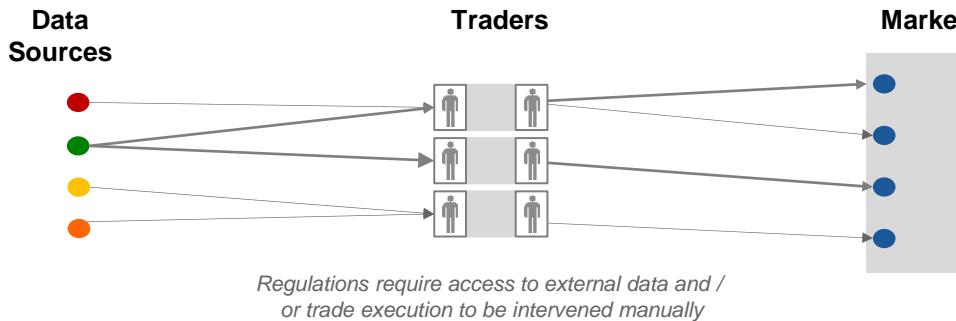


Ayasdi leverages topological data analysis to process big data sets to unveil patterns within the network of data. In capital markets, Ayasdi's technology can be used to understand the relationships between various real-life events and market performance to derive trading hypotheses. Over time, additional historical data and trading outcomes can be added back to the analysed big data to continuously sophisticate and automatically correct the trading hypotheses.

Neuro Dimension's TradingSolutions combines technical analysis with artificial intelligence using neural networks and genetic algorithms to learn patterns from historical data and optimise system parameters.

As these types of systems become more sophisticated, algorithmic traders will simultaneously predict the market performance with a greater degree of accuracy and their trading activities will converge.

Scenario 3: Reverting to manual processes



Narrative

The utilisation of new data sources like machine readable news and advanced computing in trading activities increases the gap in the level of sophistication between professional algorithmic traders and individual, retail investors. The public may perceive some of these innovations to be an “unfair” advantage; similar to how infrastructures costs associated with high frequency trading have been scrutinised.

Reacting to public sentiment, policy makers and regulatory agencies may impose restrictions on what automated data streams and trading machines can and cannot be used for various activities. Potential misinterpretation of data by smart machines triggering systemic losses might accelerate such movements toward regulation.

Summary of impact

- Growing public discontent with algorithmic trading leads to regulations on the use of automated data feeds and / or smart machines in obtaining information or executing trades
- At least some parts of market-making activities revert to old, manual processes, tangibly reducing the trade volume and the liquidity of the market
- As a result, the liquidity of the market will decrease. As traders cannot react to fact-based price arbitrage as quickly, they may also increase their spread to mitigate their risks, resulting in unfavourable price formation for both buyers and sellers

Case studies



On 23 April 2013, a false report of explosions at the White House was posted on the hacked Twitter account of Associated Press. With many algorithmic traders' systems linked to key Twitter feeds, algorithmic trades caused a selling spree nearly immediately after the posting. As the result, \$136 billion was wiped out from the S&P 500 index within two minutes of the tweet's posting. While the market quickly recovered three minutes after the correcting announcement, many industry experts and regulatory agencies perceive the event as something that would not have been caused by human traders as humans would have second-guessed the validity of the tweet.

What does this mean for financial institutions?

Key implications and remaining questions

“Safe Bets” – Likely implications under all scenarios

- ! **Reduced role of humans:** As the adoption of smarter and faster machines accelerates the competition for speed in gathering, analysing and acting on data, the role of humans in trade execution will diminish and intelligent machines will replace largely human activities today, such as trading strategy development
- ! **Larger impact of errors:** Even small errors in data integrity, trade strategy, and trade execution will lead to much larger impact as end-to-end trading activities are automated via smarter, faster machines, with limited human intervention
- ? What role will human traders play as end-to-end trading activities become automated through smarter, faster machines?
- ? How will financial institutions effectively sort out erroneous data, algorithms and execution to avoid resulting in enormous losses, while maintaining execution speed?

Scenario 1: Diversification of trading strategies and tactics

- ! **Competition for data sources:** Competition to discover new data sources and gain exclusivity will intensify as the focus of algorithmic trading shifts from price movements to real-life events
- ! **Increased specialisation:** Traders with a deeper understanding of specific companies, sectors and real-life events will gain advantage over firms with broader approaches as trading strategies diversify
- ? How will financial institutions gain exclusive or faster access to data without appearing as having an unfair advantage?

Scenario 2: Convergence of trading strategies and activities

- ! **Marginalised returns:** As trading strategies converge through big data and machine learning, competition for each trade triggered by real-life events will intensify and marginal returns will diminish
- ! **Competition for speed:** When most players in the market rely on similar trading strategies, the basis for competition will shift again from discovery of new insights to faster execution via infrastructure investments
- ? How will each institution differentiate from one another as the convergence of trading strategies via smarter, faster machines lower the margin?

Scenario 3: Reverting to manual processes

- ! **Competitive uncertainty:** Capabilities required to be competitive in the market (e.g., faster computation, faster access, advanced analytics) will change drastically and rapidly depending on regulatory changes, leading to uncertainty in traders' long-term strategies
- ! **Impetus for agility:** In order to react timely to those competitive uncertainties generated by potential regulations, traders' organisational agility will become critical amidst the current shift toward replacement of workforce with smarter, faster machines

Market Provisioning

What impact will better connected buyers and sellers have on capital markets?

Executive Summary

Context / Innovation

- Many illiquid financial assets remain highly dependent on intermediating institutions to discover and connect buyers and sellers, often based on networks of pre-existing relationships with other institutions
- However, following the financial crisis, traditional capital market intermediaries' risk appetite has been reduced while their capital requirements increased, limiting their ability to take positions on financial assets to create liquidity; this has resulted in reduced liquidity mainly for non exchange traded assets
- Leveraging automation and standardisation of information flow, a number of platforms (information/connection platforms) have emerged with an aim to redefine how buyers and sellers are connected in a variety of markets

Future of Market Making / Intermediation

- As these platforms proliferate, the market landscape may change for many financial products and assets
 - New information/connection platforms will allow demand and supply represented by smaller intermediaries to be more readily and objectively discovered by counterparties, Levelling the playing field between them and larger institutions
 - Alternatively, these platforms could be developed for a “group” of larger institutions to improve connectivity among themselves, reducing their need to connect with smaller intermediaries and stabilising the current market framework for existing institutions
 - Information/connection platforms may also choose to extend the connections to individual investors, acting as a market for specific assets and products and opening doors for sellers to easily broaden their buyer base to the broader public

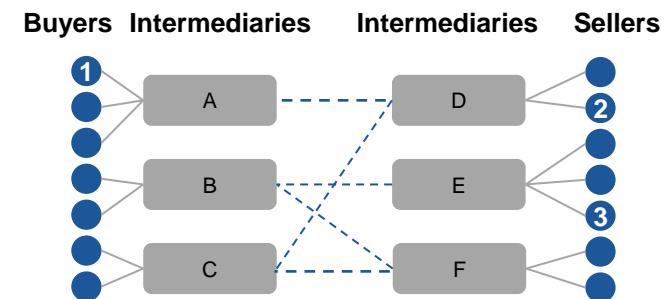
Key Implications

- Improving information flow among market participants through new information/connection platforms will create tangible benefits to the industry by empowering intermediating institutions to optimise their ability to make the best decisions for their clients; however, it will also require behaviour changes within those institutions

Over-the-counter activities depend on intermediating institutions to discover and connect buyers and sellers

How do financial institutions facilitate financial markets liquidity today?

- For a wide range of assets and financial products, financial institutions play a role as an intermediary to connect and act on behalf of buyers and sellers
- For some assets (e.g., public stocks, liquid bonds), formal markets exist to facilitate the connection between buyers and sellers, typically in the form of exchanges
- For less liquid and less standardised assets and products, demand and supply is often dispersed, making direct discovery and connection among buyers and sellers highly inefficient
- For these assets and products, financial institutions aggregate demand and supply, and build relationships with one another to effectively create a market, the so called over-the-counter (OTC) market
- As an intermediary, financial institutions sometimes take positions in the assets traded to provide liquidity or offer advisory services to the buyers and sellers they represent



Buyer 1 can be connected with Seller 2, but not with Seller 3 because their intermediaries do not have contact
 Result: When 1 is buying from 3 trade is not executed at the optimal price

Evolution of OTC driven activities

- Over the years, the markets for standardised assets with high transaction volume have greatly improved their efficiency by adopting technologies to improve connectivity among buyers and sellers
- However, OTC markets still rely on relationship-based intermediaries and non standardised processes to connect buyers and sellers
- Since the 2008 financial crisis, increased capital requirements and reduced risk appetite among intermediary institutions have limited the desirability of acting as a market maker, reducing liquidity for many financial assets and products

Key limitations of today's model

Operational Inefficiency

Highly manual discovery process for the counterparties makes transactions time consuming, costly and complex

Limited Liquidity

Not all buyers and sellers at a given moment are discovered by one another, limiting liquidity

Suboptimal Pricing

No intermediaries, regardless of their size, have a full view of the demand and supply, making the best price discovery difficult

Limited Visibility

Buyers and sellers have imperfect visibility into the market supply, demand and counterparties, limiting their ability to exert control over transactions

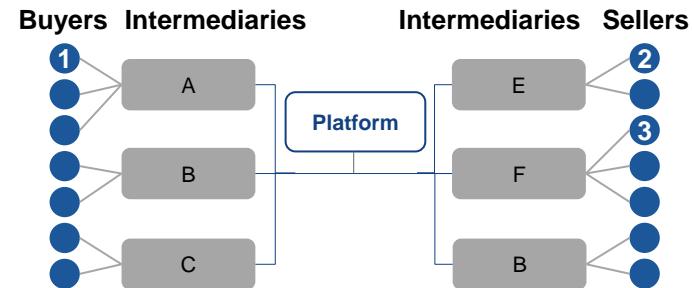
Limited Access

Buyers' ability to access assets is limited by their intermediaries' connections with sellers' intermediaries

New platforms are emerging to connect intermediaries of buyers and sellers to facilitate the flow of market information and the discovery of counterparties

What are the new platforms?

- Leveraging technological innovations, a number of platforms have emerged to redefine how buyers and sellers are connected for various financial assets and products, improving the efficiency of those markets
- These platforms automate and standardise collection of demand / supply data from intermediaries or buyers and sellers to create an aggregated view of the market and facilitate discovery of the most suitable counterparties
- Some platforms provide additional analyses on the data collected to better inform buyers / sellers and their intermediaries in choosing their counterparties



Buyer 1, Seller 2 and Seller 3 connected through new platform can exchange information

Result: All transactions are likely to be executed at an optimal price

Examples of platforms improving connection between buyers, sellers and intermediaries



Fixed Income



Funds / Fund of Funds



Private Equity /
Venture Capital Shares



Private Company
Shares



Private Company
Tenders



Commodities &
Derivative Contracts

Key characteristics of the platforms improving connection between buyers and sellers



Social

These platforms embed the elements of social networks to facilitate the interaction among buyers, sellers and intermediaries and improve how buyers and sellers are evaluated



Standardisation

These platforms typically standardise what data points are collected and analysed through a set of sophisticated metrics to allow buyers to evaluate sellers more critically

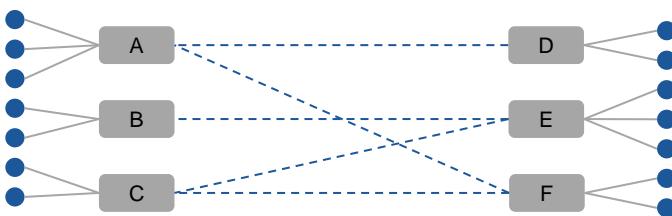
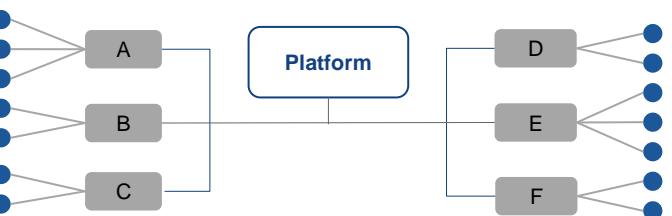


Automation

These platforms automatically collect and analyse data to help buyers and sellers make more informed decisions and make the discovery process less relationship-driven

These market connection platforms do not replace the traditional market-making activities of intermediaries, but rather help them broaden their connections

How do market connection platforms differ from traditional models of market making?

	Traditional Model				Market Information/Connection Platforms			
Value Chain	Buyers	Intermediaries	Intermediaries	Sellers	Buyers	Intermediaries	Intermediaries	Sellers
								
Key Characteristics	<ul style="list-style-type: none"> Information about buyers and sellers (e.g., current inventory / demand, historical performance) is distributed via relationships / awareness existing among their intermediaries Intermediaries collect, analyse and act on the information about the counterparties and the market 		<ul style="list-style-type: none"> Intermediaries of buyers and sellers in some cases, are directly discovered and connected via a central platform Information on counterparties and the market is aggregated and analysed by the central platform for all constituents in the market 					
Advantages	<ul style="list-style-type: none"> Reduced chance of counterparty failure by transacting through established, trusted intermediary relationships Reduced exposure to arbitrage attempts as demand and supply is only visible to a small number of intermediaries 		<ul style="list-style-type: none"> More efficient discovery and assessment of demand and supply in the market leading to more accurate price formation Reduced need for financial institutions to take position in assets and products to generate liquidity Increased visibility and control over transactions by buyers and sellers 					
Shortcomings	<ul style="list-style-type: none"> Highly manual, relationship-based discovery and assessment of demand and supply leading to inefficiency Potential to overlook the best price available due to the limitation in the scale of each intermediary's network Limited visibility of the transaction process to buyers and sellers 		<ul style="list-style-type: none"> Need to balance adequate price formation with potential price discovery and arbitrage attempts Potential counterparty risks when dealing with intermediaries (or buyers / sellers) without an established relationship or reputation 					

As buyers, sellers and intermediaries become better connected via these platforms, the overall efficiency of the market will improve

Key characteristics of the future markets enabled by improved market connections



Increased Liquidity

More intermediaries, and buyers and sellers, will be connected with one another to enable more accurate assessment of demand and supply in the market, leading to improved liquidity in the market



Improved Price Accuracy

As the aggregate demand and supply can be assessed more accurately, intermediaries and buyers / sellers will be able to determine the best price more accurately without revealing undesired information to the market



Transparency

Buyers and sellers will gain more visibility into the transaction process and therefore will be able to exert greater control over the transactions and reduce the opportunities for suboptimal transactions by intermediaries (e.g., agent conflict of interest)



Improved Access

The ability to buy / sell financial assets and products will be less dependent on the scale or the size of the intermediaries' network, improving access to the market by more buyers, sellers, and intermediaries



Faster, Cheaper Transactions

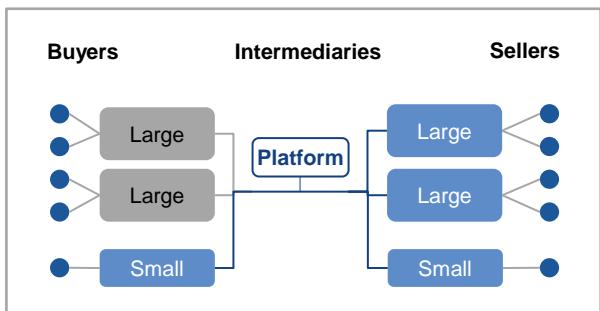
As the discovery and assessment of counterparties become more streamlined and automated, the efficiency of intermediaries will improve, leading to faster turnaround and lower cost to complete transactions for buyers and sellers

How will the market landscape change for various financial assets and products as buyers and sellers are better connected in the future?

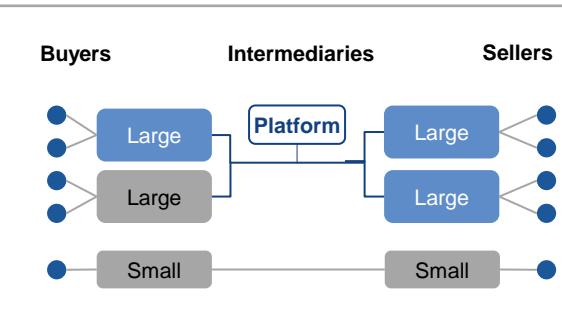
How will the market landscape change for various financial assets and products as buyers and sellers are better connected in the future?

Potential impact of buyer / seller connection

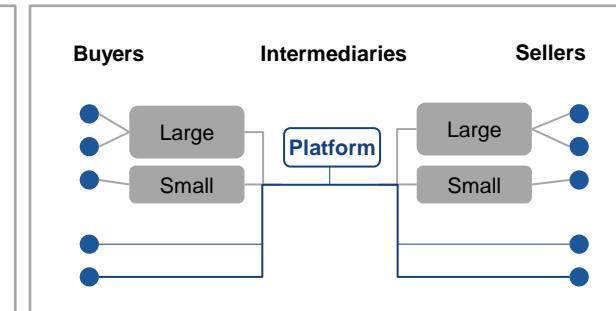
1 Levelling the playing field for newer, smaller institutions



2 Stabilising market framework for existing institutions



3 Opening the doors to individual investors



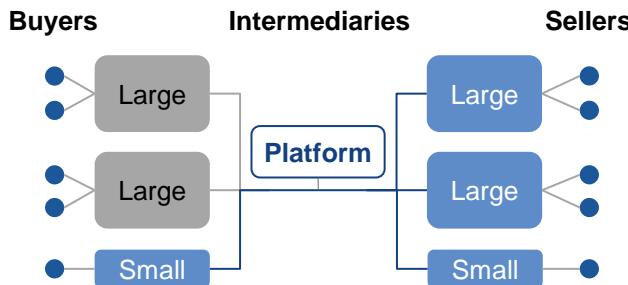
- Unlike relationship-driven market making, where larger institutions have an advantage over smaller institutions, new platforms will allow demand and supply represented by **smaller institutions** to be **more readily discovered** by counterparties
- These platforms will also provide **fact-based measures** to make counterpart comparison and selection to be more **objective**, enabling smaller institutions with less developed networks of relationships to compete

- Platforms are developed and used by larger institutions to improve connectivity and efficiency among a **“group” of large players**
- As connections among larger intermediaries are strengthened by information/connection platforms, the need for larger institutions to connect with smaller intermediaries to generate liquidity will decrease, effectively building **barriers of entry** for smaller, newer institutions

- As platforms grow, they may choose to extend **connections to individual investors** (e.g., acting as brokerages)
- When sufficient volume from individual investors can be aggregated, these platforms can act as a **market for specific assets and products** and open doors for sellers to easily broaden their buyer base to the broader public

- The following scenarios illustrate potential outcomes generated by the innovations discussed in this topic, particularly in response to the key question above – they are not meant to be future predictions
- These scenarios are illustrations of particular aspects of the potential future and are not meant to represent a complete view of the market and competitive landscape – in many cases, some or all scenarios could be realised at the same time

Scenario 1: Levelling the playing field for newer, smaller institutions (1 / 2)



Narrative

Market information / connection platforms open their doors to intermediating institutions of all sizes. Smaller institutions are particularly incentivised to join such platforms as the platforms significantly expand the intermediaries' access to market information and connect them to a universe of potential counterparties.

As these platforms grow in scale, so will the pressure for greater trade transparency and the use of more quantitative metrics for best execution. As large intermediaries yield to client pressure to adopt these metrics, they will be more likely to interact with smaller intermediaries with whom they may not have previously established working relationships.

Summary of impact

- Standardised platforms facilitate connections between large and small intermediating institutions to help them find counterparties; considerably expanding the number of trading options for smaller intermediaries, whose ability to connect with other institutions was previously limited by scale
- These platforms provide fact-based measures to improve the objectivity of counterparty comparison and selection, enabling smaller intermediaries to compete based on the interests of their clients and their merits, instead of scale and reputation

Case studies



Novus is a portfolio intelligence platform that automatically gathers and analyses data on various funds' performance to provide visibility and transparency to fund-of-funds managers. Traditionally, fund-of-funds managers discovered and researched investment opportunities manually by contacting target funds. As a result, the ability of fund-of-funds to source investment opportunities was dependent on their scale, reputation and network. Through Novus' automated platform, nearly all funds operating across the world and their performance are catalogued and analysed based on an automated collection of regulatory reporting data. This allows smaller fund-of-funds to independently identify lucrative investment opportunities without being limited by their reputation and the size of their networks.

Scenario 1: Levelling the playing field for newer, smaller institutions (2 / 2)

Necessary conditions for the scenario

- Top-level and line-level buy-in from large and small institutions for adopting the information/connection platforms
- Intermediating institutions' are comfortable with managing the risks associated with transacting with less familiar, less pre-defined counterparties

Clients

Implications of the scenario on...

- Higher chance of achieving the best execution of trades
- Customers' ability to achieve optimal results is no longer constricted by the size of their intermediaries
- Sources liquidity from the broadest group of counterparties without risking discovery of demand / supply

Incumbents

- Traders are required to adapt to new behaviours
- Need to establish new processes to support the new business model (in particular small institutions who might need to improve their transparency and best execution policies)

Overall Ecosystem

- Supports diversification of counterparties based on asset specialisation

Opportunities and risks associated with the scenario

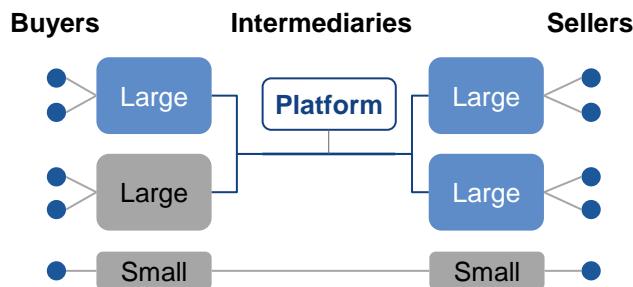
Opportunities

- Incentivise deeper specialisation of intermediaries by creating higher returns to specialization
- Potential increase in systemic resilience as the result of diversification of related parties

Risks

- Transparency of counterparty selection is dependent on the transparency of the information/connection platforms
- Increased counterparty risks when dealing with newer, smaller counterparties without standing reputation or relationships

Scenario 2: Stabilising market framework for existing institutions (1 / 2)



Narrative

As standardised information/connection platforms gain popularity, a “group” of large intermediaries may explore adopting the techniques behind these platforms to create a streamlined, exclusive network among themselves. These large institutions may acquire or partner with standardised platforms to set up artificial barriers against smaller and newer institutions.

As these exclusive networks grow, it will become more difficult for smaller institutions to find trading counterparties or compete with the efficiency delivered by those networks.

Summary of impact

- As connections among larger intermediaries are strengthened by platforms, the need for larger institutions to connect with smaller intermediaries may decrease, effectively building barriers of entry for smaller, newer institutions
- Smaller companies lack economies of scale to set up their own liquidity network and may lose their customers to the larger institutions

Scenario 2: Stabilising market framework for existing institutions (2 / 2)

Necessary conditions for the scenario

- Regulatory tolerance of exclusive networks (e.g., no collusion or anti-trust concerns)
- Large institutions participating in exclusive networks do not experience significant loss in liquidity by excluding smaller institutions
- Continued customer confidence in large institutions to fulfill their orders at a reasonably fair price

Implications of the scenario on...

Clients

- Liquidity may increase relative to the current state, but could be less than under an open platform

Incumbents

- Large institutions retain strategic advantages over smaller institutions

Overall Ecosystem

- Increased concentration of trades among a small number of intermediaries
- Increased difficulty for small intermediaries to compete outside of niche specialties
- Creates barriers of entry for new intermediaries

Opportunities and risks associated with the scenario

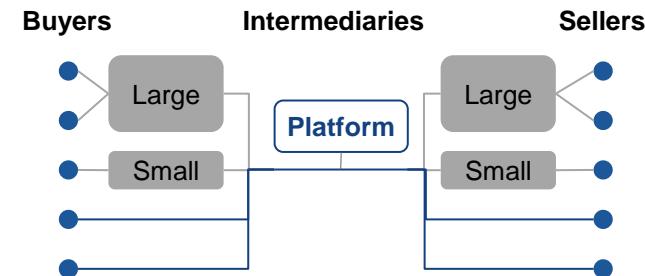
Opportunities

- Opportunities for large institutions to continue to be highly influential in the market landscape
- Shifting transactions from obscure internal execution facilities to more transparent standardised platforms

Risks

- Encouraging concentration of transactions among few large institutions
- Public and regulatory agencies may perceive exclusive networks as an unfair, colluding activity

Scenario 3: Opening the doors to individual investors (1 / 2)



Narrative

Under the current market structure individual investors cannot directly participate in markets for many assets because information about supply and demand is disparate and disorganised. As the growth of information/connection platforms improves visibility into these asset classes, the platforms may choose to expand their offerings to provide access for qualified individual investors.

Using these platforms, individual investors are able to transact directly with one another or can aggregate their demand/supply to interact with institutional investors. As engagement with individual investors grows, some platforms may choose to evolve to play the role of a broker.

Summary of impact

- As platforms grow, they choose to extend their connections to individual investors, enabling them to bypass traditional intermediaries and transact with one another
- These information/connection platforms may help individual investors represent their aggregate demand and supply more effectively to institutional buyers and sellers
- If sufficient volume can be aggregated from individual investors, these platforms can effectively act as a market for specific assets and products, and open doors for sellers to broaden their buyer base

Case studies

LIQUITY

Liquity provides private company directors with a comprehensive suite of shareholder and equity management services and match investors with private company shareholders who want to sell some or all of their equity. Liquity facilitates complete deals, from introduction to transaction completion including escrow and custodial services.

Scenario 3: Opening the doors to individual investors (2 / 2)

Necessary conditions for the scenario

- Appetite for individual investors with high degree of financial sophistication to directly participate in trades
- Development of execution infrastructure to facilitate trades with individual investors who do not possess over-the-counter capabilities
- Ability to aggregate sufficient demand and supply volume among individual investors to transact with institutional investors

Clients

Implications of the scenario on...

- Ability to make direct connections with trade counterparties
- Access to new asset classes for individual investors
- Improved transparency and control over the transaction process

Incumbents

- Erosion of market shares to brokers and groupings of groups of high net worth individuals
- Impetus for intermediaries to strengthen values they provide to clients beyond transaction facilitation

Overall Ecosystem

- Increased liquidity on standardised platforms

Opportunities and risks associated with the scenario

Opportunities

- Opportunities to separate transactional services from high-value, advisory offerings
- Opportunities to engage new buyers and sellers in the market, increasing liquidity and diversifying the needs and opinions of market participants

Risks

- Potential for sophisticated individual investors to make errors due to lack of specialised knowledge (relative to professional intermediaries)
- Increased burden on regulatory agencies as more parties are directly involved in the market

What does this mean for financial institutions?

Key implications and remaining questions

“Safe Bets” – Likely implications under all scenarios

- ! **Less differentiation among intermediaries:** As the ability to fulfill the transaction needs of customers become commoditised by market connection platforms, financial intermediaries will be less differentiated by their capabilities
- ! **Redistributed negotiating power:** With both counterparties and their intermediaries gaining improved visibility into market demand and supply, negotiating power will be redistributed based on actual demand and supply resulting in more efficient pricing
- ! **Shift to advisory models:** As the financial intermediaries' role in counterparty discovery and negotiation diminishes, their ability to build customer relationships based on advice will become more important to their competitiveness
- ? How will financial intermediaries differentiate from one another as improved information flow and trading connections reduce the gaps in institutions' ability to find counterparties for their customers?

Scenario 1: Levelling the playing field for newer, smaller institutions

- ! **Reduced fee structure:** As the cost of fulfilling transactions falls, the fee structure of intermediation services, as well as actual products themselves (e.g., carry on funds), may be reduced regardless of client size
- ? How will larger financial institutions continue to maintain advantage over smaller players when economies of scale are eroded and smaller players can gain access to the same information and counterparties?

Scenario 2: Stabilising market framework for existing institutions

- ! **Direct investments by established institutions:** Established intermediaries will become more active in investing, implementing, and acquiring market connection platforms to stabilise the current market framework
- ? How will established intermediaries gain exclusive access to market connection platforms while avoiding conflict-of-interest (i.e., best execution) and anti-trust issues?

Scenario 3: Opening the doors to individual investors

- ! **Reduced value proposition to institutional customers:** As some institutional customers choose to directly discover and transact with counterparties via market connection platforms, their stickiness on other institutional services, such as asset management and investment banking, may decrease
- ? What additional value will financial intermediaries provide high net worth individuals to prevent the erosion of their businesses by direct access to counterparties via market connection platforms?



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