

CAPITAL MARKETS

# Digital Disruptions in Investment Banking

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**Six key digital technologies** – social, mobile, analytics, big data, cloud, and interactive technology – are catalyzing changes in the way business is conducted globally across all industries.

## Digital Disruption

More than just technological enablers, these six technologies are cresting the 's-curves' of ubiquity, connectivity, adoption, and cost to a degree in which they are effecting huge changes in industry and business models.

The financial services industry has seen the effects of digitalization earlier on the retail side – driven by changing client behaviors and needs – with crowd-funding of ventures, mass-customized services, smartphone banking, and new payments technologies emerging over the last few years. Investment banks have also been significant players in this digital 'disruption' through the advancement of client portals, electronic trading venues, and connectivity standards such as FIX. However, investment banks have been uneven in their overall response to potential disruptions by these digital technologies.

Many internal processes and external client interactions at investment banks are still not leveraging the potential of digital technologies, and are subject to significant disruption by less entrenched players. For example, the meteoric rise of ICE is a testament to the opportunities and potential speed of a 'disruptor' in this industry.<sup>1</sup> It is arguable that no one foresaw ICE taking over NYX one day when it was first launched in 2000 as an electronic venue for trading energy.

<sup>1</sup>Source: <http://www.investorguide.com/article/11439/ice-ice-buys-nyse-uronext-nyx-for-8-2-billion/>

Some of this uneven take-up of digital technologies may be due to the smaller numbers of larger (and institutional) clients and a view that "this is all about retail." Additional likely reasons for this hesitancy must also include the aftermath of the financial crisis, including an intense focus on risk, regulation, and costs over the past five years.

This focus has resulted in the 'crowding out' of technological innovation as IT budgets have been devoted to regulatory compliance work.

Much of the value provided by investment banks is still tied to a small number of historically important structural elements within this industry which digitalization could quickly overturn:

- **A concentration of resources** (as measured by balance sheet, for example) has made large investment banks valuable to large clients and created barriers to entry for new/small players.

- **Aggregation of transactions** puts investment banks at the center of client networks, enabling them to derive comparatively high 'rents' as intermediaries among principal traders.
- **Narrow traditional sales and sourcing channels** – i.e., significant portions of industry volume concentrated on small numbers of individuals – have meant that investment banks can control sales channels by careful hiring and client relationship management.
- **A lack of price and transaction transparency** – e.g., no published market prices for certain instruments – has kept many kinds of transactions bilateral (as opposed to market- or auction-like).

All of these structural elements have been attacked by digital technologies in other industries, changing the way customers buy, upsetting the hierarchies of industry players, and creating and destroying portions of the industry value chain. There is no reason to think this cannot happen in investment banking.

We have identified the following six key themes, which we expect to be driving forces in the coming digital disruption of investment banks:

In this paper, we explore these themes in further detail, including the expected industry response for each.

01	Clients will expect a unified customer experience across channels, even beyond the current single-dealer, full-service portals provided by investment banks	
02	Increases in data transparency to clients will reduce the need for intermediation, enable additional self-service, and further squeeze pricing and profit margins	
03	Stakeholders will receive information far more quickly, to the point where it supports real-time management decision-making and compliance monitoring	
04	Increased demand for on-the-go services will drive a departure from the traditional 'within the walls' environment of the investment bank	
05	The trade life cycle will be split among the best-in-class providers, helping to control costs, but also sharing the trading revenue pools more broadly.	
06	Increasing portions of the traditional investment banking model will be threatened by smaller, niche players	



# Theme 1:

Clients will expect a unified customer experience across channels, moving beyond the current single-dealer, full-service portals provided by investment banks.

Most large investment bank clients use multiple products and sales channels, ranging from low-margin, electronic, direct market access to expensive, 'high-touch' sales-trading services. Investment banks and their clients alike have become increasingly sophisticated about measuring and managing the revenues, 'shares of wallet', and profitability of each client-bank relationship. The profitability of a particular client depends on the mix and interrelationships among different types of trading services, content provided, and servicing costs.

Investment banks have invested significantly in institutional client web portals that cross multiple products and services, address the full trade life-cycle, and provide degrees of personalization in terms of format and content. As in other industries, client portals provide front-end integration across product businesses that may be 'silos' behind the scenes. They provide for customer

self-service and empowerment, enable mass-customization of investment bank content, and keep clients focused on that bank's products and services.

However, clients that are significant all use multiple investment banks, and having 5-10 web portals – even if they are cross-product and cross trade life-cycle – will not constitute a good 'client experience.' Future portals for investment bank clients will have to prioritize the clients' needs and experience – perhaps enabling them to see aggregated positions and trade across sell-side institutions, or to track bilateral pricing data from multiple banks.

If we look at market trends in financial services, we see examples in the B2C market, where banks increasingly provide not only a single point of access to their own products, but also to a number of their competitors or to

complementary services. Another useful analogue is the evolution of equities electronic execution platforms a decade ago. Initial platforms that provided access to a single execution venue were quickly replaced with 'pass-through' platforms that routed trades to the best execution destination if it was not the provider's platform. Eventually, these too were replaced with unbiased, multi-venue platforms that aggregated liquidity across multiple providers.

A similar trend in investment bank client portals – driven by clients' own needs and preferences – will likely result in web portals that aggregate information and services across investment banks. This may take away some degree of control from investment banks over the client relationship – as web portals have in other industries. Imagine an institutional portal that enables an investment bank client to:

- Access prices from and execute against multiple counterparties
- Access and consolidate research and price guidance from multiple sources

- Have a single consolidated view of his transactions in flight without having to view multiple sites

The underlying concept is not, of course, a new one. In the late 1990's, TheMarkets.com tried to create a single global portal for research and data models. The multi-broker portals currently provided by TradingScreen enable access to prices and execution across multiple banks. What is different today, though, is that, as a result of digital technology, these portals can be constructed with a more comprehensive view, enriched with transaction capabilities and reporting. In addition, the expectation for cross-provider, user-centric portals has been firmly established in other industries.

Looking ahead, this evolution toward multi-bank, client-centric portals takes away the 'storefront' from the investment bank, which no longer has unilateral control over its client relationships. It starts to separate investment bank product 'manufacturing' from 'distribution' by chipping away at banks' ability to concentrate transactions and data, differentially serve different clients, and keep pricing data from becoming public.



While the potential client benefits of such portals are clear, there are also potential advantages for investment banks. Analytics could enable a bank to understand which of its offerings are resonating with particular clients. Cross-bank analysis could help banks understand their 'shares of wallet', and behavioral analysis might help identify clients that were expensive to serve. Sharing such electronic 'storefronts' will also make it easier for banks to provide and/or share pieces of their service value chain as industry utilities, and it will make it easier for smaller or narrow providers to enter the market.

Savvy investment banks must think about their current institutional client portals, but also develop strategies for the 'longer game' that include multi-bank portals.

This means assessing their ability to compete and their cost-effectiveness across each piece of the service value chain, and reassessing their ability to differentiate themselves based on specific product provision, breadth of products, 'ownership' of client relationships, and ability to be lowest cost where appropriate.





## Theme 2:

Increases in data transparency to clients will help reduce the need for intermediation, enable self-service, and squeeze pricing and profit margins.

In certain capital markets businesses, although clients (e.g., investment managers) create transaction and pricing data automatically through their individual trades, this data has been traditionally aggregated by the sell-side and has remained opaque to clients. This has allowed investment banks to capture the value of this data, price bilaterally (i.e. by client) in some cases, and protect higher margins than might be derived in an auction-like market model. A move to data transparency, in contrast, will contribute to increased disintermediation and fragmentation of the markets.

Consider stock lending, for example, in which prime brokers collect and analyze lending spreads for individual equities and borrowers, but there has been no centralized marketplace where borrowers can see pricing information. Already, certain 'attacker' firms in this part of the industry have begun to offer

technology to enable peer-to-peer lending as well as client aggregation of lending spread data. As another example, EquiLend has begun a service to share spread data among participating prime brokers.<sup>2</sup>

Cash-based equities trading a decade ago provides a useful analog in America, when electronic networks challenged traditional exchange models and market-maker businesses. The resulting industry now has dramatically different economics and different types of equities exchanges. These changes removed the profitability from traditional equities market-maker businesses and enabled the creation of a wide array of electronic trading algorithms and trade order types. In contrast, many fixed-income businesses are still largely dealer based, with pricing depending on dealer inventory and bilateral quotes.

<sup>2</sup> Source: [http://www.securitieslendingtimes.com/sltimes/SLTimes\\_techSpecial2013.pdf](http://www.securitieslendingtimes.com/sltimes/SLTimes_techSpecial2013.pdf)

Digital technologies have the potential to make collecting, aggregating, and sharing transaction data easier, faster, and cheaper – for example, in a peer-to-peer model. Anonymity – not wanting the competitor on the other side of one's trade to know what a participant is trading – has slowed the adoption of certain peer-to-peer models, and regulation still prevents certain types of investment banking clients from trading directly with each other. However, digital technologies have removed these obstacles in other industries.

We believe that this trend toward greater transparency in pricing and transaction data will continue, creating step-change transformations in capital markets businesses. A continuation of the trend will change the economics of these businesses, lowering the need for intermediation, decreasing fees and spreads, increasing the number of transactions, and blurring the lines between client-initiated and market-maker transactions.

Taken further, we envision this trend enabling new types of brokers and 'exchanges' to connect investment banking clients almost directly at nearly no cost,

destroying some of the value that investment banks have as trading intermediaries. The electronic aggregation of smaller trades – as happened with cash equities – could take away the advantages of balance sheet size and reach. Electronic protection of anonymity would obviate the need for the discretion and selectivity that traditional sales-trading channels provide.

Attributing, reporting, and analyzing the costs that their agents are incurring on their behalf could cause asset owners to rethink the prices they are willing to pay for financial intermediation. (For example, will mutual fund investors want to pay higher commissions to give their advisors the benefit of investment banking research?)

To prepare and respond, investment banks will need to dramatically cut the costs associated with intermediation, and 'digitize' their businesses to handle higher volumes and greater frequency of transactions.

They will need to aggregate and use the transaction data they see and create, and dynamically price and respond to market movements. This will likely involve greater use of client web portals as trade capture channels, increased electronic trading in both 'post' and request-for-quote (RFQ) models, and increased use of execution algorithms.

This may effectively shift the boundary between the selling side and its clients, giving the latter more direct control over their trades as well as more pricing power. Finally, investment banks will need to identify, invest in, and drive the 'disruptor' and 'attacker' business models that may otherwise cannibalize their business.





## Theme 3:

Stakeholders will receive information far more quickly, to the point where it supports real-time management decision-making and compliance monitoring.

An investment bank's success is based on optimizing various business decisions throughout the day, based on data that changes with every trade and other activity. These decisions range from risk management and collateral optimization, to capital allocation and proactive fraud prevention. Improving the quality of these decisions can help drive profitability for an investment bank. For example, one major European investment bank estimated that it could save upwards of US\$1 billion per year in capital allocation costs if it was able to have a more real-time and complete view of capital needs across the regions and lines of business.

There are vast business implications of making data available more quickly and using digital data technologies to enable near real-time decision-making in an investment bank. Two areas where we expect major

disruptions are compliance monitoring and collateral optimization. Over the past several years, the volumes and pace of trading activity have increased exponentially. The data associated with this activity is coming through multiple electronic and voice channels, and is often in unstructured form – e.g., an instant message or a typed allocation instruction.

These frequencies and volumes no longer allow for human review and approval processes, such as a risk approval, or a pre-trade compliance check. Furthermore, recent unfortunate events related to undue risk-taking or 'rogue' activity are forcing banks to analyze data and make decisions before the next trade or other activity. Catching a disallowed trade or a risk-limit breach by the end of the day is no longer acceptable.

Within Compliance functions, digital technologies are enabling a shift from analyzing outlier transactions after the fact, to analyzing all transactions in real time.

This requires sophisticated analytics powered by real-time computing and complex event processing. To handle such volumes of data, banks will increasingly look to cloud technology solutions to enable cost-effective, elastic scalability of computing power.

Trade surveillance and compliance risk management have been moving away from traditional backward-looking reports, toward shortening the window on fraud pattern detection. For example, contextually aware trade surveillance systems that can read unstructured data search out patterns that statistically may be the precursors to fraudulent activity. This goes beyond internal data and historical trends, as real-time news and social media outlets are considered key inputs. The challenge lies in mixing this contextual information with real-time transactional data to identify potential compliance events beforehand.

The digital opportunities for real-time data analysis go beyond compliance monitoring. Collateral management was once a secondary consideration for big banks and investment managers. In the wake of the financial crisis and with the introduction of new regulations, however, it has quickly risen to the top of the agenda. The Dodd-Frank Act in the United States, Basel III, and the European Market Infrastructure Regulation (EMIR) have all introduced greater demands for collateral. Counterparties, including central counterparties (CCPs), are much more selective about the types of collateral they will accept, and lower profit margins have made collateral optimization a critical component of the business economics.

All of this makes global, cross-product, agile and near real-time collateral measurement, management, and optimization critically important. These systems must account for ongoing transactions that affect collateral, future settlement activities, changes in the value or quality of collateral, and the contractual agreements governing the types and level of collateral required by each counterparty or lending line. To achieve this, banks will need digital technology that is integrated with



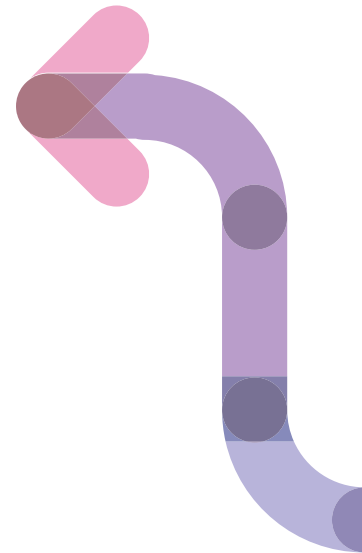
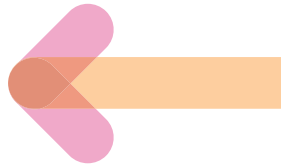
existing infrastructure and provides a holistic, real-time view into collateral across different lines of business, asset classes, and geographical regions.

Just as falling profit margins forced other industries to compress their distribution networks or adopt 'just-in-time' inventory management, investment banks will have to remove high-cost inefficiencies resulting from slow, or delayed access to critical data. Understanding risk exposures on 'T+1' or optimizing collateral based on end-of-day holdings will no longer be sufficient.

However, to access, integrate, and analyze data in real time, banks must first address ongoing problems with how data is currently managed. The traditional architecture has

data largely unstructured and isolated within different entities of the bank. Different systems, mappings, and technologies make it difficult to use data across regions, products, client segments, and lines of business.

Historically, many banks have viewed the solutions to data problems as 'reporting projects,' which are typically driven within the silos of specific functions or lines of business, normally precluding an enterprise-wide solution. Successful banks will need to redesign their data 'supply lines' and processing schedules, and start thinking in terms of real-time dashboards, minimizing the lag of data, and provisioning of business intelligence.





## Theme 4:

Increased demand for on-the-go services will drive a departure from the traditional 'within the walls' environment of the investment bank.

Certain key investment bank decisions with significant profitability effects – such as pricing a deal, making a research recommendation, approving a risk limit extension, or allocating balance sheet to a trade – will always have to be made quickly by expert individuals supported by their networks, data, and analysis tools. Mobile and other digital technologies will enable such experts to access more data and tools, collaborate more effectively, and make better, real-time decisions, no matter where they are, in or outside of the office.

Consider the example of making a credit limit extension to allow a trade with an important client. This will

require accessing, analyzing, and discussing information such as the client's holdings, the legal documentation, current related market risks, and the business the bank expects to do with this client. Experts from Credit, the Trading Desk, and Sales will have to review, share, and debate up-to-the-minute information, from wherever they are, to make a decision – quickly enough to avoid losing the customer's business. Mobile technologies – such as tablets and 'wearables' – can enable these experts to work together, access pertinent information from colleagues around the world, and receive real-time updates that may affect their decision.

In today's fast-moving and interlinked financial markets, risks can arise quickly and be reflected in asset valuations almost instantaneously – with occasional catastrophic repercussions to banks that cannot react quickly. Consider the examples of a bankruptcy filing, a 'bubble' in a particular commodity, or a fraud exposed. Quickly delivering the information about the first 'symptoms' of a risk's advent to the key decision-makers can have enormous effects on subsequent exposure, profits, and reputation.

### Mobile technologies will play an increasing role in both sourcing and delivering these notifications early.

Imagine, for example, that a manager standing behind a client service representative notices that a large trade is coded for non-standard settlement. He or she might immediately note this in a tablet-based application, which could 'intelligently' route this to a trader, who might have otherwise incorrectly assumed

that they could use the purchased securities as collateral for extending additional credit to that client.

Another example of digital disruption relates to the virtualization of an investment bank's deal management process. Deals related to M&A, securities origination, or the execution of large or complex trades require close coordination of a small group of investment bank staff, often spread across various businesses, functions, and geographies. These deals also usually have rigorous workflows to manage, documents to distribute and track, and strict rules and requirements related to approvals, confidentiality, and regulation.

Mobility technology is an obvious solution to facilitate this collaboration, including the tracking, workflow management, and security needs. Combining collaboration (e.g., email and instant messaging), content management (e.g., SharePoint), and business process management with mobile or 'wearable' devices could enhance the collaboration around many types of

deals, while preserving security, necessary audit trails, and required workflows.

Digital solutions could 'virtualize' the entire end-to-end deal management process, perhaps using a web-based portal to bring together a virtual team from multiple areas of the organization. Team members' personal or company-provided mobile devices could be used to collaborate through a blend of text, video, and audio content. These solutions could be further leveraged, either for 'team-level' collaboration or on an ad-hoc, one-on-one basis (e.g., peer-to-peer audio/video messages, or on-demand web conferencing).

Investment banks have had reasonable concerns around mobile technology related to the security of data, the need to monitor and restrict certain kinds of communications, and the ability to surveil and supervise employee activities. However, banks that will leverage these technologies in the future need to be testing them, developing 'proofs of concept', and implementing the necessary supporting infrastructure, processes, and rules now.





## Theme 5:

The trade life cycle will be split among the best-in-class providers.

Historically, larger investment banks have built and owned all of the functions related to their provision of trading services – from pre-trade analysis and trade capture, through execution algorithms and routing, to clearing, settlement, and corporate actions. However, as regulation has forced a standardization of products and processes and greater price transparency, investment banks find themselves in an increasingly cost-constrained environment and reevaluating each piece of the trade life-cycle in terms of its ability to differentiate themselves competitively and their positioning as the best and lowest cost provider.

Standardization of data models and procedures and the introduction of digital technologies that enable connectivity, workflows, and transparency within the trading life-cycle give banks the potential to split the trading component functions among the leading providers. This is leading to the creation of industry utilities for functions that banks have identified as commoditized and not leading to competitive advantages, or those functions where the investment required to be market-leading is not aligned with a firm's strategy. This enables the most efficient

providers in each segment of trading to sell their services to other firms. Existing examples of utilities include central securities depositories (CSDs), providers of standardized FIX messaging, or clearing and custody services provided by organizations such as the Depository Trust & Clearing Corporation (DTCC) in North America, The London Clearing House, and Clearstream.<sup>3</sup>

These utilities enable the mutualization of costs and/or risk across a number of market participants. They give participating firms access to lower unit costs due to scale efficiencies, and they enable firms to focus on the specific areas of the trading 'value chain' where they can best compete and provide differentiated value. For example, securities trading firms are now participating in efforts to launch industry utilities in areas including post-trade processing, 'know-your-customer' (KYC), and client onboarding, and they are leveraging existing utilities in post-trade processing and parts of the derivatives trading life cycle. These are in addition to

utility or utility-like functions that have existed for several years in the post trade processing space.

At the foundation of these industry utilities lie three main technology requirements: connectivity to sustain smooth, efficient, and seamless communication and transfer of trade information, workflow to help ensure clarity and standardization across the steps in the process, and transparency to enable participants to track and monitor progress. Appropriately using utilities and leading edge providers will enable investment banks to offer increasingly straight-through processing (STP), lower their costs, and reduce their operational risks.

**Historically, it has been difficult for banks to relinquish the control inherent in traditional 'in-house' models.**

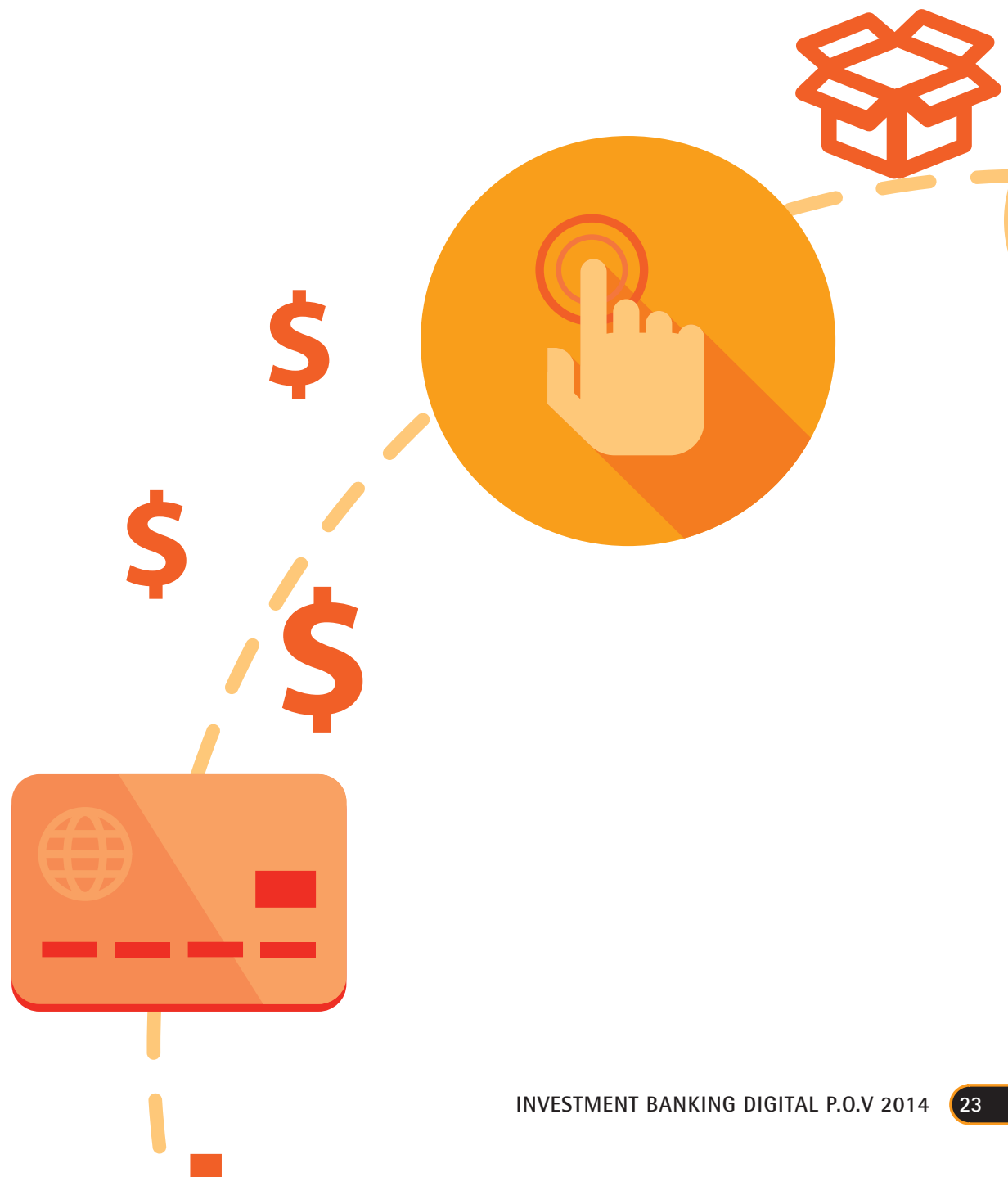
One challenge has been securing the buy-in and budget to take on the work required to change processes,

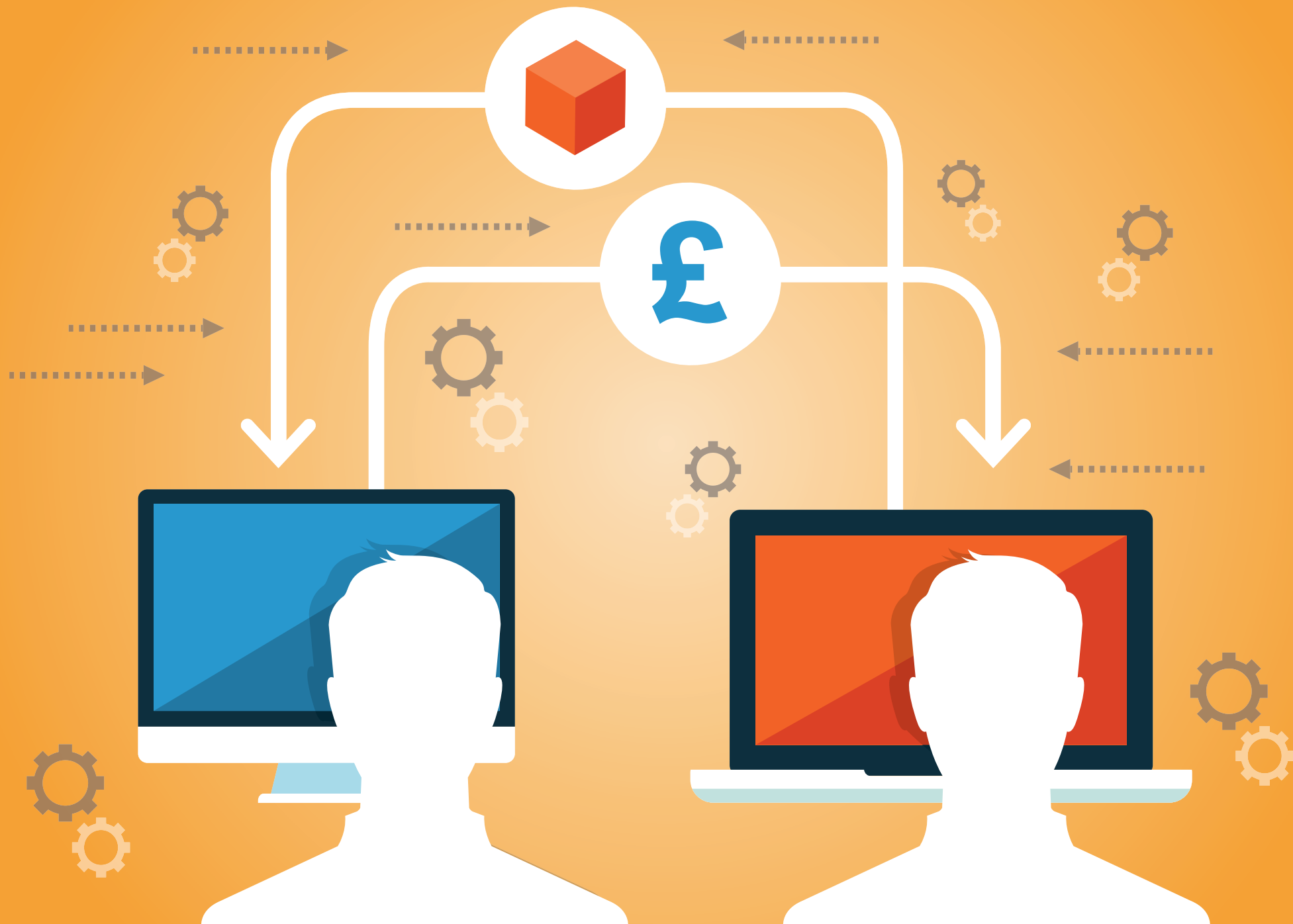
<sup>3</sup> Source: <http://www.dtcc.com/clearing-services.aspx>, [http://www.lchclearnet.com/about\\_us/](http://www.lchclearnet.com/about_us/), [http://www.clearstream.com/ci/dispatch/en/kir/ci\\_nav/2\\_custody](http://www.clearstream.com/ci/dispatch/en/kir/ci_nav/2_custody)



procedures, contracts, and policies to accommodate migrating functions to utilities. That said, given the current magnitude of in-process regulatory change, there is a rare opportunity for banks to incorporate the shift to a utility model as part of larger process renewal reengineering related to regulatory compliance.

Banks that continue to provide undifferentiated pieces of the trading life-cycle at a higher cost or lower functionality than other industry participants will have lower margins, thereby reducing their ability to invest in those parts of the lifecycle that give them competitive advantage. Now is the time for banks to evaluate each piece of their trading life-cycle and consider how to provide it to the clients most cost-effectively and with the highest efficiency, functionality, and value-added. Opportunities for market share capture, cost reduction, and business and compliance risk control await those who embrace the digital technologies that enable them to do this.





## Theme 6:

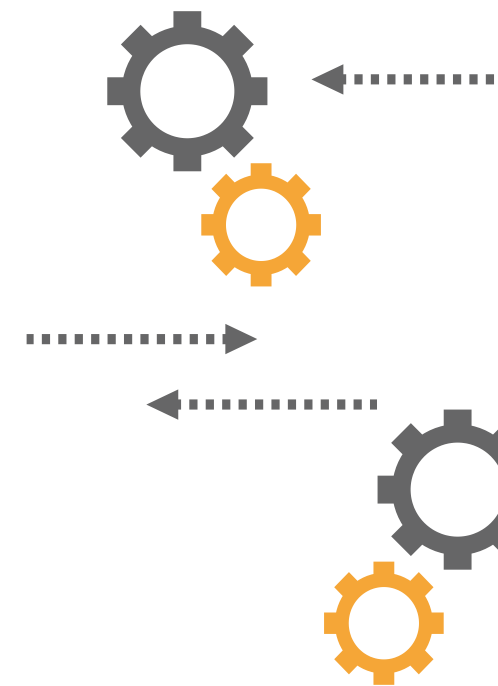
Parts of the traditional investment banking model will be threatened by smaller, niche players.

Investment banks have traditionally captured relatively high 'rents' for intermediating among financial buyers and sellers, lenders and borrowers, and risk-takers and risk-avoiders. Their value as intermediaries has derived from their ability to concentrate resources (e.g., balance sheet), transactions, and data, and leverage them to take on (and sometimes distribute) certain kinds of risk.

However, as they have in other industries, digital technologies will create opportunities for 'disruptors' to disintermediate various investment banking services, by creating transparency, aggregating data and transactions, and lessening the advantages of scale. Two examples of disintermediation of traditional financial products are block trading disintermediation and financing through crowd-funding and peer-to-peer lending.

Traditionally, investment banks enabled transactions of large 'blocks' of stock by discreetly matching buyers with sellers, or in some cases, taking the positions onto their own balance sheets. Launched in 2001, LiquidNet® enables buy-side clients to effectively trade blocks directly with each other, without needing a broker to 'find the other side' of the trade and incurring the additional costs of this 'high-touch' service or risking the potential for information 'leakage'.

Partly in response to LiquidNet's success, investment banks and other market participants created a variety of 'dark pools', trading venues where buyers and sellers can meet and match their desired trades anonymously, without giving away any information regarding their desire to buy (or sell). Tabb Group estimates that trading on dark pools accounts stood at 32% of trades in 2012.<sup>4</sup>



<sup>4</sup> Source: <http://www.forbes.com/sites/jonmatonis/2013/03/28/tradehill-exchange-adds-dark-pools-of-bitcoin-liquidity/>

While this is a good example of 'attack and reply' in the trading space, we believe the next wave of disintermediation might focus more on areas of investment banking with higher fees and commissions, for example the raising of capital.

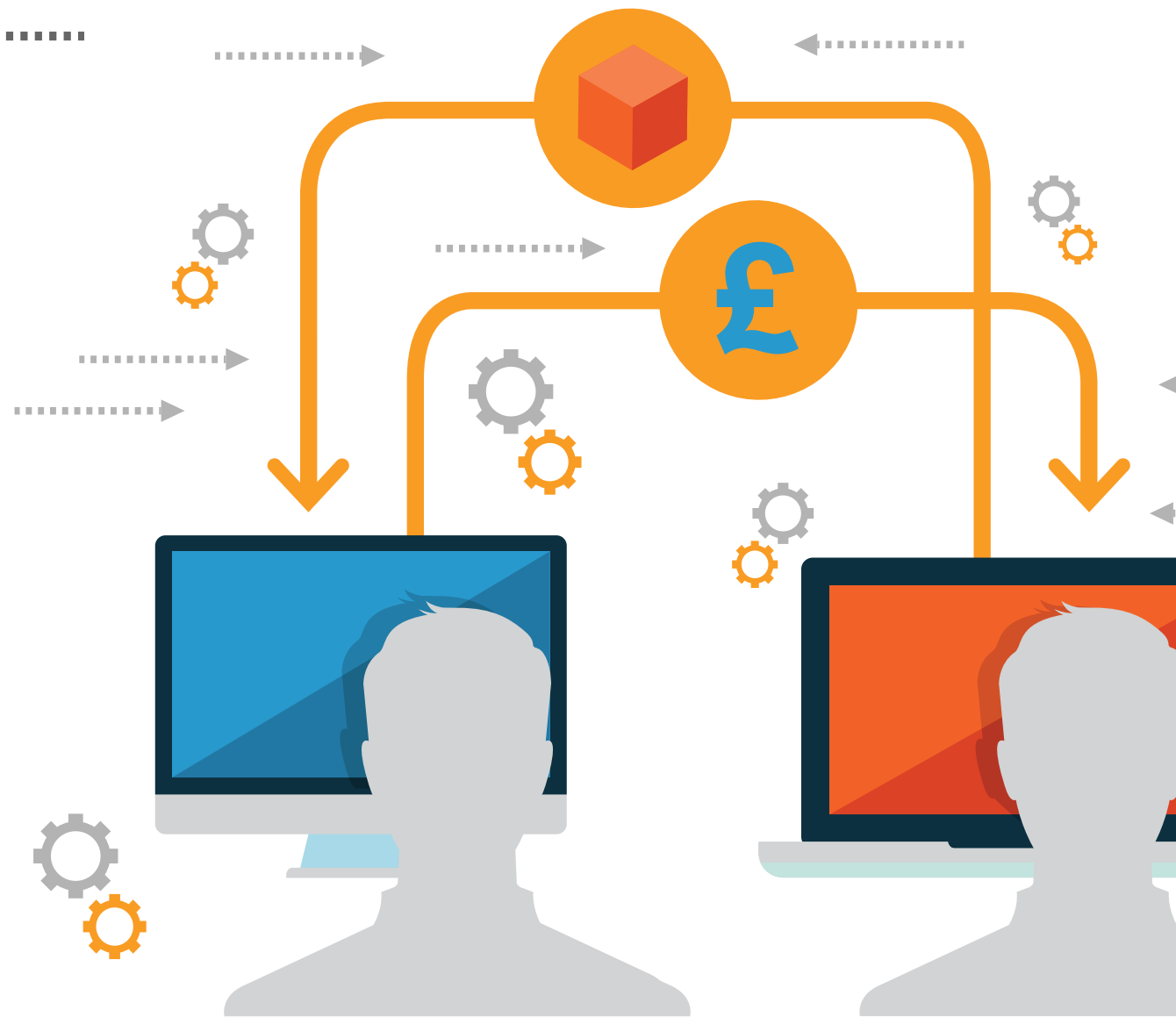
'Crowd funding' – a process by which companies or individuals seeking funding can raise it piecemeal from many small investors – first reached the retail and start-up space through websites such as Prosper.com or Kickstarter.com. In time, digital technologies could bring crowd-funding to securities origination or syndicated lending. For example, Google's IPO, while led by investment banks, distributed the shares offered directly to individual and institutional investors, largely bypassing the traditional bank-controlled allocation of primary shares<sup>5</sup>.

The JOBS [Jumpstart Our Business Startups] Act of 2012 in the United States has made it possible for smaller companies to raise private placement capital from accredited investors by this method. Digital Offering, a company focused on the US\$3–50 million business lending space, offers a secure online platform that facilitates the placement of securities by both private and public companies. While the success of such models still needs to be proved and some questions remain open, there is no reason to think this model will not develop further.

Another trend in the retail space is direct, peer-to-peer lending. Services such as Zopa™ or LendingClub® directly match borrowers looking for low interest-rate loans with savers looking for higher-than-average (but not extortionate) interest on their savings.

<sup>5</sup> Source: "<http://www.sec.gov/Archives/edgar/data/1288776/000119312504073639/ds1.htm>" \ "toc16167\_1"

As digital technologies further penetrate the investment banking industry, and regulation evolves to enable them, the disintermediation we have seen in the retail financial sector will continue to spread to institutional businesses. Forward thinking investment banks will need to ensure that their intermediation provides sufficient value to their clients, and simultaneously explore and invest in potential, disruptive models, which may eventually cannibalize their traditional business models.





## Conclusions:

Investment banks can observe what the successful digital strategies have been in other industries where these technologies have already caused disruptions – and see the fates of leaders and followers in digitalization.

In general, leaders invest in digital early – even before they fully determine how they will use these technologies – and learn more and faster experientially. Followers attempt to build detailed, longer-term plans, but they do not prioritize budgets for digital projects because they view them as exploratory and without sufficiently quantitative benefits. Such players may never fully catch up with early adopters. Investment banks may need to invest in digital advances as a venture capitalist might, creating multiple 'irons in the fire', but also balance this with careful strategic planning.

The changes that digital technologies will catalyze in the financial services industry will likely create cannibalization of traditional channels and business models. Deciding to risk cannibalizing one's own business – to be an early adopter – can be costly; however, losing

market share permanently to a faster-moving competitor may be worse. Investment banks will need to create and manage competing 'attacker' business models within their same firm, to ensure that they stay on top of the changes expected from digitalization.

Finally, while digitalization sounds like technology, the changes it will catalyze will have business-wide ramifications. Consignment of digital strategy, budget, and oversight solely within the remit of a traditional CIO will risk missing the extraordinary implications of digitization in terms of client franchise, distribution channels, and the business value chain. Investment banks must approach their digital opportunities and threats from the vantage point of senior business and technology leadership.

## About Accenture

Accenture is a global management consulting, technology services and outsourcing company, with approximately 289,000 people serving clients in more than 120 countries. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world's most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. The company generated net revenues of US\$28.6 billion for the fiscal year ended Aug. 31, 2013. Its home page is [www.accenture.com](http://www.accenture.com)

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