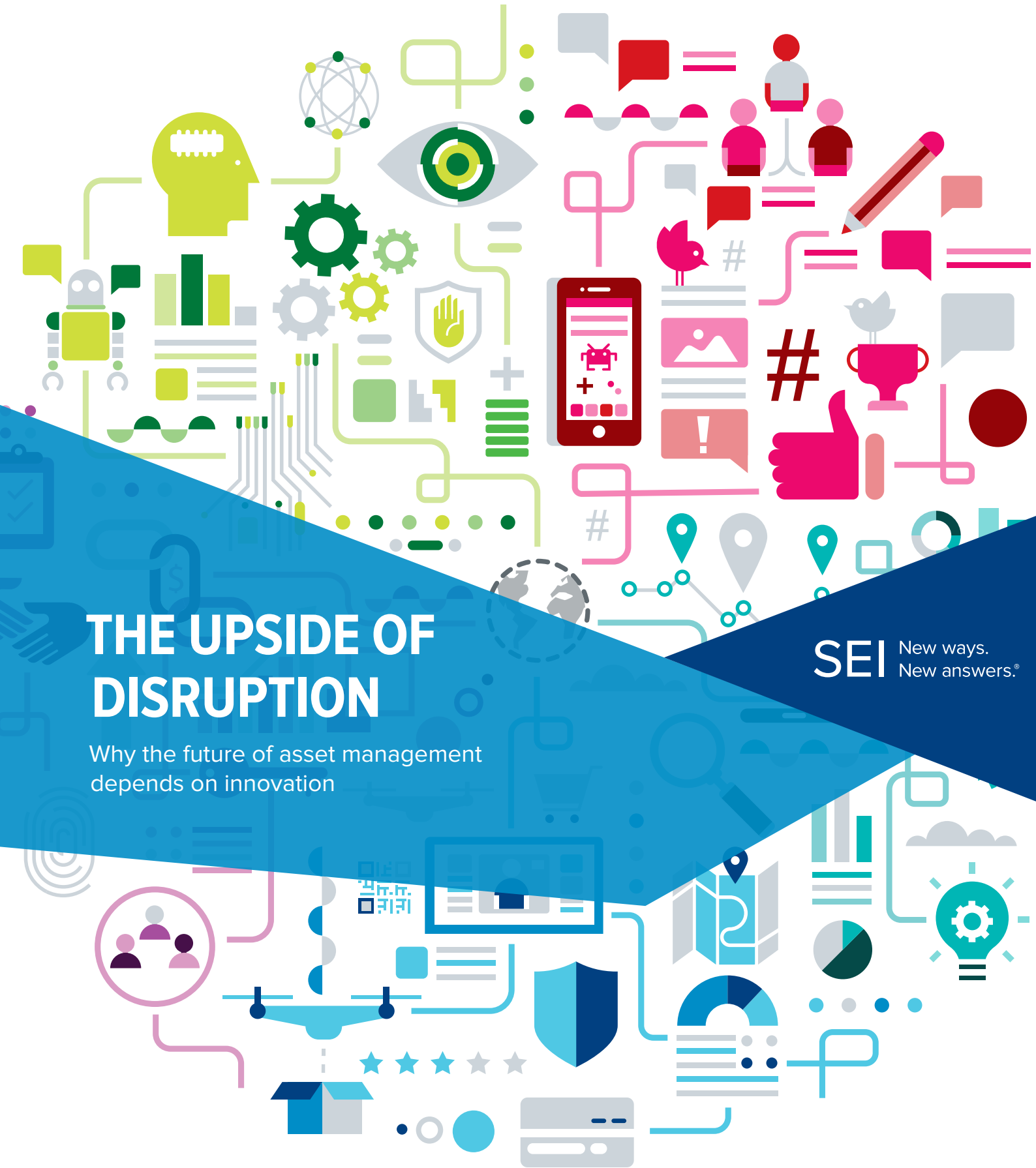


THE UPSIDE OF DISRUPTION

Why the future of asset management depends on innovation

SEI New ways. New answers.®

Every day, we in the investment management industry prove that we are good at many things. **But we need to do a better job of being visionaries.** To accomplish that, we will have to look beyond the markets and the workings of our industry to the broader currents in our rapidly changing world. We may find the seeds of innovation are germinated not only by technologists and market analysts, but also by the **scientists, engineers, communicators, artists, and inventors among us**.

It was Robert Rauschenberg, one of the more revolutionary visual artists of the past century, who foresaw the choice we now face. As he famously declared at a 1967 news conference, **"If you don't accept technology, you better go to another place, because no place here is safe."**[1]

CONTENTS

Technology is radically transforming how business operates

Virtually every week brings another startling new advance. Household robots. Three-dimensional printing of human tissues. Airports for drones. Brain-controlled prosthetics. Contact lenses that read blood sugar. Self-balancing scooters. Next week there will be more.

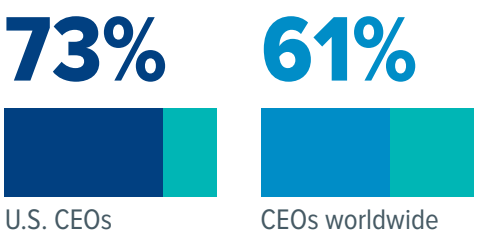
The feeling that everything is moving faster isn't just a feeling. It took more than 25 years for the cordless phone to get from 10 percent to 40 percent of U.S. market penetration. How long did it take smartphones to reach the same point? A mere three years.[2]

In the past 100 years, our society has been dramatically reshaped by powerful inventions, such as television, antibiotics, nuclear energy, and air travel. Now, information technology is the main driver of innovation, transforming cultures and economies worldwide at a pace that outstrips anything that came before Silicon Valley.

It's no wonder that "innovation" is a major preoccupation in the executive suite.

Someone who is 20 years old today has likely never used a VHS recorder (nor figured out how to stop the flashing 12:00), a film camera, or a fax machine, let alone licked a postage stamp, looked up a number in a phone book, or read a bound encyclopaedia. The buying public will soon be dominated by customers who have grown up in a very different world from that of the previous generation.

Expectation among CEOs that new competitors will disrupt their industries in the next **5 years**



Source: PwC 2015 US CEO Survey—Top Findings

No CEO wants go the way of once-leading firms like Blockbuster, Digital Equipment, or Eastman Kodak—or, for that matter, Xerox—which generated many of the innovations at the core of today's technologies but reaped few of the benefits of commercialisation.

According to PwC's latest global CEO survey, 73 percent of CEOs in the U.S. (61 percent worldwide) expect new competitors to disrupt their industries within the next five years.[3] The top two concerns named by respondents to KPMG's 2015 Global CEO Outlook survey were "new entrants disrupting our business model" and "keeping current with new technologies."[4] One of their top four concerns was "the relevance of my company's products or services three years from now."

ALL COMPANIES ARE TECHNOLOGY COMPANIES

Computing power and electronic networks are not just transforming products and services, they're also transforming the way businesses organise and operate. Now technology is the current that runs through nearly everything we do, and its applications are limited only by our imagination. Our increasingly powerful abilities to automate, research, analyse, connect, and communicate have transformed how we live and behave, the nature of the jobs we do, and the ways we do them.

Tech remains one of the most important sectors in the global economy, based on its direct growth and employment alone. But in today's new economy, virtually every large company is also in the technology business, regardless of its SIC code.

In today's economy, virtually every large company is also in the technology business.

INNOVATE—OR ELSE

Fifty years ago, Gordon Moore (co-founder of Intel) observed that roughly every 18 months, the performance of integrated circuits doubled at the same time as the price dropped by half. What became known as Moore's Law has turned out to be surprisingly predictive and durable [see **The Debate over Moore's Law**, page 4]. For almost five decades, the costs of computing have fallen at an exponential rate.

The ability to leverage this kind of technology is essential to corporate competitiveness. But even though computing power is now advancing more slowly than in the past, the pressures to innovate are still intense. Rather than asking themselves *How innovative are we?*, corporate executives instead need to ask two more insightful questions: *Are we equipped to generate a steady stream of innovations? Are we doing everything we can to create a culture of innovation?*

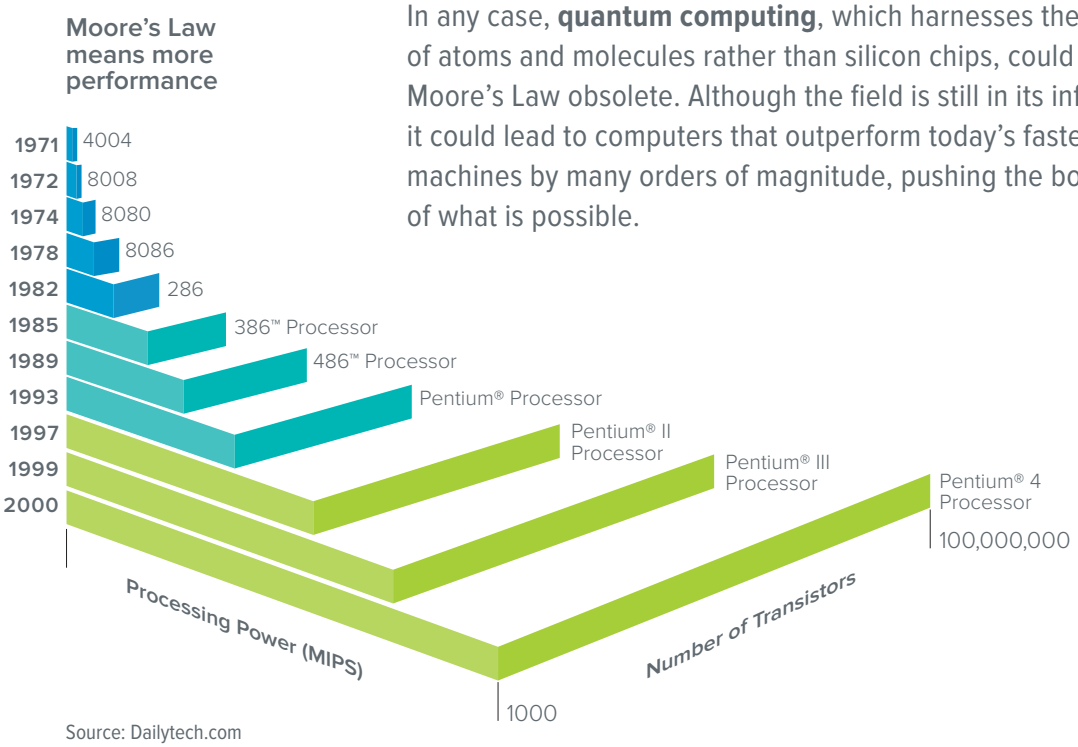
Just ask Apple CEO Tim Cook about the constant quest for "the new new thing" (as Michael Lewis dubbed it in his book by that name). Apple has spawned some of the most iconic products of our time, but people still ask, **What have you done for me lately?**

The debate over Moore's Law

Will Moore's Law hold as true in the future as it has over the last half century? Technology pundits have widely varying views. **Some believe that the exponential upward curve in computing power has yet to peak.** It may be that the multi-trillion-dollar technology and communications revolution of the last 40 years was only a prelude for what is to come. What will it mean for asset management when a security's risk factors can be instantly visible or every transaction on the London or New York Stock Exchange is accessible from a laptop?

Others say that Moore's Law has reached a plateau. They make the case that processing power is now so plentiful and inexpensive that technology improvements are no longer key drivers of innovation. Rather, innovation has shifted to ways of building data-driven intelligence, such as predictive algorithms, into an ever expanding panoply of products and tools across many industries.

In any case, **quantum computing**, which harnesses the power of atoms and molecules rather than silicon chips, could render Moore's Law obsolete. Although the field is still in its infancy, it could lead to computers that outperform today's fastest machines by many orders of magnitude, pushing the boundaries of what is possible.



Source: Dailytech.com

THE FRICTIONLESS ECONOMY

New technology has allowed companies to communicate faster, cheaper, and more efficiently, thereby steadily lowering the interaction costs of doing business—that is, the time and money involved in exchanging goods, services, or ideas. Falling interaction costs create an increasingly frictionless economy in which basic business assumptions are overturned, even compelling entire industries "to reorganise rapidly and dramatically."[5]

The meta-trend of plunging interaction costs has enabled globalisation, encouraged specialisation, and facilitated strategic partnerships. It has also promoted outsourcing and lowered barriers to entry in many industries, particularly tech itself.

Asset managers have seen the value of embracing information technologies that help them better manage portfolios, create economies of scale, and make complex financial operations more efficient. But there's so much more to gain from this trend: The potential to enrich customer relationships, develop innovative new products, and reinvent their business models—opportunities the industry has only begun to exploit.

Global fintech investment **tripled** in 2014 to over **$12**billion.

Source: CB Insights

Asset managers have seen the value of embracing information technologies that help them better manage portfolios, create economies of scale, and make complex financial operations more efficient. **But there's so much more to gain.**

FINTECH HAS YOU IN ITS SIGHTS

Asset management is clearly a prime target for disruption through technological innovation. Robo-advisers are a recent example and surely not the last. It remains to be seen how much the automated-advice model will shake the industry, but some analysts expect its use to expand from the mass-market and mass-affluent segments to broader financial planning and institutional research.[6]

But robo-advisers are far from the only disruption brewing. Global "fintech" investment tripled in 2014, topping $12 billion, according to researchers at CB Insights.[7] That's a drop in the bucket from an industry standpoint, to be sure. Still, *The Economist* reports that at least 4,000 fintech startups are now active, and over a dozen are valued at more than $1 billion.[8]

New contenders have already sprung up to help investors **ferret out hidden brokerage fees**, manage wealth with personalised financial dashboards, **analyse portfolio risks**, sift investment ideas from social media feeds, and more. Don't count out **Google**, **Apple** or **Amazon**, either.

Much of the action has been in offering new sources of credit, such as peer-to-peer lending, and making transactions cheaper and more convenient. Big banks such as Citigroup, JPMorgan, and Barclays see enough promise, or threat, in the trend that they are now partnering with lending startups.[9] Beyond that, 42 banks have joined in a startup-initiated project to develop industrywide standards for the use of the blockchain technology that underlies bitcoin's infrastructure and promises to transform how financial transactions are accomplished [see **What's the big deal about blockchain?**, page 8].[10]

Despite the financial industry's rich lode of financial and technological expertise, the industry has yet to prove it can be a hotbed of innovation.

It's clear, however, that fintech startups have more than traditional banking and lending in their sights. New contenders have already sprung up to help investors ferret out hidden brokerage fees, manage wealth with personalised financial dashboards, analyse portfolio risks, sift investment ideas from social media feeds, and more. Don't count out Google, Apple or Amazon, either.

42banks

have joined in a project to develop industry-wide standards for the use of blockchain technology.

THE FINANCIAL INDUSTRY'S INNOVATION SCORECARD

How can established companies stay ahead of the trends? Despite the financial industry's rich lode of financial and technological expertise, the industry has yet to prove it can be a hotbed of innovation.

This is not to say the industry hasn't produced notable advances. Over the last 50 years, there have been a number of notable advances, as our timeline shows (pages 14 and 15). These achievements include innovations that have fundamentally and dramatically changed the world of investing, including indexed investing, Morningstar's five-star fund rating construct, Schwab's mutual fund supermarket, TAMPs, and ETFs.

The industry has also spawned many creative new investment strategies, such as factor-based indexing and the "smart-beta" strategies pioneered by Robert Arnott of Research Affiliates, and the ProShares innovation of packaging alternative strategies as ETFs.

But most progress within asset management has been evolutionary rather than revolutionary, revolving around repackaging products or improving certain processes. Only in rare instances have investment firms used technology to reinvent business models or

What's the big deal about **blockchain?**

More than five years after bitcoin was introduced as the world's first decentralised, open-source digital currency, its prospects remain murky. The "cryptocurrency" is still more popular as a speculative commodity than as the basis for digital wallets.

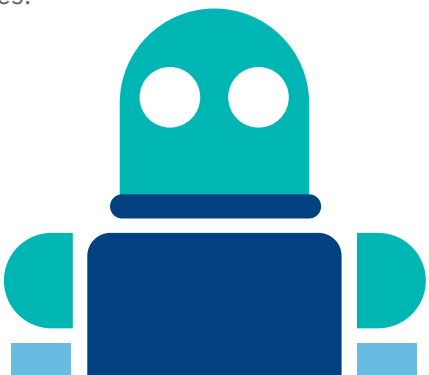
But blockchain, the technology protocol behind bitcoin, now seems poised to take hold in a big way. In fact, it could completely transform our current system for enabling and recording financial transactions. *The Economist* goes even further in describing blockchain's potential, declaring that it could radically change "how our economy works" because it is **"a machine for creating trust…a shared, trusted, public ledger that everyone can inspect, but which no single user controls."**[11]

The blockchain is illustrative of the way the giant wave of technology is washing over and reshaping every aspect of our financial lives, just as it has transformed how we consume media and information. In the blockchain's public ledger system, **every transaction is publicly recorded and transparent via the Internet, yet still secure to all but authorised users.** Ledgers are distributed, so records exist in multiple places. But they are also heavily encrypted. A transaction can be accessed only by the holders of a private digital key, and any exchanges of the key are also recorded in the public ledger. A spinoff called "sidechains" allows the creation of different kinds of blockchains tailored to specific types of transactions, such as home sales.[12]

To those in financial circles, this technology is exciting for several reasons. A system like this drives the cost of recording asset exchanges down nearly to zero. Furthermore, it already exists and has been extensively used and tested in bitcoin transactions. **There is no reason why, given appropriate industry-level standards, blockchains couldn't be used to digitally exchange dollars, euros, or any other currency.** And the potential to streamline financial services and lower business costs is far-reaching.

No longer would financial institutions have to communicate with each other to enable transactions, nor would they have to use intermediaries to clear and settle accounts. The system could also cut through the complexities of compliance reporting, greatly reducing the costs and difficulty of complying with laws such as FATCA. **Biometrics or digital identity tokens would allow nearly instant authentication of transactions.** It's no wonder that a growing consortium of financial institutions is now working on the industry standards needed to make it all happen.

Eventually blockchain may even remake retail purchasing, as the inventors of bitcoin intended. As the **Internet of Things** evolves, blockchain could make it possible for your refrigerator to order groceries or your self-driving car to fuel itself along the highway. In this scenario, authorised users of your digital wallet might include not only your family, but your household robot, too.



value chains the way that Schwab and LPL did back in the 1980s and 1990s with their platforms for registered investment advisers and independent broker/dealers, respectively.

Not a single investment firm appears on the *Forbes* 2014 or 2015 lists of the World's 100 Most Innovative Companies.[13, 14] Nor are any banks listed; credit card giants Visa and MasterCard are the only financial industry firms on the 2015 list. *Fast Company*'s list of top innovators in personal finance included just a single established asset manager: Charles Schwab, for Schwab Intelligent Portfolios™, its robo-advice platform.[15]

A few industry groups make a point of looking ahead, but no industry forums exist to nurture innovation. No SXSW, TED, or PopTech for asset management. Asset managers are still preoccupied with regulatory reforms, and they remain focussed on preserving the status quo rather than incubating new ideas.

One could even make the case that the investment management industry has often been slow to embrace change, if not downright resistant at times. Historically, the industry has relied heavily on academic research, which may be conceptually far-reaching but is typically slow-moving. Big ideas such as outcome-oriented investing or alternative strategies literally take years to take hold. In contrast, traditional constructs like the stylebox, which was innovative in its day, seem to hang on despite the industry's advancing sophistication.

CAUTIOUS TO A FAULT

Now that global ETF assets have passed the $3 trillion mark,[16] putting them roughly on par with global hedge fund assets,[17] it's easy to forget that ETFs were widely criticised as a fad when they were first introduced, and they remain controversial as they continue to evolve. The reaction to robo-advisers isn't so different. Although some big investment firms, including Fidelity, BlackRock, Vanguard, Invesco and Schwab, quickly jumped on the trend with their own automated advice platforms, others in the industry downplay their influence, insisting that robo-advisers are "overhyped."

However, a handful of investment organisations do systematically pursue new ideas and innovations. In 1999, Fidelity founded the Centre for Applied Technology to centralise its pursuit of transformative technologies and link IT resources with business initiatives. The company claims more than 100 U.S. patents among the Centre's accomplishments. BlackRock has also pushed hard to create state-of-the-art technologies like its Aladdin risk management system. And Charles Schwab boldly introduced its robo-advice platform with zero advisery or asset management fees (although users still pay fees for underlying ETFs).[18]

Some sector innovators

Fidelity	BlackRock	Schwab
Centre for Applied Technology	State-of-the-art technologies	Robo-advice platform
> 100 U.S. patents	Aladdin risk management system	Schwab Intelligent Portfolios

OBSTACLES TO CHANGE

The Innovator's Dilemma. The investment industry may embody the dynamic famously described in Clayton Christensen's book, *The Innovator's Dilemma*. Why do successful companies—even market leaders—fail to seize the opportunities presented by disruptive technologies, including those that are clearly on the horizon?

Not because they don't see trends unfolding, are unable to adapt, or aren't good managers. Rather, explains Christensen, it's *because* they apply good management principles. In the context of their mature business models, moving into new technologies and markets often entails too much cost and offers too little return on that investment, to be worthwhile—especially if there is some risk of cannibalising profitable areas of an existing business. In contrast, new entrants are free to focus on the opportunity, have lower cost structures, and have relatively little to lose.

Why fix it if it's not broken

Regulation. Investment management isn't the only regulated industry, but it's one in which regulatory concerns may factor into virtually everything a company says and does. Heavy regulation makes the industry less inclined to experiment, and discourages investment firms from thinking outside the confines of existing investment structures and business models. The path to globalisation is also rife with obstacles: firms with global aspirations must contend with multiple regulatory regimes around the world.

Comforts of the status quo. Why haven't investment organisations felt driven to pursue bold innovations rather than incremental improvements? Asset management has been an enviably good business for some decades. Why fix it if it's not broken?

This is not to imply that success comes easily in the investment business. As discussed in the SEI white paper, *Evolving in the New Operational Frontier*, asset managers have had no shortage of challenges, especially in the years following the

McKinsey's 2015 Asset Management Survey describes an industry that is overall "...in a robust state of health, with high-water marks being set for assets under management, revenues and profits."

financial crisis. In addition to adapting to complex regulatory reforms and reacting to constant market gyrations, they have had to deal with the rapid proliferation of investment vehicles, and keeping those complex product sets aligned with the shifting preferences of institutional and individual investors.

Despite the challenges, McKinsey's 2015 Asset Management Survey describes an industry that is overall "in a robust state of health, with high-water marks being set for assets under management, revenues and profits." It reports that the assets of North American investment firms reached an all-time high of $31 trillion in 2014. Meanwhile, profits climbed 12 percent to $37 billion and, "most impressively, operating margins reached 33 percent, up 11 percentage points from the lows of 2009."

Clearly, some investment firms are more successful than others in meeting today's challenges, and the survey shows a wide gap in the financial performance of top- and bottom-performing firms.[19] The asset management industry might not be Lake Wobegon, where all the children are above average, but as a business community, it's undeniably over-achieving.

North American investment industry, in a robust state of health

ASSETS	PROFITS	OPERATING MARGINS
$31trillion	**$37**billion	**33%**
All-time high	Up **12%**	Up **11%**

Source: McKinsey 2015 Asset Management Survey

The language of change

At a time when new products are constantly trumpeted as being "disruptive" or "innovative," it's worth considering what these terms really mean. Clayton Christensen himself complains that the core concepts in his theory of disruptive innovation have often been misapplied and misinterpreted—and he believes executives need to get the definitions right if they want to know which competitors to worry about.

Disruption vs. improvement. Even a jaw-dropping new feature doesn't make a product disruptive. As defined in *The Innovator's Dilemma*, **"disruptive innovations" either create a new market that didn't exist before, or offer a lower-end alternative to an existing product.** As those low-end products improve, they are able to move upmarket and challenge established competitors. In contrast, advances that make good products better are called "sustaining innovations."

In the December 2015 *Harvard Business Review* article, "What Is Disruptive Innovation?", Christensen argues that Uber is clearly transforming the taxi business in the U.S., but is not genuinely disruptive. It targets the same market as taxis and was not introduced as a low-end, inferior product. Many embraced it as a better service, presenting an immediate challenge to incumbent taxi companies. As Christensen points out, disruption is a process, not just a product introduction.

So what about the iPhone? When introduced in 2007, it was a sustaining innovation in the smartphone market, says Christensen, but "the iPhone's subsequent growth was due to its disruption—not of other smartphones but of laptops as the primary access point to the internet."

Some argue that Christensen's definitions are outdated in an era when many companies face multiple competitive threats from many different angles, and some big tech companies introduce sustaining innovations virtually every day. Could the innovator's dilemma itself be disrupted?

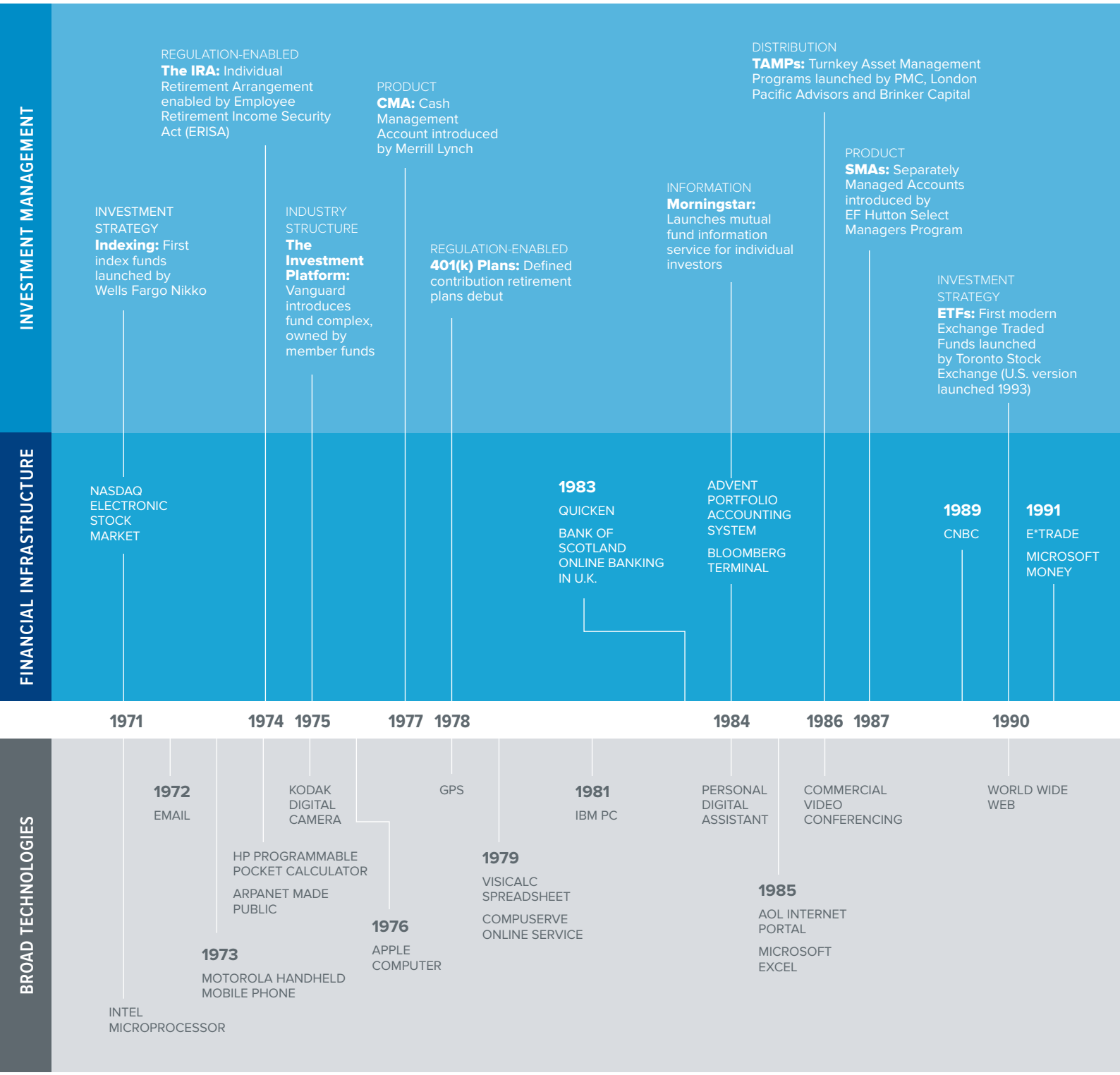
Invention vs. innovation. While often used interchangeably, these terms have very different meanings. **An invention is the creation of a product, process, or service that didn't exist before. But the measure of innovation isn't the newness of the thing created; it's the way that thing changes the behaviour of the people, the processes, and the businesses around it.**

Here again, Apple is a case in point. It didn't invent the personal computer or the smartphone; nor was the iPod the first portable music player. What Apple did with the iPod was to blend a device, a music delivery system, and an interface design in a whole new way. That was the innovation, and it changed the music business irrevocably, making its products easier for people to access, discover, and enjoy. That's the kind of effect that makes companies truly innovative.

The industry is feeling pressure from the **past and the future**... If we aren't already thinking long and hard about this, **we need to be**.

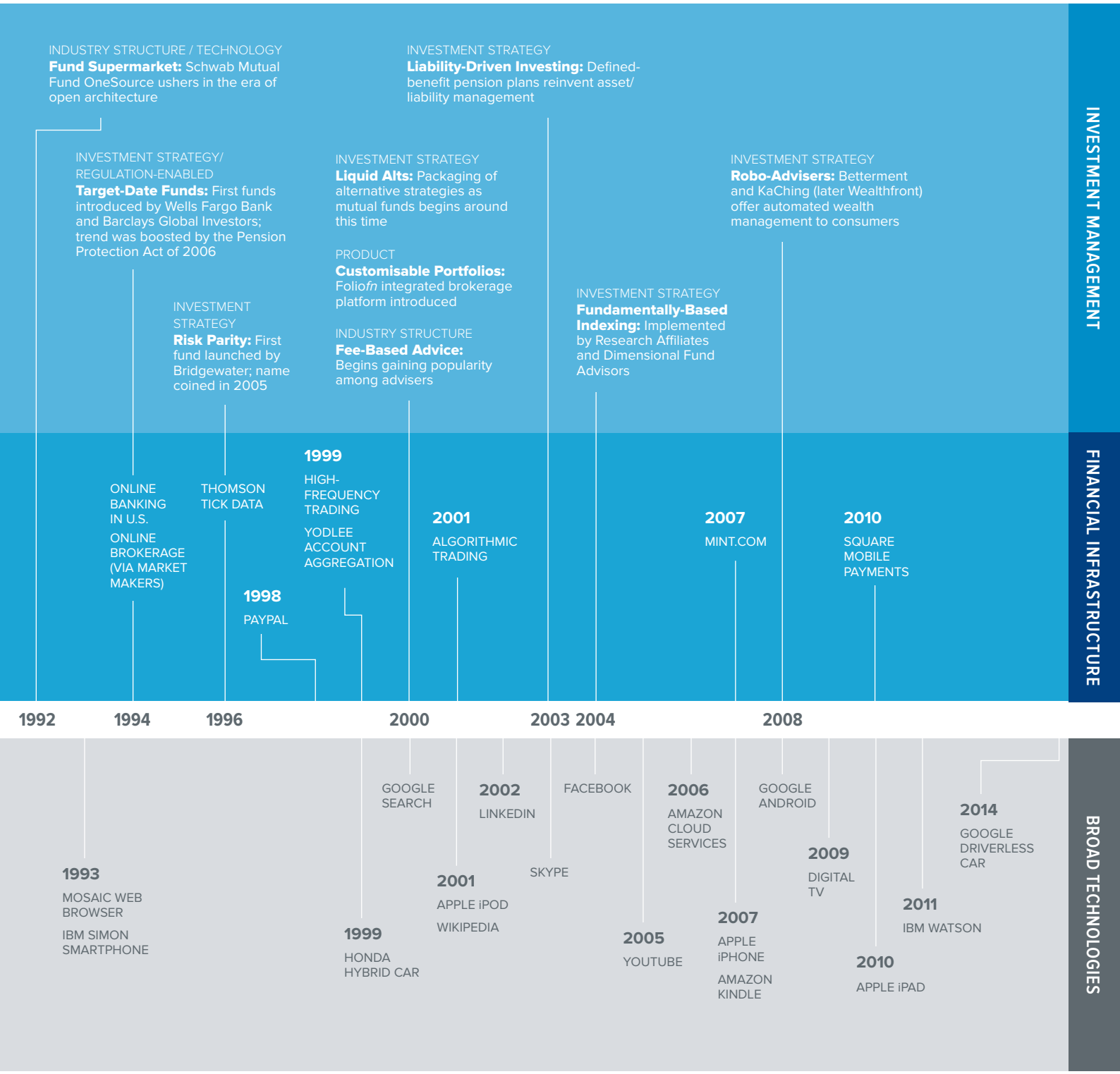
A half-century of innovation

TIMELINE CONTINUES



A half-century of innovation

(CONTINUED FROM PAGE 14)



WEAKENING TAILWINDS

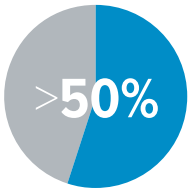
For some time now, the asset management industry's growth and success have been propelled by several powerful tailwinds. The trouble is, those tailwinds now appear to be weakening or even reversing direction [see **Will the good times last?**, page 19].

DEMOGRAPHICS

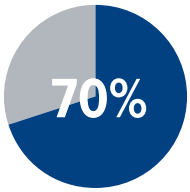
The growth of the industry's assets under management (AUM) has been fueled by the sheer size and economic power of the baby boom generation. Born into an era of robust economic expansion, baby boomers benefited from strong earning power, upward mobility, and substantial inherited assets. They remain the richest generation in U.S. history, controlling more than half the nation's total household net worth and 70 percent of disposable income.[20]

Now baby boomers are retiring at an estimated rate of 10,000 a day,[21] moving from the accumulation to the withdrawal phase of investing. Plus, baby boomers owe their affluence to a one-time confluence of conditions—a sort of financial exceptionalism. Gen X and Millennial households have started off with less wealth than their parents did, and have been accumulating it at a far slower pace.

Baby boomers are the richest generation in U.S. history...



Of total household net worth



Of disposable income

but they are also retiring at a rapid rate.

Source: J.P. Morgan Asset Management

Therefore, investment organisations are growing more dependent on high-net-worth and ultra-wealthy investors for their future asset growth. McKinsey's report, *The Global Asset Management Industry in 2020*, forecasts that households with $2 million to $20 million in liquid assets will represent 50 percent of the industry's asset growth.[22] Thus, investment managers are looking to a tiny fraction of U.S. households for the bulk of their net new assets; only one in twenty households in the U.S. had as much as $1 million in investable assets in 2013.[23]

At the other end of the spectrum are the burgeoning numbers of small accounts that may be difficult for asset managers to service economically. **Demographic trends are also pushing asset managers to become more global.** Based on PwC's forecasts through 2020, the population of mass affluent investors is growing about twice as fast in Asia, Africa and South America as it is in Europe and the U.S.[24]

Baby boomers owe their affluence to a one-time confluence of conditions—a sort of **financial exceptionalism.**

REGULATION

Typically viewed as a thorn in the industry's side, regulation also has an upside. Landmark U.S. legislation (ERISA, in 1974) undeniably drove the growth of products such as IRAs and target-date funds, not to mention the 401(k) business. The cost and complexity of regulatory compliance have also served the industry as a kind of protective moat, making it that much harder for outsiders to break in. In the years ahead, the rules will no doubt continue to proliferate, and some new opportunities may emerge as policymakers push retirement plans toward more outcome-oriented solutions.

But some of ERISA's economic benefits to the industry are diminishing, as defined benefit retirement plans are increasingly closed or capped. The effects of upcoming regulatory initiatives are uncertain: for instance, the U.S. Department of Labor's proposed changes to the fiduciary standard might provide some impetus for growth, but it could also make some products obsolete. Overall, future regulation may bring new complexities without doing much to encourage new asset flows.

In the years ahead... some new opportunities may emerge as policymakers push retirement plans toward more outcome-oriented solutions.

The maze of new rules make it difficult to do business globally, and regulation is altering fee models and competitive dynamics worldwide. In the European Union, the Capital Requirements Directive IV and Alternative Investment Fund Managers Directive (AIFMD) are heightening "remuneration challenges," says PwC.[25] **Transparency into fees is the thrust of regulation across markets on every continent**, according to KPMG's review, *Evolving Investment Management Regulation*.[26] As KPMG points out, this global trend will only reinforce investors' growing preferences for low-cost funds. In the U.S., for example, 95 percent of all flows to mutual funds and ETFs over the past 10 years have gone into funds in the lowest-cost quintile, and overall, asset-weighted expense ratios declined by 27 percent, reveals Morningstar's 2015 fee study.[27] Only a 143 percent increase in AUM blunted the hit to asset managers' revenues.[28]

Over the past **10** years, **95%** of all flows to mutual funds and ETFs have gone into funds in the lowest-cost quintile.

Source: Morningstar

OPEN ARCHITECTURE

The industry has also benefited greatly from the open-architecture phenomenon with Charles Schwab's introduction of the Mutual Fund OneSource fund supermarket in 1992. At a time when we take access to investment funds and fund information for granted, it's easy to forget how profoundly the OneSource Platform changed the industry—and it has been fueled by technology and investor demand ever since. It rang the death knell for the old system of proprietary funds sold by banks and brokerages, and also paved the way for the growth of RIAs, investment platforms, and "infomediaries." OneSource also sparked a competitive boom in investment strategies and swelled the demand for mutual funds. **But open architecture is now so entrenched in the industry that it is no longer a meaningful force for change.**

From 2009 through 2014,
$28trillion
of new assets were added.
New net flows
accounted for only
16%.

Source: McKinsey & Company

MARKET GROWTH

The investment industry has some built-in advantages, and like attorneys and accountants, investment managers are able to make money even when economic conditions are lacklustre, when the economy isn't doing so well.

For a long time, though, investment managers rode the tailwind of the ongoing rise of the markets themselves. If not for the bull market that started in 2009, the industry's recent growth would have been anemic, or worse. From 2009 to the end of 2014, the industry added $28 trillion in new assets, double the growth recorded for 2005 through 2009.[29] But only $4.5 trillion of that asset growth, or 16 percent of the total, came from net new flows. The rest was attributed to "the continued upward momentum of financial markets and asset prices." As asset managers have found in the first half of 2016, **the current bull market cannot be counted on to continue indefinitely** and without phases of extreme volatility.

Of one thing we can be assured: Ten years from now the asset management business will be much different from what it is today. Change is being thrust upon us, regardless of our readiness to deal with it. The industry is feeling pressure from two directions: the erosion of traditional sources of competitive advantages, and the advent of disruptive new technologies and competitors. If we aren't already thinking long and hard about this, we need to be.

Will the good times last?

Given the asset management industry's strong financial performance in recent years, it would be easy for investment firms to slide into complacency—but that would be a mistake, especially at this juncture.

	PAST TAILWIND	OUTLOOK
Demographics	▸ Industry AUM fueled by 75 million baby boomers who enjoyed high levels of economic growth, earning power, and inherited wealth—a one-time confluence of favourable conditions	▸ A larger, but poorer millennial generation ▸ More reliance on HNW and UHNW investors ▸ Growing numbers of small accounts
Regulation	▸ Growth of IRAs, target-date funds, and the 401(k) business driven by ERISA (1977) and the U.S. Pension Protection Act of 2006	▸ Increased complexity with continued proliferation of rules ▸ Uncertain effects on asset flows ▸ The U.S. Department of Labor's proposed changes to the fiduciary standard may be a double-edged sword ▸ Ongoing fee pressures exacerbated by the regulatory push to alter fee models and increase transparency
Open Architecture	▸ A breakthrough that sparked competition and demand for funds ▸ A critical ingredient in the growth of mutual funds to more than $16 trillion in assets at end of 2014	▸ Now entrenched; no longer a growth factor
Market Growth	▸ 84% of 2009–2014 net asset growth attributable to the market's rise	▸ An aging bull market is now the third longest in U.S. history ▸ Uncertain prospects for asset growth

Endnotes

[1] Frank Rose, "The Big Bang of Art and Tech in New York," *The New York Times*, 6 November 2015.

[2] Tasha Keeney, "Quick Fire: The Spread of Smartphones and Tablets," *Ark Invest*, 10 September 2014.

[3] "PwC 2015 US CEO Survey—Top findings," January 2015.

[4] Ibid.

[5] John Hagel III and Marc Singer, "Unbundling the Corporation," *McKinsey Quarterly*, June 2000.

[6] Deloitte, "Robo Advisors: Capitalizing on a growing opportunity," July 2015.

[7] "The Future of FinTech and Banking: Global FinTech Investment Triples in 2014," *CB Insights Blog*, 26 March 2015.

[8] "Why fintech won't kill banks," *The Economist explains* blog, 16 June 2015.

[9] Jonathan Marino, "Big banks are joining forces with the firms that were supposed to be disrupting them," *Business Insider*, 5 January 2016.

[10] Oscar Williams-Grut, "A banking dream team is looking at technology that could impact financial services the way the Internet changed media," *Business Insider*, 27 December 2015.

[11] "The promise of the blockchain: The trust machine," *The Economist*, 31 October 2015.

[12] Chris Skinner, "Why the blockchain will radically alter our future," *BankNXT*, April 2015.

[13] "The World's Most Innovative Companies 2015 Ranking," *Forbes*, 19 August 2015.

[14] "Ranking the Brands," SyncForce, January 2015.

[15] "The World's Top 10 Most Innovative Companies of 2015 in Money," *Fast Company*, 9 February 2015.

[16] SEI Investment Manager Services Division, "ETF 2.5," January 2016.

[17] Hedge Fund Research, "HFR Hedge Fund Asset Under Management," January 2016.

[18] Charles Schwab, "Discover automated portfolio management with Schwab Intelligent Portfolios," January 2016.

[19] McKinsey & Company, "The Global Asset Management Industry in 2020" (webinar presentation), 18 June 2015.

[20] Benjamin Mandel and Livia Wu, "The long and short of baby boomer balance sheets," J.P. Morgan Asset Management, October 2015.

[21] Glen Kessler, "Do 10,000 baby boomers retire every day?," *The Washington Post*, 24 July 2014.

[22] McKinsey & Company, "The Global Asset Management Industry in 2020" (webinar presentation), 18 June 2015.

[23] Eric Morath, "Where Are the U.S.'s Millionaires?," *The Wall Street Journal*, 16 January 2014.

[24] PwC, "Asset Management 2020: A Brave New World," 29 November 2010.

[25] PwC, "Top 10 impacts of regulation on asset managers," 2015.

[26] KPMG, "Evolving Investment Management Regulation," June 2014.

[27] Morningstar, "2015 Fee Study: Investors Are Driving Expense Ratios Down," 23 April 2015.

[28] Ibid.

[29] McKinsey & Company, "Navigating the Shifting Terrain of North American Asset Management," November 2015.

FIVE TRANSFORMATIVE TRENDS

SEI Investment Manager Services

Toward more radical thinking

> **"My own theory is that we are in the middle of a dramatic and broad technological and economic shift in which software companies are poised to take over large swathes of the economy."**[1]
>
> —Marc Andreesen

Jamie Dimon, CEO of JPMorganChase, worries that banking and lending is now high on the list of tech industry targets. **"When I go to Silicon Valley...they all want to eat our lunch.** Every single one of them is going to try," he told investors in early 2014. His 2015 letter to shareholders reiterated his concerns: "Silicon Valley is coming. There are **hundreds of startups with a lot of brains and money** working on various alternatives to traditional banking." He added, "They are very good at reducing the 'pain points' in that they can make loans in minutes, which might take banks weeks. We are going to work hard to make our services as seamless and competitive as theirs. And we also are completely comfortable with partnering where it makes sense."

Given the number of new startups taking bites of asset management services and infrastructure, it's not much of a stretch to extend Dimon's fears to the investment business as well.

Regulators, too, are keeping a watchful eye on emerging technologies. In a recent talk on innovation and competitiveness at Harvard Law School, SEC Commissioner Kara M. Stein cited four developments that are challenging the financial services industry's existing business models and practices, not to mention regulatory structures: robo-advisers, online peer-to-peer lending, equity crowdfunding, and blockchain technology.

Important as these four developments are, asset managers need to think bigger and look farther as they assess how technology will affect their businesses. In the pages that follow, we explore five unfolding areas of innovation that are reshaping our world. We have dubbed them:

Watsonisation	**Cognitive computing is transforming how things are discovered, interpreted, decided, and accomplished.**
Googlisation	**Data-smart companies are learning how to distil competitive knowledge from a vast sea of information.**
Amazonisation	**Online platforms are reshaping business dynamics and putting customers in charge.**
Uberisation	**A fast-emerging business model points to new ways of creating value and gaining scale.**
Twitterisation	**Technology has transformed how businesses communicate with—and learn from—their customers.**

Each of these five trends holds both challenges and opportunities for the investment industry—a set of prospects we ignore at our peril. Still, the purpose here is not simply to sound an alarm. Rather, we want to spark fresh thinking, exploration, and debate in the financial industry, a process that will need to be ongoing if asset managers want to keep thriving and growing in the years ahead. We hope these observations will help to advance the discussion.

Endnotes

[1] Marc Andreesen, "Why Software is Eating the World," *The Wall Street Journal*, August 2011.

5 TRENDS: 1

Cognitive computing is transforming how things are discovered, interpreted, decided, and accomplished

Watsonisation

On Valentine's Day in 2011, viewers of the U.S. television quiz show ***Jeopardy!*** watched the two top-winning contestants of all time begin a three-day, $1 million face-off against a kind of opponent never seen before: a room-sized IBM supercomputer named after Thomas J. Watson, the company's founder. Watson didn't nail every answer, and at times the outcome was in doubt. But the computer ultimately took the prize, leaving the humans in the dust.

It was stunning evidence of the leap from algorithms that carry out programmed instructions to the era of cognitive computing—systems that can simulate human thought processes as they crunch massive quantities of structured and unstructured data. Beyond recognising patterns, weighing probabilities, and making predictions, these technologies employ machine learning to become even smarter in the process. What's more, they "speak human," using natural language to understand and answer queries.

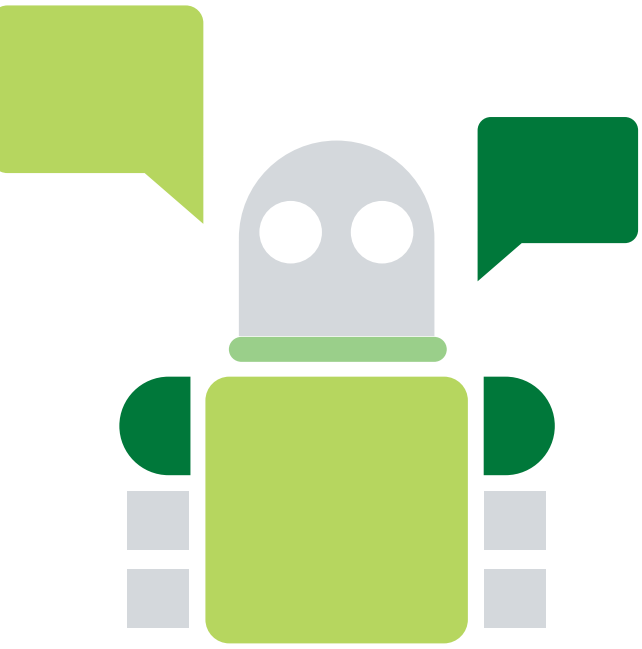
COGNITIVE COMPUTING IN THE MARKETPLACE

It only took until 2013 for Watson's capabilities to be put into commercial use. Now a variety of other companies and startups are joining or competing with IBM to bring cognitive computing to health care, travel, retail, financial services, and other industries. According to *Fast Company,* in 2014 more than 5,000 applications developers were working in the Watson ecosystem alone.[1]

One of the hot areas in this nascent field has been predictive analytics, which many companies are already using to score credit applications, rank job applicants, optimise pricing, prioritise sales leads, maintain equipment, detect fraud, and much more. Facial recognition technology is already a big business; it's being used to measure the effectiveness of store displays, spot cheaters in casinos, and tailor digital ads to those passing by (just like in the 2002 sci-fi movie *Minority Report*). Another burgeoning application is call centre "chatbots" that not only answer customers' questions, but can also infer their emotions and frame responses accordingly.

It used to be said that computers were for things humans do badly, like making precise calculations from millions of datapoints. Now they're moving toward tasks humans do well, like creative thinking and problem solving. In many cases, cognitive systems will complement rather than eliminate human insights for the foreseeable future. You'll see a doctor who uses Watson-powered apps to aid diagnosis and manage care, rather than consulting a "doctor in a box." But self-driving cars are already being road-tested and could eventually displace taxi, shuttle, and Uber drivers. Nor are intellectual workers immune—not when cognitive systems are already writing news articles, conducting research, and assessing risks.

On the horizon. What's coming next? IBM anticipates that within five years, cognitive computing will extend and even improve on human senses. Researchers are working, for example, on haptic capabilities that will let you "feel" a fabric from a smartphone screen, and apps that sample scent molecules to monitor health conditions such as diabetes. Cognitive computing devices are also rapidly shrinking in physical size, now approaching shoebox dimensions. Facebook founder Mark Zuckerberg has made it his 2016 resolution to build a robot that can run his home and serve his family. In short, humanoid robots like those in the movie *Ex Machina* are already the province of press releases rather than science fiction.



NOTES FROM THE FRONT LINES

ATTENTION-GRABBING APPS ABOUND.

A few examples:

Narrative Science, one of CNBC's "50 Disruptors of 2015," describes itself as "the leader in big data storytelling." Its Quill platform uses data analytics and computer logic to develop narratives that sound like a human wrote them. It's not just for reporting sports scores, either. *Forbes*, Credit Suisse, and MasterCard are among companies already using the service.

WayBlazer, the latest brainchild of Travelocity's founder, is a Watson-powered travel concierge that delivers a bundle of recommendations, offers, and destination information, all tailored to an individual's interests.

ANZ Global Wealth, the private banking arm of Australia and New Zealand Global Banking Group, is equipping its financial planners with tools that aim to produce personalised assessments and advice in a single session. Initially focussing on insurance and income protection, ANZ plans to expand the service to cover the full spectrum of wealth management.

Health care was among the first industries to embrace cognitive computing, and it is a hotbed of activity. Recent initiatives are designed to fine-tune cancer treatment, match patients with clinical trials, interpret medical imaging, and evaluate medications, among other capabilities.

NOTES FROM THE FRONT LINES
(continued)

Follow the money. Venture capital investments in artificial intelligence (AI) and cognitive computing startups soared from $14.9 million in 2010 to $309.2 million in 2014, according to CB Insights for Bloomberg.[2]

AI for humanity. A few of Silicon Valley's leading lights, including Elon Musk, Peter Thiel, and Reid Hoffman, have committed $1 billion to create OpenAI, a nonprofit charged with developing AI in ways that will benefit humanity without potentially threatening it. The new group aims to create a machine capable of performing any intellectual task a human can.

Cognitive computing vs. AI. The term "artificial intelligence" has been with us for decades; remember HAL-9000, a non-human character in the 1968 movie *2001: A Space Odyssey*? It is often broadly applied to technologies able to perform tasks that normally require human intelligence, such as visual perception or speech recognition. The difference is that AI uses hardware and software to solve discrete problems, whereas cognitive computing is unconstrained by programming, instead seeking to mimic human thinking and learning. Cognitive computing takes AI to a new level of capability with unlimited applications.

Cognitive systems are already writing news articles, conducting research, and assessing risks.

Venture capital investments in artificial intelligence and cognitive computing

Source: CB Insights for Bloomberg

IMPLICATIONS FOR ASSET MANAGEMENT

BUSINESS MODELS

Advice, reinvented. Low-cost robo-advisers that use algorithms to set and implement asset allocation are making big waves in the industry, with analysts predicting they could grow to $7 trillion in AUM by 2025.[3] But the robo-trend may be merely the leading edge of a more sweeping advance. While quantitative investment and trading strategies are nothing new, a growing number of hedge fund managers are using machine-learning technologies to make and implement investment decisions. In contrast to algorithms that make short-term market forecasts, these computers use big data to look weeks or months into the future, continually buying and selling securities based on those predictions. Some sophisticated quant managers like Renaissance Technologies, Two Sigma Investments, Bridgewater Associates, and Point72 Asset Management were early to embrace cognitive computing. (Indeed, the researcher who led Watson's development joined Bridgewater in 2013.) Other established asset managers and a crop of start-ups are following suit.

Robo-adviser AUM could reach **$7**trillion by **2025**.

Source: Deloitte

PORTFOLIO MANAGEMENT

Stockpickers and analysts on the endangered list? CFAs who wield HP12c programmable calculators will soon be as outmoded as accountants with eyeshades. While human insights won't become obsolete, it's clear that cognitive systems will hold an information advantage. They can go beyond the most rigorous top-down and bottom-up analyses to weigh factors, probabilities, and "what if?" scenarios that might not even occur to a seasoned manager.

IMPLICATIONS FOR ASSET MANAGEMENT *(continued)*

SALES & MARKETING

Enriching investor engagement. To better understand customers' buying preferences, retailers are already using powerful apps that analyse an individual's demographics, purchase history, and wish lists, and they link this profile to relevant product information, including reviews, technical specs, manuals, and more. Sales employees can use voice or text to mine this trove of information. Such capabilities could help investment organisations improve the investor experience, reduce redemptions, and see where investor preferences are pointing.

BEHAVIOURAL FINANCE

Countering cognitive biases. As researchers have demonstrated, investors' decision making is often clouded by uncertainty and built-in biases. Unreasonable loss aversion, unjustified optimism, choice paralysis, giving the heaviest weighting to information that supports prior conclusions, running with the herd—these and other biases stand in the way of sound thinking. Cognitive computing can help advisers shine a clear light on decision factors, including the unknowns, as well as probable outcomes.

RISK MANAGEMENT

More confidence in risk assessments. Rather than delivering the "right" answers to complex problems, cognitive systems typically provide a range of answers with a confidence rating for each. This "probable validity" approach reflects the way risk managers think, but is enhanced by analytics that take in vast data and multiple perspectives at lightning speed.

IMPLICATIONS FOR ASSET MANAGEMENT *(continued)*

OPERATIONS

Ongoing optimisation. As far as the industry has come in automating and fail-safing processes, Watson-style capabilities will enable new leaps. The systems of the future will not only pinpoint mistakes, but learn from them.

DATA SECURITY

Advanced cybersecurity defences. Given the recent spate of high-profile hacking incidents, plus the growing focus on data security by U.S. and European regulators alike, this issue will only gain importance. Sixty percent of asset managers in a recent Cerulli Associates survey ranked cyber security their top priority for 2015.[4] Providers of cognitive security analytics are responding with capabilities for predicting and assessing threats, recommending best practices for system configuration, and automating defences.

Endnotes

[1] Jane Porter, "3 Lessons IBM's Watson Can Teach Us About Our Brains' Biases," *Fast Company*, 27 July 2015.
[2] Jack Clark, "I'll Be Back: The Return of Artificial Intelligence," *Bloomberg Business*, 3 February 2015.
[3] Deloitte, "Robo Advisors: Capitalizing on a growing opportunity," July 2015.
[4] Cerulli Associates, "Are your cyber defenses fit for purpose?," *Cerulli Edge–Europe*, Q1 2015.

5 TRENDS: 2

Data-smart companies are learning how to distil competitive knowledge from a vast sea of information

Googlisation

More than any other company, Google is emblematic of our age of data abundance. The power of search algorithms, coupled with the plunging costs of bandwidth, data storage, and cloud computing, has given each of us a limitless window on the world. Being able to find information on virtually any subject in the world—and access it in seconds—has transformed the ways we live and work. But it also presents us with an unprecedented challenge. How do we extract value from all this data? To decide what is meaningful, we'll need better ways to connect the dots and distil signals from the noise.

It has now been more than 20 years since Stan Davis and Jim Botkin made the case for knowledge as the lifeblood of business competitiveness in their seminal article, "The Coming of Knowledge-Based Business".[1] To provide a framework for thinking about a knowledge-driven economy, the authors laid out the continuum from *data* (the "unorganised sludge") to *information* (data in meaningful patterns) to *knowledge* that reflects true insight and enables learning.

THE RISE OF BIG DATA

Davis and Botkin were right: Innovation-minded companies are gaining an edge by using data science to obtain more accurate predictions, make better decisions, and glean more sophisticated customer insights—not to mention develop smarter products. Thomas Davenport, one of the nation's leading authorities on "competing on analytics," says business is well beyond the stage of using data science to transform the back office. Welcome to Analytics 3.0, an era in which data shapes products in every industry, and leading companies embed analytics in every decision and operating process.

Volume. Companies seeking to leverage data must now reckon with the mind-boggling volume that is available at our fingertips. Here are some stats on the astonishing growth of data: Google alone receives over four million search queries a minute, and it processes about 24 petabytes of data every day.[2] According to McKinsey analysts, that translates into four times the total amount held by the Library of Congress as of April 2011.[3] Back in 2009, global market researchers at IDC calculated that the world's digital information was doubling every 18 months.[4] Based in part on the Knowledge Doubling Curve created by Buckminster Fuller, in 2013 futurist Gerd Leonhard estimated that human knowledge was doubling every 13 months, expanding so quickly that we're running out of ways to quantify it.[5]

Types of Data. Even more daunting than the sheer volume is the variety of information companies need to make sense of, from images, voice, and written prose to sensor feeds and tweets (500 million a day and counting). According to IBM, unstructured data accounts for about 80% of what's out there, and it's growing at twice the rate of data that lines up in columns and rows.[6] In our wired world, every person is a data generator. So are all the devices connected to the burgeoning Internet of Things: 28 billion such devices will be in use by 2020,[7] leading to the doubling of knowledge every 12 hours![8]

Google processes about
24 petabytes
every day, or about
4 times the total content
of the Library of Congress.

As of April 2011.
Source: McKinsey

Speed of Data Processing. Velocity is another defining characteristic of big data. With the right analytical tools, businesses can quantify and react to events almost instantly. For example, retailers can now use mobile phone location data or drone imaging to assess day-after-Thanksgiving Black Friday sales well before the end of the day. The Wall Street startup Estimize is among firms that have sprung up to crowdsource economic and earnings indicators, helping traders keep ahead of the tape.

Unlocking the potential of big data isn't easy. Many businesses are still run on the "HiPPO" model, whereby decisions are based more on the "highest-paid person's opinion" than on rigorous, forward-looking data analysis. Transforming your company into nimble, fact-driven organisation requires nothing less than sweeping cultural shift, one that requires unswerving corporate leadership, the right human skill sets, and considerable resources.

But the potential rewards are huge, including increased profitability, lower labour costs, and more satisfied customers and employees. According to the MIT Centre for Digital Business, the more that companies describe themselves as data-driven, the better their financial and operational performance. After taking other factors into account, MIT found that data leaders—those in the top third of their industries—were on average 5 percent more productive and 6 percent more profitable than their competitors.[9] Advanced data science is now a must-have for companies that want to be competitive.

Transforming your company into a nimble, fact-driven organisation requires nothing less than sweeping cultural shift.

NOTES FROM THE FRONT LINES

Information overload. According to BlackRock, 36,000 pages of brokerage reports in 53 languages are now generated, on average, each day[10] —a clear use case for advanced text analysis.

Data never sleeps. Walmart collects more than 2.5 petabytes of data from customer transactions an hour—an amount roughly equivalent to 215 billion pages of Word documents or enough MP3s to play for 5,000 years.[11]

A better handle on risk. Advanced analytical tools can help advisers keep portfolio risk within the levels investors intend. In response to the financial crisis, the founders of Addepar developed a financial dashboard designed to cut through the complexity of pension, investment, and family office portfolios.[12] It ferrets out hidden risks by filtering and analysing the relationships among holdings. Riskalyze offers a method for measuring investor risk more precisely than the typical subjective questionnaire. It also quantifies portfolio risk for comparison, expressing it in a single number.[13]

NOTES FROM THE FRONT LINES
(continued)

Filling gaps in traditional analysis. A recent case in point: As the price of oil fell in the last half of 2014 and early 2015, many economists predicted that American consumers would channel the money saved on gas into discretionary spending. It turned out that spending actually fell during the period. Models based on old-school consumer sentiment surveys didn't take in what a more expansive information sweep would have discerned. Other surveys showed that consumers didn't believe lower gas prices would last, so they opted to put away rather than spend their savings at the pump. With more advanced data science and Watson-style analytics, economists would have been better equipped to call it right.

A social media flood. Every minute, users share 2.4 million pieces of content on Facebook, tweet 277,000 times, and post 216,000 images to Instagram, says analytics developer Domo.[14]

Replacing human intuition. Until recently, it took a blend of human skills and technologies to unlock the insights in vast quantities of data—humans to determine which datapoints and relationships are most meaningful, machines to crunch the numbers. But MIT researchers have succeeded in developing an algorithm that can find the patterns in datasets. What's more, in MIT's tests the algorithm outperformed 615 out of 906 human data science teams, accomplishing in hours what took the human teams months.[15]

New thinking in data management. To get more value from data, companies must be able to share and update it across organisational lines. But housing and managing all that data is a complex and expensive proposition, even for large corporations. One fast-emerging solution is data as a service (DaaS), which simplifies data management by offloading it to a third-party, Cloud-based provider. In the DaaS model, business data is decoupled from a company's internal applications and data architecture. When information is no longer held hostage within, say, a CRM or enterprise resource planning application, it can be delivered more easily to users anywhere in the organisation. The idea is to make life easier by setting corporate data free.

Every minute, users share
2.4million
pieces of content on Facebook
277,000
tweets, and
216,000
images on Instagram.

Source: Domo

IMPLICATIONS FOR ASSET MANAGEMENT

Investment organisations need a flexible platform that centralises their data, but allows it to be analysed from any perspective.

GROWTH STRATEGY

The competition for assets. A recent Boston Consulting Group (BCG) report lays out a "data-driven path to go-to-market excellence," which it defines as the basis for competitive advantage in the industry.[16] BCG concludes that top-performing managers bring "data sophistication" to all six facets of competitiveness: market intelligence and strategic priorities; product development and portfolio management; marketing and communication; sales platform management, performance monitoring; and organisational enablers such as recruiting, compensation, and training.

DATA MANAGEMENT

Aspirations vs. reality. The same BCG study surveyed a broad set of asset management executives about their own big data efforts. Even though most saw big data as important to their business, the study found that many firms overrated their own capabilities and lagged in terms of actual progress. Only a third of managers specifically researched competitor activity, and few applied big data to client behaviour.

OPERATIONS

Platform requirements. Operating data is the core of big data capabilities. It follows that having the right kind of platform is critical for companies that want to tap the power of advanced analytics. To benefit from big data, investment organisations need a flexible platform that centralises their data, but allows it to be analysed from any perspective. Also essential are the ability to incorporate external and unstructured data streams, a robust user interface adaptable to varying management needs, and open architecture that leaves room for future innovations.

IMPLICATIONS FOR ASSET MANAGEMENT *(continued)*

TALENT

Essential skill sets. To develop sophisticated data analytics that align with business objectives, investment firms will need to recruit the right talent, including high-ranking data science professionals. Chief data scientist, a job title that was coined in 2008, may be "the sexiest job of the 21st century," said business analytics guru Tom Davenport.[17] Companies that want to be more data-driven will also need to undertake extensive training of existing managers and personnel across their organisations.

How asset managers can become data leaders

Better decision-making. Adopt a data-driven approach rather than the traditional HiPPO model (highest-paid person's opinion).

Advantaging PMs. Equip portfolio managers to ferret out hidden connections and relationships.

Smarter distribution. Use CRM systems to track and better understand distributors and advisers.

Targeted sales & marketing. Develop initiatives and messages based on transaction and interaction history; use analytics to drive digital campaigns and prioritise leads.

Informing product design. Analyse mutual fund and institutional mandates to identify key attributes and features.

Investor insights. Uncover hidden factors that affect behaviours (for example, influence of others in an investor's social circle); understand evolving needs and preferences.

Happier, more productive employees. Make recruiting into a *Moneyball*-style[18] science; develop "people analytics" that illuminate motivation and performance factors.

Endnotes

[1] Stan Davis and Jim Botkin, "The Coming of Knowledge-Based Business," *Harvard Business Review*, September-October 1994.

[2] A petabyte is 1,015 bytes of data, 1,000 terabytes (TB) or 1,000,000 gigabytes (GB).

[3] McKinsey Global Institute, "Big data: The next frontier for innovation, competition, and productivity," June 2011.

[4] "Report: Digital Universe Doubling Every 18 Months," *eChannelLine blog*, 19 May 2009.

[5] "Knowledge Doubling Every 12 Months, Soon to be Every 12 Hours," *Gerdcloud blog*, 16 July 2014.

[6] Steve Mills, "Big Data, Better Insight, Smarter Planet," *IBM Smarter Planet Blog*, 24 October 2011.

[7] Goldman Sachs, "The Internet of Things: Making sense of the next mega-trend," 3 September 2014.

[8] Ibid.

[9] Andrew McAfee and Erik Brynjolfsson, "Big Data: The Management Revolution," *Harvard Business Review*, October 2012.

[10] BlackRock, "Finding Big Alpha in Big Data," July 2015.

[11] Andrew McAfee and Erik Brynjolfsson, "Big Data: The Management Revolution," *Harvard Business Review*, October 2012.

[12] Addepar, "Solutions/Investment Management & Advisory," Addepar website, Investment management & advisory solutions page, www.addepar.com.

[13] Riskalyze, Inc., "The World's First Risk Alignment Platform," Riskalyze website, Products page, www.riskalyze.com.

[14] Laura Stampler, "Instagrammers Post 216,00 New Pics a Minute and Other Crazy Internet Data Facts," *Time Newsfeed*, 23 April 2014.

[15] Larry Hardesty, "Automating big-data analysis," *MIT News*, 26 October 2015.

[16] Boston Consulting Group, "Sparking Growth with Go-To-Market Excellence," July 2015.

[17] *Harvard Business Review*, October 2012.

[18] Referring to the use of different, more data-driven gauges of analysis as described in the 2003 book *Moneyball: The Art of Winning an Unfair Game* by Michael Lewis.

5 TRENDS: 3

Online platforms are reshaping business dynamics and putting customers in charge

Amazonisation

The World Wide Web was only a year old when Amazon was launched in 1994. What was first billed as “the world’s biggest bookstore” turned out to be the template for a brand-new kind of business—an online marketplace that could bring together a fragmented, far-flung assortment of buyers and sellers around a product category. The following year a start-up called AuctionWeb came on the scene; later to be known as eBay, it was profitable from the start.

By 1998, Amazon was on its way to becoming what it is today—the "everything store." Beyond retailing, it has moved into electronics, media streaming and production, business infrastructure, payment systems, on-demand staffing, and more. Since then a multitude of online marketplaces have sprung up in both broadly defined and niche areas of business.

E-COMMERCE IS DOMINATED BY A FEW BIG PLAYERS

The realm of e-commerce has quickly become a global battleground with contenders large and small vying for users, sales growth, and long-term market leadership. These dot-coms have been major disrupters of traditional industries (remember how Blockbuster withered away while Netflix soared?) It's in the nature of online platforms that the more people use them, the more valuable they become (the "network effect").

Within 10 months of its launch, Alibaba's money market fund had **81**million investors and nearly **$90**billion in assets.

Source: *Institutional Investor*

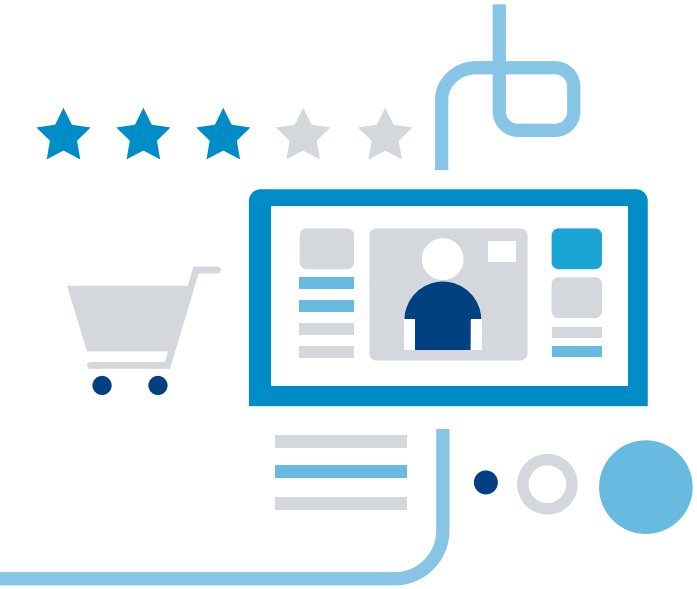
Amazon remains the undisputed leader in the U.S.; even Walmart has been unable to match its online presence and spectacular growth. But China's Alibaba is the big dog globally, with sales volumes that dwarf Amazon's (though Amazon has far higher revenues). A facilitator of transactions, rather than a retailer, Alibaba claims to have 300 million customers already, and its growth potential is staggering.[1] Alibaba.com gives businesses around the world access to China's prodigious manufacturing capacity, and parent company Alibaba Group runs B2B and C2C marketplaces, too.

Asset managers must accept that they, too, are part of this competitive cauldron. Online platforms are rapidly springing up around an assortment of finance-related activities, presenting traditional players with opportunities as well as challenges.

DON'T COUNT OUT E-COMMERCE GIANTS AS POTENTIAL COMPETITORS OR PARTNERS

Firms like Amazon and Alibaba are essentially technology and logistics companies driven to leverage their tools in any way possible. The high-margin sector of financial services is a natural target; Amazon Capital Services already has a lending program for the merchants in its network. At the same time, Alibaba's financial services unit is expanding aggressively into banking, investment, insurance, and credit card services, as it steadily moves toward becoming one of China's full-service banks. Alibaba is making its presence felt in asset management,

too. Within 10 months of its launch in June 2013, Alibaba's Yu'e Bao money market fund had 81 million investors and almost $90 billion in assets, making it the fourth-largest money market fund in the world.[2] Alibaba accomplished that partly by leveraging its Taobao e-commerce network: Sellers can park their cash flow in Yu'e Bao with a single click.



THE NEW SCIENCE OF CUSTOMER CARE

E-commerce marketplaces are transforming business dynamics in ways that touch virtually every industry. Among the most sweeping effects is the way e-commerce has elevated expectations for the customer experience. Not satisfied with just being the largest e-commerce platform, Jeff Bezos said Amazon's mission was to "raise the bar across industries, and around the world, for what it means to be customer focussed." Consumers have grown accustomed to the personalisation, convenience, and multi-faceted user experience that Amazon pioneered with features like product reviews, recommendations based on purchase history, one-click ordering, and one- or two-day delivery. Every business must now compete against those standards of customer service.

E-commerce has empowered consumers, too, enabling them to easily do in-depth comparison shopping. Surveys show that 94% of U.S. consumers spend time online comparing prices and features even for commodity products, typically visiting multiple sites, and 83% do research online before buying in brick-and-mortar stores.[3] Indeed, consumers increasingly do their comparison shopping in-store, with mobile device usage driving consumer behaviour that seamlessly moves from channel to channel. In mid-2014, smartphones and tablets together overtook desktop computers as the top source of traffic at e-commerce sites, underscoring the importance of mobile applications to any online presence.[4]

The takeaway is that **consumers now expect retail-style transparency and complete technical information to support purchase decisions of all kinds.** It's no surprise that websites are now springing up to help consumers comparison-shop for colonoscopies and surgeries, just as they do for a new car or refrigerator.

Let's not forget how e-commerce empowers businesses, too. Marketing strategies can use data about customer preferences to build stronger relationships and find new ways to differentiate their products. Online platforms can also build value from the social media communities they spawn; think of TripAdvisor,

Pinterest, Yelp, and any other site with a trove of user reviews. Even though online initiatives may force companies to give up some control over what users say online, they do a lot with the data they scoop up as a result.

Paradoxically, the technologies that have brought a new level of quantification and discipline to sales, marketing, and product development are the same ones that let companies build relationships and know customers in a more individualised way than ever before. Amazon has shown how an empire can be built by starting with the customer and working backward to the product.

NOTES FROM THE FRONT LINES

Lending platforms are proliferating. SoFi, known as the leader in student loan refinancing, also applies its nontraditional underwriting approach to mortgage and personal lending. Prosper claims to be the first peer-to-peer lending marketplace in the U.S., with more than 2.2 million lenders. It has shifted from its initial auction-style model to one using pre-set rates based on a loan pricing algorithm. Then there's Mogo, a Canadian start-up that wants to help people refinance credit-card debt by making low-interest loans available in three minutes. Orchard Platform builds on the trend by providing analytics that help hedge funds and institutional investors rapidly analyse and bid on the loans available in online marketplaces.

More liquidity for private investments. Platforms that are fueling the growth of markets for traditionally illiquid assets include Melting Point, which uses an auction model; SecondMarket, a platform and software provider that aims to streamline private security transactions; and Equity Zen, a marketplace for pre-IPO investments.

Lowered barriers to entry. E-commerce has lowered barriers to entry and opened doors for businesses of all stripes. In 2014, Amazon Marketplace had more than two million third-party sellers worldwide; they shipped more than two billion items and represented 40 percent of Amazon's total sales.[5] More than 1.4 million sellers of handcrafted goods were active on Etsy in 2014, some of them racking up six figures in sales.[6] A year later, Amazon launched a B2B marketplace as well as a product incubator called LaunchPad.

An expanding ecosystem. The growth of online platforms creates demand for related services, communication tools, analytics, and payment systems. PayPal was just the beginning, and now mobile money is a hot topic, now that nearly two out of three American adults have a smartphone and a majority of cell phone users access the Internet via their phones. While mobile users account for an estimated 27% of 2015 e-commerce sales in the U.S., mobile's share is even higher in the U.K. (29%), Germany (28%), according to Statista.[7] China's market is even more dominated by mobile transactions, which represent nearly half of 2015 retail e-commerce sales and almost 10% of all retail sales in the country.[8] Entrepreneurs are also using mobile phones to power lending, banking, and payment services in the developing world, where banking services are often lacking.

IMPLICATIONS FOR ASSET MANAGEMENT

Operational excellence will become even more critical to business success.

COMPETITIVE LANDSCAPE

A boon for start-ups. Online platforms are further levelling the playing field, advancing the trend that Schwab and other pioneers initiated two decades ago. Opportunities abound, especially in less liquid asset classes. New entrants can create an online presence without the expense and delay of building their own infrastructure from scratch. Savvy small players can appear alongside bulge-bracket firms in listings and search results. Start-ups can create an impression with the originality of their thinking or the elegant simplicity of their user interface, rather than the antique furniture and oriental rugs furnishing their offices. As the classic *New Yorker* cartoon put it, "On the Internet, nobody knows you're a dog."

DISTRIBUTION

Challenges and opportunities. As the field of competitors expands and the pace of change accelerates, intermediaries may find that they, too, are being disintermediated by infomediaries and others, and now face a whole new set of challenges. Investment organisations should also expect to see ongoing if not intensifying fee pressures. On the positive side, the barriers to investing in relatively illiquid asset classes are diminishing, creating opportunities to market new strategies and products. Retirement plans are another area of business conducive to disruptive new solutions.

OPERATIONS

Rising standards. As consumer demands generally increase and more firms vie for high net worth and institutional clients, operational excellence will become even more critical to business success. At the same time, online platforms bring a host of operational requirements as the cost of entry. To be competitive now, investment firms need infrastructure that allows

IMPLICATIONS FOR ASSET MANAGEMENT *(continued)*

for instant access to account data and documents, rapid information processing, and effective tools for self-service. To grow into new areas of business, they will also need a flexible and vehicle-agnostic operating platform. Depending on their operational readiness, this could require a major leap. Incremental improvements may no longer be enough.

SALES AND MARKETING

The human dimension. Technology gives investment firms a host of ways to target and connect with the kinds of investors they want. Yet there remain many investors who can't be adequately served by an asset allocation algorithm. Indeed, in a knowledge-driven business like asset management, creativity and the quality of engagement can be key differentiating factors. Firms that can effectively segment their markets, interact with investors in personalised, memorable ways—and help investors interact with each other—will have a distinct advantage. Particularly when it comes to marketing non-vanilla investment strategies, relevant educational material and bespoke content weight heavily in your favour.

BUSINESS STRATEGY

Plugging into platforms. As new technologies make more inroads into asset management, established firms are facing a classic case of the Innovator's Dilemma: Do they embrace disruptive technologies and business models, which may not be profitable for some time, could undercut current product lines, and may not succeed at all? Or do they stay on their current course and risk missing major opportunities while being leapfrogged by more agile competitors? As online platforms evolve and become increasingly important, this discussion becomes less theoretical and more immediate. Asset managers should keep a close eye on the emergence and growth of intermediary platforms, so they can make conscious decisions about where and how they can best plug into the trend.

Endnotes

[1] Walter Loeb, "10 Reasons Why Alibaba Blows Away Amazon and EBay," *Forbes*, 11 April 2014.

[2] Allen T. Cheng, "Yu'e Bao Wow! How Alibaba Is Reshaping Chinese Finance," *Institutional Investor*, 29 May 2014.

[3] Peep Laja, "People Comparison Shop, Stupid," *ConversionXL blog*, 9 November 2012.

[4] Tobias Lutke, "Mobile Now Accounts for 50.3% of All Traffic," *Shopify Blog*, 26 August 2014.

[5] Sarah Perez, "Amazon's Third-Party Sellers Ship Record-Breaking 2 Billion Items in 2014, but Merchant Numbers Stay Flat," *TechCrunch*, 5 January 2015.

[6] Harrison Weber, "Etsy now has 54M members," *VentureBeat*, 4 March 2015.

[7] "Mobile commerce spending as percentage of total e-commerce spending in selected global markets in 2015, by device," *Statista*, 2016.

[8] "Mobile Accounts for Almost Half of China's Retail E-commerce Sales," *eMarketer*, 30 July 2015.

5 TRENDS: **4**

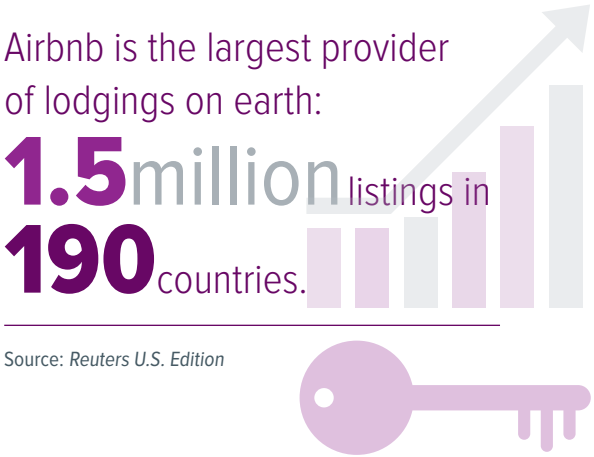
A fast-emerging business model points to new ways of creating value and gaining scale

Uberisation

Back in the 1970s and 1980s, asset management firms were textbook examples of vertical integration. They were often owned by banks and brokerage firms, mostly sold proprietary funds, and competed to build the best research, portfolio management, and operating teams.

Since then a host of developments have fundamentally altered the industry landscape. The rise of turnkey asset management platforms (TAMPs)–currently led by Envestnet, SEI and AssetMark[1]—encouraged more specialisation among managers and has reshaped distribution, sales, and marketing strategies.

Since Schwab introduced OneSource in 1992 independent managers have thrived, ushering in the era of open architecture. The unbundling of 401(k) plans has created new opportunities in areas such as DCIO services (defined contribution-investment only). Investment firms have increasingly outsourced operations, certain types of research, and various specialised tasks to service providers who can add value and efficiency.



With the growing popularity of specialised and alternative investment strategies, they have also increased their use of subadvisers and are now packaging their expertise in new ways. Yet through it all, the basic model of the vertically integrated investment organisation has remained essentially the same.

START THINKING HORIZONTALLY

Now, however, more radical change is in the air. Continuing fee pressures, on top of escalating competition, costs, and regulation, are pushing asset managers to rethink and retool their value chains. Meanwhile, companies outside the investment management industry are showing how it might be done.

Uber and Airbnb provide two notable examples. These companies are deconstructing the traditional value chains in their industries to create new technology-enabled business models centred on enlisting the capabilities, assets, or knowledge of others. They gain a competitive advantage not only by offloading many tasks and costs, but also by being more nimble, flexible, and customised in their delivery of services.

Uber remade the local taxi company into a global ride-sharing service that doesn't employ drivers or own vehicles. Airbnb has become the largest provider of lodgings on earth, offering 1.5 million accommodations listings in 190 countries.[2] Both companies have become known for both their rapid, large-scale market effect and their eye-popping valuations. And while it's true that both Uber and Airbnb have run into the buzz saws of public opposition and proposed regulation, it hasn't halted their momentum or dimmed the loyalty of millions of satisfied customers.

Some have described Uber and Airbnb as harbingers of a "sharing economy," or "the gig economy," based on their use of other people's assets and their reliance on independent contractors. Indeed, labour statistics show that a steadily rising share of Americans are working on a freelance basis, a trend that could have far-reaching effects on employment practices, income patterns, and even asset flows.

THE RISE OF THE NETWORK ORCHESTRATOR

But a recent article in the *Harvard Business Review* suggests a concept that may be even more useful to innovation-minded management teams—that of the "network orchestrator."[3] The authors apply that label to companies that "create a network of peers in which the participants interact and share in the value creation," whether by selling products or services, building relationships, sharing advice and reviews, or collaborating in product creation. It's a category that takes in companies as varied as Red Hat, eBay, TripAdvisor, Facebook, Etsy, Pinterest, and Visa.

Working with Deloitte consultants, the authors classified S&P 500 Index companies going back to 1972 according to four types of business models and analysed their long-term performance. Their study led to a surprising conclusion: Compared with companies in the other categories, including asset builders, service providers, and technology creators, network orchestrators created more value, outperforming based on compound annual growth rate and profit margin, among other metrics. As of 2013, companies in this category also had a price-to-revenue ratio two to four times higher, on average, than companies with other business models. Moreover, this valuation gap had steadily widened over the previous decade.

As of 2013, network orchestrators had a price-to-revenue ratio two to four times higher, on average, than companies with other business models.

What's behind this "network effect"? The authors attribute it to the lower marginal costs of creating value through networked capabilities; Uber-style platforms have inherent advantages of scalability. Network orchestrators currently represent a small fraction of firms in the overall economy, and the study's findings don't tell us how many platforms were launched and failed. Still, the business model has the potential to boost the quality of a company's products and services through service enhancements, like speed of delivery, personalisation, convenience, and other custom features.

The success of network-leveraging firms calls into question the traditional model of the fully integrated investment organisation. Does it still make sense? Could asset managers gain a competitive advantage by shifting more pieces of their value chain to others? Industry surveys show that subadvisery arrangements and operational outsourcing have grown significantly over the past two decades. What about distribution, research, technology, and product development?

Barriers to entry have always been relatively low in the asset management industry. Executives who are seeking ways to grow and gain profitability may find that networked business models can lower the barriers to sustainable growth. With today's computing platforms, companies can easily connect with talent and resources far beyond organisational bounds. Start with the fundamental question: What are we really good at? Make that your core business, then leverage the networks for everything else.

NOTES FROM THE FRONT LINES

Many variations. Business models based on networked or distributed capabilities come in many flavors, and they are penetrating a variety of industries. For example:

- Bloom Energy sells technology that generates power at user sites, freeing customers from the energy grid.
- Online rental services are another facet of the trend. Companies like Zipcar and Rent the Runway let consumers go online and rent a car or a designer ensemble when they need it, rather than paying the costs of ownership.
- Now there's even an Uber for doctors. If you live in Los Angeles or San Francisco, a start-up called Heal is on call 12 hours a day, and promises to send a doctor to your home within an hour for a flat fee of $99. It plans to expand to another 15 cities by the end of the year.

In July 2015, Uber was valued at
$50billion
And, Airbnb raised an additional
$1.5billion
based on a valuation of
$25.5billion.

Source: *The Wall Street Journal*

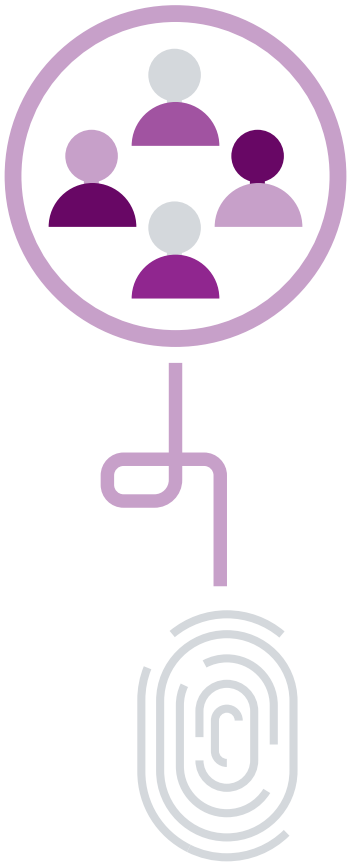
By 2020, freelancers will account for
40–50%
of the workforce.

Source: Intuit

Reimagining work. More than 53 million Americans—about one in three U.S. workers, including seasoned professionals in areas such as law, consulting, and design—now work as freelancers, independent contractors or temps.[4] Moreover, 80% of corporations report using what the government calls "contingent workers."[5] Platforms like Upwork, Toptal, and Elance are facilitating the trend. Studies by Intuit and other researchers predict that freelancers will account for 40% to 50% of the workforce by 2020.[6]

Investors see the potential. In July 2015 Uber became the second privately funded company, after Facebook, to reach a $50 billion valuation—but Uber did it two years faster than Facebook.[7] Meanwhile, Airbnb has been out raising another $1.5 billion in private funding based on a $25.5 billion valuation.[8] As for Alibaba, its September 2014 IPO raised $21.8 billion, setting a new record in the U.S. Although its stock has lagged since, the company's leaders—and many investors—are taking a long-term view.

IMPLICATIONS FOR ASSET MANAGEMENT



BUSINESS STRATEGY

Overcoming inertia. Up until now, many firms have seen little reason to upend their business models. But the rise of cost-advantaged competitors such as robo-advisers, coupled with ongoing fee and margin pressures, may push investment organisations to reconsider.

PRODUCT LAUNCHES

Turnkey mutual fund structures. Launching a new mutual fund in the U.S. can be a complex and costly proposition, especially for firms that don't already manage '40 Act funds. (Just ask hedge fund managers who have repackaged their strategies as liquid alts.) But there are alternatives to a DIY mutual fund launch. Specialised turnkey solutions such as a series trust provide managers with a complete fund infrastructure including an independent board of trustees, compliance program, distribution, and fund operating services. Besides being potentially more cost-effective, an outsourced approach can help firms get funds up and running more quickly.

HUMAN RESOURCES

A global talent pool. The rise of the gig economy gives investment firms a reason to reassess how they fill their need for workers. There's no doubt that a "distributed" workforce can significantly cut labour costs, which often equate to as much as 40% to 50% of total asset management revenues. Nor is the freelance trend limited to service and clerical workers; it is also being embraced by professionals who prize the variety, flexibility, and low overhead offered by working through an on-demand platform. At the same time, as Uber has discovered,

IMPLICATIONS FOR ASSET MANAGEMENT *(continued)*

firms need to be aware of independent contractor regulations to ensure they do not run afoul of tax and labor laws. Firms can now recruit talented professional contractors from anywhere in the world,[9] though some firms still prefer to hire employees for activities that involve investor contact or could affect the firm's reputation. You'll want to consider an approach that gives you the best of both models.

PRODUCT DEVELOPMENT

New retirement solutions? Among the side effects of a gig economy is an increase in the share of workers who aren't eligible for 401(k) or other employer-sponsored retirement plans. Given the magnitude of the shift toward independent workers, it will likely have some effect on retirement assets—perhaps a significant one. It may also bring opportunities to create new retirement solutions tailored to the workforce of the future, such as standalone 401(k) plans.

Endnotes

[1] The Trust Advisor, "2015: America's Best TAMPs," April 2015.

[2] Heather Somerville, "Exclusive: Airbnb to double bookings to 80 million this year," *Reuters U.S. Edition*, 28 September 2015.

[3] Barry Libert, Megan Beck Fenley, and Jerry Wind, "What Airbnb, Uber, and Alibaba Have in Common," *Harvard Business Review*, 20 November 2014.

[4] Susan Adams, "More Than a Third of U.S. Workers Are Freelancers Now, but Is That Good for Them?," *Forbes.com*, 5 September 2014.

[5] Intuit, "Intuit 2020 Report: Twenty Trends that Will Shape the Next Decade," October 2010.

[6] Ibid.

[7] Douglas Macmillan and Telis Demos, "Uber Valued at More Than $50 Billion," *The Wall Street Journal*, 31 July 2015.

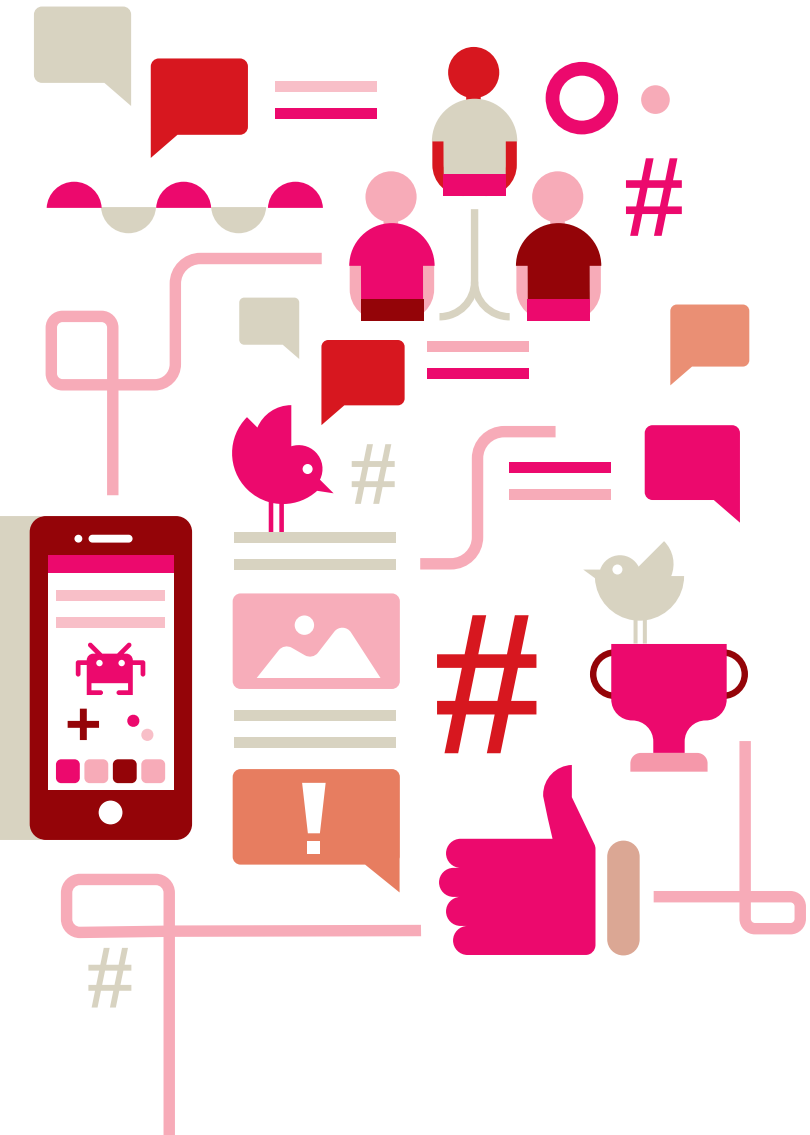
[8] Telis Demos, "Airbnb Raises $1.5 Billion in One of Largest Private Placements," *The Wall Street Journal*, 26 June 2015.

[9] However, as Uber has discovered, firms cannot directly train independent contractors or dictate their daily activities without running afoul of tax and labour laws. New guidelines from the U.S. Department of Labor establish even stricter limits on which workers can be designated as contractors.

5 TRENDS: 5

Technology has transformed how businesses communicate with—and learn from—their customers

Twitterisation



It has been nearly a decade since Twitter came on the scene—time enough for us to see the power of technologies that let people connect and share on a mass global scale. It's not just about cats and celebrities. Twitter has famously fomented political uprisings, broken national news, moved elections, aided diplomacy, fueled consumer movements, lifted brands, facilitated disaster response, and propelled careers. On average, Twitter users now generate some 350,000 tweets per minute on every topic under the sun.[1]

Twitter is emblematic of the vast social media ecosystem that is rapidly growing around personal and business relationships (Facebook, LinkedIn), images (Pinterest, Instagram, Snapchat), videos (YouTube, Vine), real-time streaming (Periscope), information-sharing (Dropbox, Evernote), and blogging (Medium).

New platforms crop up virtually every week. Facebook alone connects more than 1.5 billion people around the globe,[2] and there are now more than 7.2 billion mobile devices in the world—more devices than there are people.[3] That's notable because more than 60% of the time spent on social media is via mobile.[4] As much as we now take social media for granted, it's still remarkable we can now connect with almost anyone in the world, as long as there's an Internet connection.

Even Pope Francis is on Twitter, tweeting in nine languages. He registers more retweets than any other world leader, indicating deep engagement with his 19.5 million followers.[5]

MEANINGFUL CONVERSATIONS CREATE VALUE

New media, the world of interactive content available digitally and on demand, is a different animal from social media, but the relationship is one of tight symbiosis. News aggregation and sharing sites like Buzzfeed, Tumblr, the Huffington Post, Reddit, and Business Insider are information accelerators and amplifiers that can make a bit of news or commentary go viral, expanding its reach exponentially in a matter of hours.

For businesses, the lure of digital communication is undeniable. Before the rise of social platforms and interactive digital media, corporate communication was generally a one-way street; even websites and email are mainly broadcast media that offer limited interactivity. Social media exploded those limits, empowering even big, anonymous corporations to have meaningful conversations with their customers, employees, partners, colleagues, and the world at large. Not only can companies tell their brand story in a whole new way, they can learn and collect data from their customers to make that story even more compelling.

It's no wonder that many consumer-facing companies have jumped into new media and social media with gusto. The business world has rapidly embraced social platforms as essential tools for brand-building, customer engagement, and market research. Companies have quickly learned to respect the ways social media empowers their customers. "Social media is far more than a set of networks," explains Curtis Hougland, co-founder of the not-for-profit social media agency Ideaology. "It is a behaviour, one

in which people act on a biological imperative to share and socialise; an organising principle by which people self-organise by increasingly diverse affinities; and an operating system by which middlemen (such as marketers) are universally disintermediated."[6]

Operating in a highly regulated environment and by nature wary of external risk factors, investment firms have been much slower to venture into social media. As recently as 2013, PwC found that four in 10 asset managers were "not active" on social networks, opting to take a "wait and see" approach instead.[7]

81%
of financial advisers use social media;
79%
have gained new cients as a result.

Source: Putnam Investments

LOOSENING RESTRICTIONS

Now the investment industry is catching up to the trend. Even the SEC and FINRA have shown enthusiasm for social media, officially recognising their value in helping educate investors and prevent fraud. Portfolios managers are increasingly tapping Twitter's potential as a treasure trove of investment insight—a rich back channel in a world where most markets are efficient and analyst reports get instant global distribution.

Even among firms that still strictly limit what they say on Twitter or LinkedIn, there is growing use of social media to build relationships and attract new clients. Indeed, a 2015 survey by Putnam Investments found that 81% of financial advisers are now using social media (up from 75% the previous year), and 79% said they had gained new clients as a result.[8] The trend isn't limited to the retail investment arena, either. A recent Greenwich Associates global survey found that four out of five institutional investors frequently use social media platforms at work. Of those, nearly one in three said the information has influenced their investment decisions.[9]

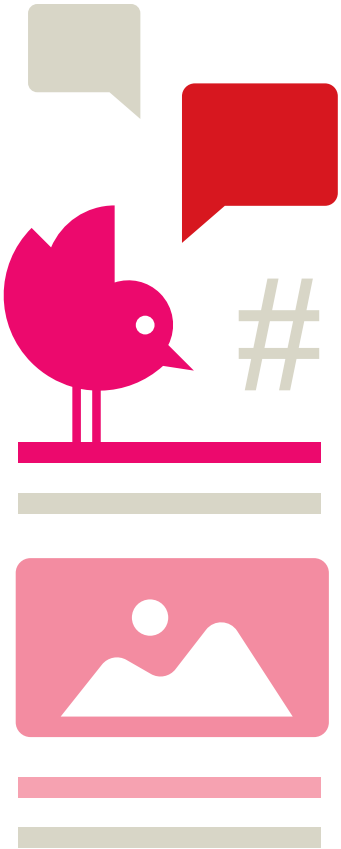
This is not to say that financial advisers are busy posting infographics on Snapchat. Their use of social media may still centre on LinkedIn, with some use of Twitter and Facebook. But industry surveys do show that social media are steadily penetrating the financial services industry, too.

Where will asset managers go with social media from here? If they follow the lead of digital pioneers such as Nike, Southwest Airlines, and Starbucks, they will get creative, exploring myriad ways they can use the power of online networking to:

Listen at scale. The more advanced companies are not only looking at customer characteristics, but are also delving into the emotional motivators that drive consumer behaviour and feelings of connection with a brand (including factors that customers themselves aren't aware of).

Elevate the client experience. When a senior executive responds to a suggestion or complaint on social media, the company broadcasts its commitment to customer service more effectively that any policy does. Capital One has won kudos for responding to virtually every comment customers make on its Facebook and Twitter pages.[10]

Provide input to product development and process improvement. Social networks can function as expanded focus groups, making it easier to test and refine ideas for new products or features. Barclaycard, for example, gives its customers status rewards when they suggest or vote on ideas for new credit card features. Internally, they can operate as large-scale quality circles.



Turbocharge content-marketing strategies. Goldman Sachs ties its corporate website, Twitter, LinkedIn, and YouTube posts together with a rich stream of content that humanises the company, showcases its creative thinking, and demonstrates the firm's influence around the world. Just as journalists use Twitter to stay on top of breaking news, research stories, and distribute content, so can you.

Use corporate data to engage interest and enrich storytelling. *Harvard Business Review* calls it "brand journalism," citing GE as an example of a company that uses internal and customer data to generate fresh content that engages diverse audiences and draws media interest. Among GE's secrets: Use infographics to sum up data, tie into current news hooks, and tell stories through people rather than products.

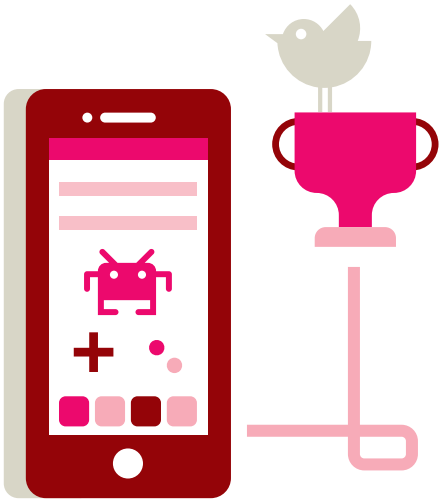
Accelerate employee collaboration and innovation. Allstate uses "innovation blitzes" to engage employees across the company to solve business problems. IBM has its own employee version of Facebook and more than 17,000 internal blogs. In place of its old top-down approach to publication on its intranet, the company also has 300 authorised publishers who can freely post content in more than a dozen languages on a variety of topics.

Being social entails risks that can't be ignored. But failing to tap the power of social networks is risky, too. Some companies may choose to opt out, but there's a good chance their competitors won't.

NOTES FROM THE FRONT LINES

Sentiment-driven investing. iSentium, Dataminr, and U.K.-based TheySay are in the growing ranks of firms that sift tweets from traders, investors, and analysts for market insights and investment signals, selling their indicators to banks, hedge funds, and high-frequency traders. These firms use a variety of language-analysis approaches to score sentiment and discern subtle trends. Twitter itself sells data directly to businesses for their own analysis. The prospects for sentiment-based investment funds remain to be seen.

More cost-effective sales and marketing. Being adept at social media can save you money. As early as 2010, Procter & Gamble, the nation's largest advertiser, was paring traditional ad budgets in favour of campaigns on Facebook and other social media. Many big companies are now on the same path, such as Nike which reallocated a sizable share of ad dollars to online community-building. As *Advertising Age* put it in its 2014 ad spending report, blue-chip marketers are "doubling down on digital" to get "more bang for their billions of bucks."

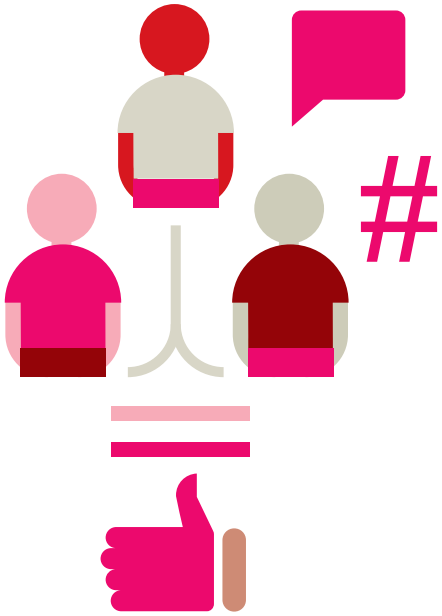


There are a growing number of firms that sift tweets from traders, investors, and analysts for market insights and investment signals.

Social investing platforms. Founded in 2006, just a year after the term "crowdsourcing" was coined by two editors at *Wired*, Covester was among the first to let investors follow and mimic the portfolios of others based on their investing styles and track records. A variety of other social investing platforms such as Open Folio, Tip'd Off, Stocktwits, and eToro have since launched, banking in part on the concept's appeal to Millennials.

Let the games begin. The gamification of marketing campaigns, content, employee training, and even crowdsourced idea generation is an evolving trend that seems here to stay, based on the real-world business results it is driving. For example, the Spanish bank BBVA rewards customers who use its e-banking with points they can redeem for gifts or contest entries. "ChoreWars" is a tool for running employee contests or turning mundane tasks into more engaging competitions. In a somewhat different vein, an Austrian bank created a bank branch "sim" game that top managers could use to explore ideas for the bank of the future.

IMPLICATIONS FOR ASSET MANAGEMENT



BUSINESS MANAGEMENT

A shift in orientation. Like most companies, asset management organisations have been largely focussed on internal data—performance, financials, operations, sales, and marketing. The challenge now is to think more externally. Innovation-minded companies are increasingly employing data scientists to gather and interpret large amounts of data to reveal not only what clients and employees are thinking, but what they're feeling. Social networks are enabling a new science of client and employee engagement.

SALES AND MARKETING

Investor education and outreach. Investor education is a vital concern for money managers, especially with the proliferation of more complex investment strategies. Social networks allow firms to develop layered educational approaches that are highly specific and segmented, yet have broad reach and low distribution costs. Thanks in part to the 2013 JOBS Act, which eased some of the longstanding bans on the marketing of private securities, even hedge funds are using social media to build and differentiate their brands. Researchers estimate that 20% of hedge funds will be on Twitter and 75% will be on LinkedIn by the end of 2015.[11]

Endnotes

[1] "Twitter Usage Statistics," Internet Live Stats, 26 January 2016.
[2] "Facebook: number of monthly active users worldwide 2008-2015," *Statista*, January 2016.
[3] Zachary Davies Boren, "There are officially more mobile devices than people in the world," *Independent*, 7 October 2014.
[4] Emily Adler, "Social Media Engagement: The Surprising Facts About How Much Time People Spend on the Major Social Networks," *Business Insider*, 26 September 2014.
[5] AP, "Pope Francis Is Still the Most Influential World Leader on Twitter," *Huffpost Religion*, 28 April 2015.
[6] "Imagine There's No Marketing...'It's Easy If You Try'," *Knowledge@Wharton*, 12 November 2015.
[7] Caceis Investor Services & PwC, "Asset Management in the Social Era," June 2013.
[8] Putnam Investments, "Financial advisors and social media," September, 2015.
[9] Greenwich Research, "Institutional Investing: How Social Media Informs and Shapes the Investing Process," 16 April 2015.
[10] Chanelle Bessette, "Fortune 500: The top companies using social media," *Fortune Magazine*, 2 June 2014.
[11] MBC Strategic, "Hedge Fund Social Media Usage Set to Increase to 75% Among Leading Funds," 24 February 2015.

The way forward

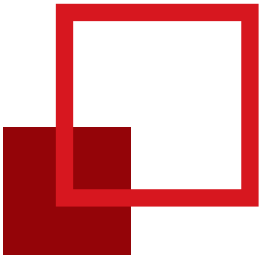
A call to action

On one level, our thoughts on innovation and the investment industry are descriptive rather than prescriptive. Technology's unfolding effects on the asset management business are large-scale and pervasive. Each investment firm must assess for itself how emerging disruptions might affect its business, and where its most compelling challenges and opportunities may lie:

- Could **portfolio management** be redefined, as cognitive computing and advanced analytics give asset managers new ways to pursue investment outcomes? **No one is predicting that portfolio managers will become obsolete anytime soon, but the job description could morph significantly over time.** Robo-advisers are the leading edge of what promises to be a much broader trend toward automation of more aspects of investment research and decision making—one which could significantly alter the industry's economics and product lines.
- **Distribution** is likewise being reshaped by data-driven strategies and the rise of online platforms. New competitors will pose challenges, but powerful analytical tools will equip asset managers to better understand and take advantage of a changing distribution environment. **Some shift away from the industry's traditional vertical integration is already evident**

in the growth of subadvisers. It may not take long for investment firms to apply Uber-like strategies to functions such as wholesaling, and we may even see steps toward more radical reinvention of asset management business models.

- The **investor experience** is another area ripe with potential. As investment firms advance their big data capabilities, they will be able to delve much more deeply into investor preferences and behaviour. Social media in particular offer a rich trove of insights as well as new channels for investor engagement. Aided by new technologies such as facial recognition and interactive media, asset managers will be able to tap into what the *Harvard Business Review* calls "the new science of customer emotions." **Rapid advances in virtual reality systems will make it possible to give investors new and more immersive ways of interacting with portfolio data and investment ideas.** Fidelity took a step along this path in late 2014, when it introduced Stock City, which uses the head-mounted Oculus Rift VR system to give investors a customised visualisation of their holdings styled as an urban landscape.

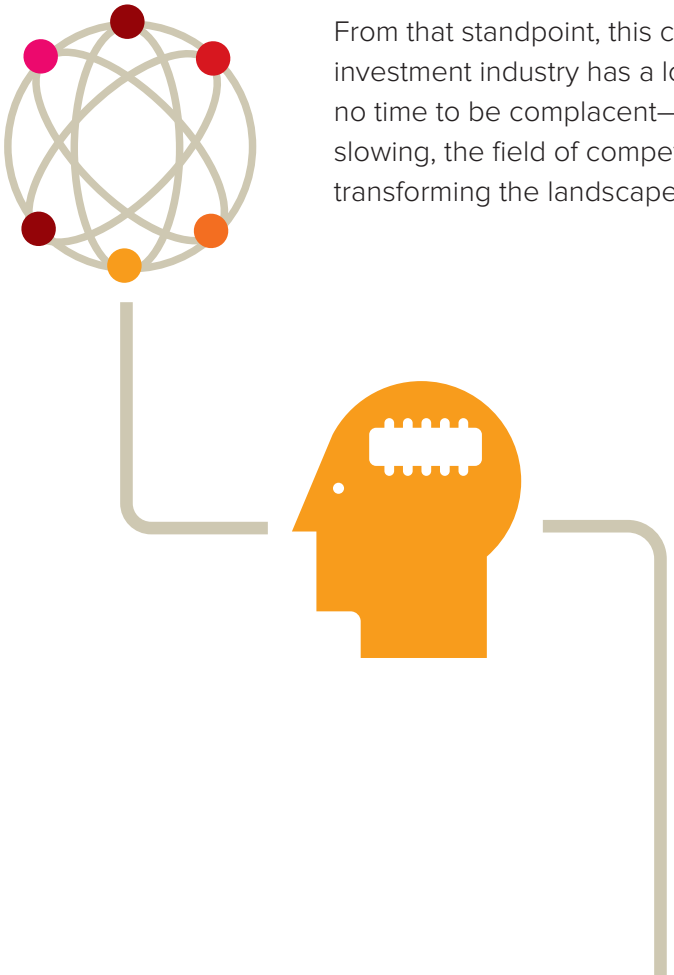


- **Scale** may become a more significant competitive factor as technology increasingly permeates the investment industry. **In many other areas of commerce, we already see competition narrowing down to one or two winners.** *The New Yorker* recently pointed out that, that Google, Facebook, and Amazon aren't the only companies that dominate their markets.[1] Think of Airbnb in short-term lodging rentals, Spotify in music streaming, and Uber and Lyft duking it out in the on-demand ride-sharing market. Partly, this is the network effect at work—the way the value of a platform or service can increase with the number of people using it (the telephone system is an early example). But this kind of dominance also has to do with owning technology infrastructure, being able to access big data, and having the resources to invest in innovation. This is not to suggest that smaller investment firms can't be competitive or find profitable niches. However, with the growing complexity, globalisation, and regulation of the industry, bigger players may hold some important advantages.

- As **operating platforms** continue to evolve, **the growing refinement and speed of operations can be as much a source of strategic and competitive advantage for investment managers** as they have been for the Walmarts and Amazons of the world. Operating data are an untapped source of opportunities to improve middle office functions, regulatory compliance, and the investor experience. Evolving regulatory requirements, such as FATCA reporting and the SEC's proposed liquidity rules, are already putting increased demands on analysis of operating data. It behooves investment firms to move proactively in this direction.
- Investment firms are being pushed to **recruit and empower people** with skill sets that fit the new competitive environment. **High-level data scientists and algorithm developers are now a must-have.** CEOs are also increasingly viewing IT less as an internal service function and more as a strategic resource that should have close ties to the executive suite.

To benefit from these developments, however, investment organisations will need to go beyond incremental improvements to the status quo. Moreover, to stay ahead of disruptive forces we will need to move swiftly.

From that standpoint, this commentary is an unequivocal call to action. The investment industry has a long and impressive record of success. But this is no time to be complacent—not when the engines of the industry's growth are slowing, the field of competitors is rapidly widening, and technology is transforming the landscape for every business.



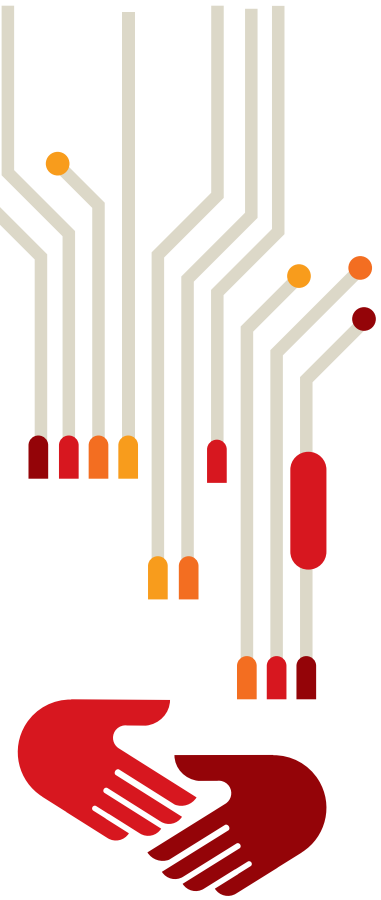
IT is increasingly seen less as an internal service function and more as a strategic resource that should have close ties to the executive suite.

Understanding the potential for technology trends to disrupt your business model is the essential first step to putting your business on the path to innovation—and greater competitiveness. The ground may be shifting under our feet, but for the innovative thinker, fresh opportunities can be spotted among the serious challenges. Each investment firm should begin by assessing the following areas where technology is having an effect:

Innovation must become an everyday concern. Setting out to be more innovative is akin to resolving that you want to live a healthier lifestyle. Your level of success doesn't rely on a few one-time decisions; it's the product of many day-to-day choices and actions. The same is true of thinking more innovatively and creating a culture of innovation. These are less top-down corporate initiatives than they are a way of being. As a result, investment organisations that want to thrive and grow can't afford to relegate the topic of innovation to strategic planning sessions, management committees, or the occasional conference. **A culture of innovation must be embedded in, and inform, daily thinking and decision making**, in the executive suite, on every management level, and in every operational unit.

A conscious shift in mindset is needed. Phrases like "think different" and "outside the box" have already become tired and stale. Still, if we want to stay abreast of change, let alone lead it, investment firms must think beyond our accustomed methods, business models, and competitive landscapes. Among other things, we need to become more familiar with what is called "design thinking," a **method of problem solving that creatively explores many different avenues of improvement rather than analytically approaching a narrowly defined problem.** Since innovation is notoriously difficult to predict, design thinking allows us to respond flexibly to changing conditions. Innovative new ideas and developments are groundbreaking precisely because they

> "The roots of great innovation are never just in the technology itself. They are always in the wider historical context. They require new ways of seeing."[2]
>
> —David Brooks

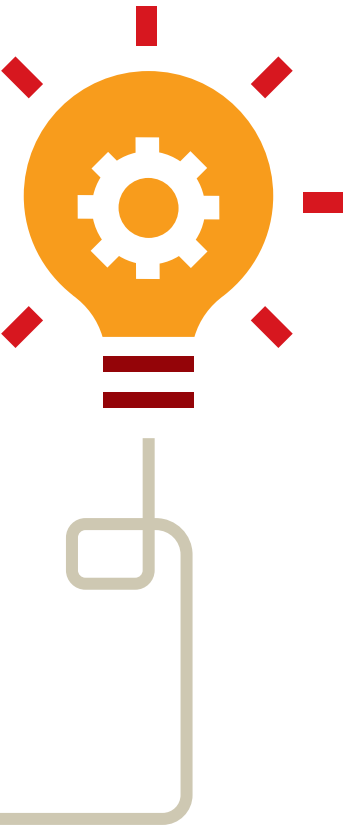


do something unexpected. As *The New York Times* columnist David Brooks observed, "The roots of great innovation are never just in the technology itself. They are always in the wider historical context. They require new ways of seeing."[2]

It's not just about technology and data. Technologies are innovative only as they meet real human needs and become integrated into our behaviour. The investment business has human and emotional dimensions that behavioural finance only begins to address. Similarly, while businesses are increasingly data-driven, data alone won't lead us to innovation. As *Fortune* editor Geoff Colvin points out in *Humans Are Underrated*, collective goals can only come from humans working together. It's **when humans, technology, and data are brought together in a framework of exploration and problem-solving** that the magic can happen.

We need more bridges to other industries and disciplines. Many of today's disruptors and competitors are springing up from the industry's margins or from firms in the technology sector. To better navigate the competitive landscape, our industry has to become less insular and more connected to the wider world. We also need to broaden the credentials and experience we consider relevant to investing. Specialised expertise has been integral to our success, but too much of a good thing could hamper our competitiveness. We should make room for **generalists who understand the industry, but can also broaden our perspectives and skills in areas like data science, psychology, communication, and marketing**. It's encouraging to note that cross-fertilisation seems to be picking up lately. Some investment firms have begun looking for talent in Silicon Valley, and both Alphabet (Google's parent company) and Alibaba have recently lured executives from Wall Street.

All parts of our business offer fertile ground for advances. Technology and data can be harnessed to virtually any objective. Our industry has excelled in using algorithms and other mathematical approaches to reinvent functions such as portfolio management, trading, and risk analysis. But some other elements of our value chain haven't received the same focus. For example, our industry is just beginning to tap into **the science of understanding investor preferences**. Indeed, we at SEI keep pursuing our expanding vision of what an operating platform can do. We believe the full power of operations has yet to be unleashed in our industry.



Ideas can come from anywhere. That's why there is no one "right way" to pursue innovation. Companies use many different approaches—dedicated innovation centres, internal blogs, contests, intensive brainstorming sessions—you name it. Whilst R&D traditionally has been managed from the top down, companies are learning that innovation can also begin with employees or customers. Taking a page from leading venture capitalists, who cull a handful of investments from thousands of pitches in hopes that one of them will become a "unicorn" worth billions, some firms use a "small bets" approach. That is, they take a **number of diverse, concrete actions to discover, develop, and test ideas that are achievable and affordable**. As Clayton Christensen's notion of the innovator's dilemma reminds us, large companies that only want to address what are already billion-dollar markets may overlook the low-end opportunities and nascent trends that could produce the next big disruptors.

Innovators take the long-term view. Innovation almost always coexists with failure. This is why companies bent on innovation are always pursuing a varied portfolio of ideas. The poster child for this approach may be Google, which reorganised itself as Alphabet, a holding company that can oversee the company's decidedly mixed bag of ventures while giving each one room to develop. Successful innovators also recognise that **payoffs, if any, may be a long time coming**. Rather than screening ideas in terms of the expected return on development efforts, they ask themselves, "How much can we afford to spend in order to learn something useful?" In this context, failures are to be expected, and even welcomed as learning opportunities, so long as losses are manageable and limited.

Industry-level leadership is crucial. It is time for investment industry participants to step up to the innovation challenge and put some **serious brainpower, energy, and momentum** behind the effort. Investment organisations will need to find their own paths, but research, discussion, and debate by industry groups could do much to support and accelerate the efforts of individual firms. Industry-level collaboration could also help germinate big ideas and strategic partnerships—perhaps even some that extend beyond our industry.

Endnotes

[1] Om Malik, "In Silicon Valley Now, It's Almost Always Winner Take All." *The New Yorker*, 30 December 2015.
[2] David Brooks, "Where Are the Jobs?" *The New York Times*, 6 October 2011.

This time, it **is** different.

Of course, it would not be difficult for successful, growing asset managers to dismiss all this talk of disruption and innovation as overblown. It's certainly true that throughout the history of our industry, it has been continually reshaped by a variety of economic, social, and technological forces.

But even though the phrase "this time it's different" has been labelled "the four most dangerous words in investing" by no less an industry figure than Sir John Templeton, we contend that in many ways, things are different now. Our business is being buffeted by powerful external forces that are transforming the global economy—indeed, our very way of life. At the same time, **the forces that have long fueled our success are ebbing or shifting,** putting our framework of business assumptions into disarray. And all of this upheaval is happening at such an accelerated pace that management teams can scarcely keep abreast of the changes, let alone adapt to them. This is why we believe the **future of the investment industry will depend on asset managers' intention and capacity to innovate.**

We at SEI are proud of our own culture of innovation—one that began in 1968, when our company was founded and introduced the industry's first automated bank trust system. One could even say that SEI was arguably one of the world's first fintechs. Our history traces a variety of advances in the decades since. But, as we are well aware, competitiveness is not just a matter of what you've done, it also depends on what you're prepared to do next.

One goal of this innovation review was to highlight—for ourselves, our clients, and asset managers of all kinds—just how rapidly the industry's competitive landscape is being reshaped—and how much is at stake as we work to adapt. Recognising that this has only scratched the surface, we hope it will help spark much more dialogue, and perhaps even lead to some ongoing action by investment firms or industry groups.

About SEI

SEI (NASDAQ:SEIC) is a leading global provider of investment processing, investment management, and investment operations solutions that help corporations, financial institutions, financial advisers, and ultra-high-net-worth families create and manage wealth. As of 31 March, 2016, through its subsidiaries and partnerships in which the company has a significant interest, SEI manages or administers $684 billion in mutual fund and pooled or separately managed assets, including $265 billion in assets under management and $419 billion in client assets under administration. For more information, visit **seic.com**.

SEI Investment Manager Services

SEI's Investment Manager Services division supplies investment organisations globally with the advanced operating infrastructure they must have to evolve and compete in a landscape of escalating business challenges. SEI's award-winning global operating platform provides asset managers with customised and integrated capabilities across a wide range of investment vehicles, strategies and jurisdictions. The division's business infrastructure spans operating functions, product types and asset classes by applying customised operating services, industry-leading technologies, and practical business and regulatory insights to each client's business objectives. SEI's resources enable investment managers to gain scale and efficiency, keep pace with marketplace demands, and run their businesses more strategically.

SEI services more than $850 billion in assets and has a global workforce of approximately 1000 industry specialists. Our clients are leading traditional, alternative, and sovereign wealth managers who understand that operational competitiveness lies at the core of business success. They currently represent more than $15 trillion in assets, including 32 of the top 100 money managers worldwide, according to *Pensions & Investments' 2015 Largest Money Manager Ranking*. For more information, visit **seic.com/imservices**.

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The SEI Knowledge Partnership is an ongoing source of action-oriented business intelligence and guidance for SEI's investment manager clients. It helps clients understand the issues that will shape future business conditions, keep abreast of changing best practices and develop more competitive business strategies. The SEI Knowledge Partnership is a service of the Investment Manager Services unit, an internal business unit of SEI Investments Company.

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