

# **The Shift Index**

**Uncovering the Emerging Logic of Deep Change**

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Download the report: [Measuring the forces of long-term change: The 2009 Shift Index](#)

A global economic crisis. Gyration capital markets. Blue chip companies in bankruptcy. How did we get into this mess?

The causes are complex, but underlying many of them is the ascendancy of short-term thinking and behavior. Mortgage lenders, consumers, regulators, real estate speculators, investors—during the long boom, just about everybody chose near-term results over long-term costs.

Is it any surprise many of our current models, forecasts, and assumptions anticipate a “return to normal” after the Great Recession ends? Such cyclical thinking risks shortsightedly discounting or even ignoring powerful forces of longer-term, secular change—forces that are increasingly undercutting widely held assumptions about the sources of economic value.

“Normal” may in fact be a thing of the past. Trends set in motion decades ago are fundamentally altering the global landscape as a new digital infrastructure, built on the sustained exponential pace of performance improvements in computing, storage, and bandwidth, progressively transforms our business environment. This infrastructure consists of institutions, practices and protocols that together organize and deliver the increasing power of digital technology to business and society.

While the core technologies underlying previous disruptions—the Bessemer steel process, the Siemens electrical generator, the automobile—all had one big performance breakthrough and then very modest performance improvements thereafter, today's core technologies continue to evolve at an exponential rate. As they do, the discontinuities that in the past occurred infrequently now erupt on a continuous basis, driven by a digital infrastructure that shows no prospect for stabilization.

No one, to our knowledge, has yet quantified the dimensions of deep change precipitated by this Big Shift. By deep change, we want to highlight that not all long-term change is equally important. In trying to understand the Big Shift, we focus on the

changes that will have the greatest long-term impact in re-shaping the game in terms of who succeeds and who fails.

In terms of understanding long-term change, fragmentary metrics and sporadic studies exist, to be sure. But nothing yet captures a clear, comprehensive, and sustained view of the deep dynamics changing our world. We experience instead a daily bombardment of short-term economic indicators—employment, inventory levels, inflation, commodity prices, etc.

Cyclical measures will always be necessary and helpful—but they are no longer sufficient. In an attempt to supplement these short-term metrics we've developed a Shift Index designed to measure the velocity and magnitude of the longer-term, secular forces re-shaping the world around us.

Our first release of the Shift Index highlights a core performance challenge for the firm that has been playing out for decades. Remarkably, the return on assets (ROA) for U.S. firms has steadily fallen to almost one-quarter of 1965 levels at the same time that we have seen continued, albeit much more modest, improvements in labor productivity. Additional findings include the following:

- The ROA performance gap between winners and losers has increased over time, with the “winners” barely maintaining previous performance levels, while the losers experience rapid deterioration in performance.
- The “topple rate,” at which big companies lose their leadership positions, has more than doubled, suggesting that “winners” have increasingly precarious positions.
- U.S. competitive intensity has more than doubled during the last 40 years.
- While the performance of U.S. firms is deteriorating, the benefits of productivity improvements appear to be captured in part by creative talent, which is experiencing greater growth in total compensation. Customers also appear to be gaining and using power as reflected in increasing customer disloyalty.
- The exponentially advancing price/performance capability of computing, storage, and bandwidth is driving an adoption rate for our new “digital infrastructure”<sup>1</sup> that is two to five times faster than previous infrastructures, such as electricity and telephone networks.

Given these long-term trends, we cannot reasonably expect to see a significant easing of performance pressure as the current economic downturn begins to dissipate—on the contrary, all long-term trends point to a continued erosion of performance.

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<sup>1</sup> More than just bits and bytes, this digital infrastructure consists of institutions, practices, and protocols that together organize and deliver the increasing power of digital technology to business and society.

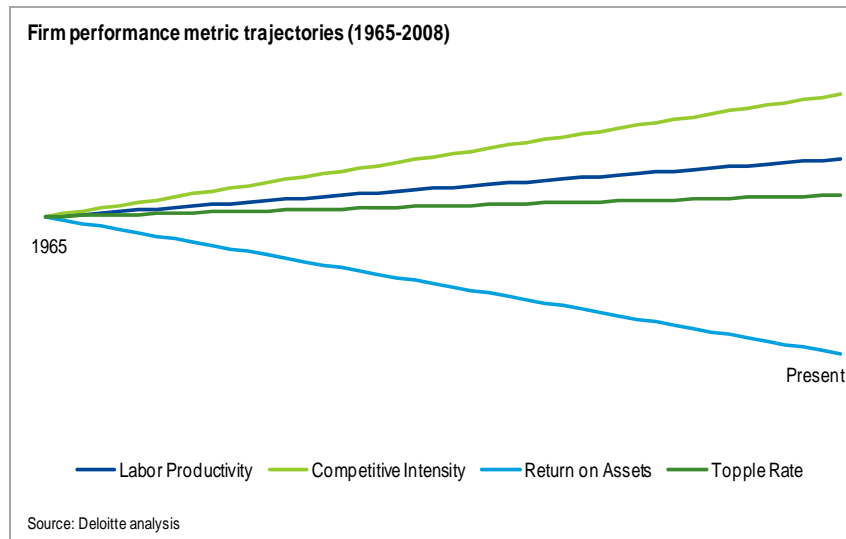


Exhibit 1: While U.S. workers' productivity has grown, ROA has dropped

These conclusions can be framed in terms of a performance challenge on two levels for our institutions. At the first level, our productivity is improving at a rate far slower than the underlying increase in performance of our digital infrastructures. The gap between potential and realized performance is steadily widening.

At a second level, firm performance continues to deteriorate as competition intensifies, driven by the spread of digital infrastructures and public policy initiatives that reduce barriers to entry and barriers to movement. In other words, firms are failing to capture the benefits for themselves or for their shareholders of even the modest productivity improvements achieved. These benefits instead appear to be captured increasingly by creative talent and customers, who are gaining more market power as competition intensifies.

Simply put, the performance challenge is that firms are failing on two levels: they are failing to harness the full potential of digital infrastructures in terms of productivity improvement and the benefits from the modest improvements in productivity are being sucked out of the firm and captured by increasingly powerful constituencies – talent and customers.

Our institutional leadership, preoccupied by short-term forces, has failed to notice the deeper changes taking the corporate sector ever further into difficulty. Cyclical

recovery in the economy may again make the symptoms less immediately apparent but the underlying trends appear to be relentless in their forward march.

How do we reverse this secular trend? For precedent and inspiration we might look to the generation of companies that emerged in the early 20<sup>th</sup> century. As Alfred Chandler and Ronald Coase later made clear, these companies discovered how to harness the capabilities of newly emerging energy, transportation, and communication infrastructures to generate efficiency at scale.

Today's companies must make the most of our own era's new infrastructure through institutional innovations driven by shifting the rationale for the firm from scalable efficiency to scalable learning. These institutional innovations offer the promise of generating much greater productivity improvement from our continually evolving digital infrastructures. Even as competition continues to intensify, substantially greater rewards should make it easier for companies and their shareholders to capture their fair share of these growing rewards. Only then will the Shift Index turn from an indicator of corporate decline to one reflecting powerful new modes of economic growth.

### **The Deep Dynamics of the Big Shift**

The Shift Index consists of three indices designed to capture three waves of long-term, deep change. By quantifying these forces we seek to help institutional leaders steer a course for "true north," while helping minimize distraction from the short-term events that compete for their daily attention. Rather than simply reacting to events, institutional leaders will be better positioned to anticipate the changes that will make the greatest difference in terms of success or failure. While this Shift Index offers rich insight even its first release, the value of the Shift Index will increase over time as the broader trajectory and pace of change can be more clearly defined for each metric

#### ***Wave One – Building the Foundations***

The first wave of change involves the rapid, unflagging evolution of a new digital infrastructure and parallel, magnifying shifts in global public policy that have reduced barriers to entry and movement. These foundational forces, playing out over the last five decades, catalyze and contextualize the many other changes occurring in nearly every domain of contemporary life. As a result, the changes in these foundational forces provide powerful leading indicators of the deep changes that will be playing out over time in other waves of the Big Shift.

The **Foundation Index** quantifies and tracks the rate of change in these foundational forces. Key metrics include the change in performance of the technology foundations of

the digital infrastructure, growth in the adoption rate of this infrastructure and a sub-index measuring product and labor market regulation in the economy.

### ***Wave Two – Unleashing Richer Flows of Knowledge***

The second wave of change will be characterized by increasing flows of capital, talent, and knowledge across geographic and institutional boundaries. In this wave intensifying competition and the increasing rate of change precipitated by the first wave shifts the sources of economic value from “stocks” of knowledge to “flows” of new knowledge. In this rapidly changing world, our stocks of knowledge (what we know) obsolesce more quickly and success depends increasingly on our ability to tap into expanding and diverse flows of knowledge to more rapidly refresh our depleting stocks of knowledge. While these knowledge flows are enhanced and enriched by digital infrastructures, the most valuable knowledge flows – those that result in new knowledge creation rather than simple transfers of well-codified existing knowledge – still most often occur in physical space through face to face interactions. In this rapidly changing world, there is far more value in a tightly knit team bringing together different experiences and views of the problem to solve a new performance challenge than in reading a training manual.

The metrics in the **Flow Index** captures physical and virtual flows as well as the amplifiers—such as how passionately engaged employees are with their jobs and social media use—that result from and magnify the effect of the digital infrastructure. Given the slower rate with which social and professional practices change relative to the digital infrastructure, this index will likely lag the Foundation Index. It will be extremely helpful to track the degree of lag over time for specific elements of knowledge flows – is it increasing or decreasing?

### ***Wave Three – Effectively Addressing the Performance Challenge***

The third wave of the Big Shift reflects the ability of companies to harness the first two waves of changes through innovations to institutional architectures such as the ability to deploy scalable learning ecosystems where performance accelerates as more participants join. Over time, these innovations will enable firms to develop and adopt new ways of creating and capturing wealth in the digital era. Initial deterioration in shareholder value and ROA will eventually improve as firms harness the foundational and flow forces of the first two waves of change and accelerate their rate of performance improvement.

The **Impact Index** is for that reason a lagging indicator reflecting the impact of the deep changes playing out in the first two waves on the performance of the firm and equity markets, consumer choice, and the value captured by talent.

Shift index indicators		
Impact Index	<b>Markets</b>	<b>Competitive Intensity:</b> Herfindahl-Hirschman Index <b>Labor Productivity:</b> Index of labor productivity as defined by the Bureau of Labor Statistics <b>Stock Price Volatility:</b> Average standard deviation of daily stock price returns over one year
	<b>Firms</b>	<b>Asset Profitability:</b> Total ROA for all US firms <b>ROA Performance Gap:</b> Gap in ROA between firms in the top and the bottom quartiles <b>Firm Topple Rate:</b> Annual rank shuffling amongst US firms <b>Shareholder Value Gap:</b> Gap in the TRS <sup>1</sup> between firm in the top and the bottom quartiles
	<b>People</b>	<b>Consumer Power:</b> Index of 6 consumer power measures <b>Brand Disloyalty:</b> Index of 6 consumer disloyalty measures <b>Returns to Talent:</b> Compensation gap between more and less creative occupational groupings <sup>2</sup> <b>Executive Turnover:</b> Number of Top Management terminated, retired or otherwise leaving companies
Flow Index	<b>Virtual Flows</b>	<b>Inter-firm Knowledge Flows:</b> Extent of employee participation in knowledge flows across firms <b>Wireless Activity:</b> Total annual volume of mobile minutes and SMS messages <b>Internet Activity:</b> Internet traffic between top 20 US cities with the most domestic bandwidth
	<b>Physical Flows</b>	<b>Migration of People to Creative Cities:</b> Population gap between top and bottom creative cities <sup>2</sup> <b>Travel Volume:</b> Total volume of local commuter transit and passenger air transportation <sup>3</sup> <b>Movement of Capital:</b> Value of US Foreign Direct Investment inflows and outflows
	<b>Amplifiers</b>	<b>Worker Passion:</b> Percentage of employees most passionate about their jobs <b>Social Media Activity:</b> Time spent on Social Media as a percentage of total Internet time
Foundation Index	<b>Technology Performance</b>	<b>Computing:</b> Computing power per unit of cost <b>Digital Storage:</b> Digital storage capacity per unit of cost <b>Bandwidth:</b> Bandwidth capacity per unit of cost
	<b>Infrastructure Penetration</b>	<b>Internet Users:</b> Number of people actively using the Internet as compared to the US population <b>Wireless Subscriptions:</b> Percentage of active wireless subscriptions as compared to the US population
	<b>Public Policy</b>	<b>Economic Freedom:</b> Index of 10 freedom components as defined by the Heritage Foundation

1. TRS – Total Return to Shareholders  
 2. Creative occupations and cities defined by Richard Florida's "The Rise of the Creative Class," 2004  
 3. Measured by the Bureau of Transportation Statistics Transportation Services Index  
 Source: Deloitte analysis

Exhibit 2: The Shift Index consists of three indices that quantify the three waves of the Big Shift - Foundation Index, Flow Index and Impact Index - each measured by a set of indicators.

## Shift Index Findings

Our initial development of the Shift Index has focused on the US and US industries. Subsequent releases will broaden the index to a global scope and provide a diagnostic tool to help assess the performance of individual companies relative to a set of firm-level metrics.

The choice of metrics reflected a robust selection process. Many metrics are directional proxies chosen in the absence of ideal alternatives. Some are drawn from secondary data sources and analytical methodologies; some are proprietary. While the data reveals significant correlations across metrics—consistent with the underlying logic of our theoretical framework—the findings are suggestive. We have not attempted to prove causality given the limitations in the ability to generate data to directly and tightly measure many of the deep changes occurring around us, but we are hopeful that the



Shift Index will become a catalyst for a broad set of research to test and refine our findings.

For a much deeper look at our methodology and data—as well as a full discussion of our findings—please see [The 2009 Shift Index Report](#).

Overall, the Shift Index suggests that the deep changes in the Foundation Index continue to move at a faster pace than the changes in either Flow or Impact Indices. The trend line for changes in Foundation metrics has a much steeper slope of 7.83 relative to the slope of 5.95 measuring change for Flow metrics or and the slope of 1.93 for Impact metrics.

This is one important way to track where we are in the overall Big Shift. We would expect that countries and industries that are in the earliest stage of the Big Shift will see the highest rates of change in the Foundation Index. Over time, as the Big Shift gathers momentum and pervades broader sectors of the economy and society, we would expect to see the rates of change in the Flow and Impact Indices to pick up speed while the rate of change in the Foundation Index may begin to show signs of slowing down.

### ***Foundation Index***

The Foundation Index, with a 2008 score of 153, has increased at a 10 percent compound annual growth rate (CAGR) since 1993, and tells the story of a swiftly moving digital infrastructure propelled by unremitting price performance improvements in computing, storage, and bandwidth that show no signs of stabilizing. Our findings show that the rate of change in the performance of the technology building blocks substantially exceeds the rate of change in the two other foundational metrics – adoption rates and public policy shifts. It remains the primary driver of all the other deep changes.

Public policy remains the wild card. There is considerable risk that a policy backlash driving increasing barriers to entry and barriers to movement may gain force in response to the intense pressures of the current economic downturn. The Shift Index will monitor this trend over time relative to the changes in the other foundations.

### ***Flow Index***

The Flow Index, with a 2008 score of 139, has increased at a seven percent CAGR since 1993, although the trend analyses are limited here by the earliest dates for which data is available.

The creative classes Richard Florida identified as the driving force for economic development continue to increasingly congregate in concentrated “spikes” of talent. Increasing numbers of creatives are fleeing the confines of the firm, as well. This

creative talent is the most passionate about their work, and most likely to participate in knowledge flows relative to their less passionate peers.

The face to face interactions that drive the most valuable knowledge flows—resulting in new knowledge creation—are impossible to measure directly. Social media usage, conference and web-cast attendance, professional information and advice shared by telephone and in lunch meetings all provide suggestive proxies of various kinds of knowledge flows. Our Shift Index surveys establish a baseline of these activities and indicates that social media such as Facebook may be expanding inter-firm knowledge flows. Future surveys will quantify the magnitude and pace of change of these important flows.

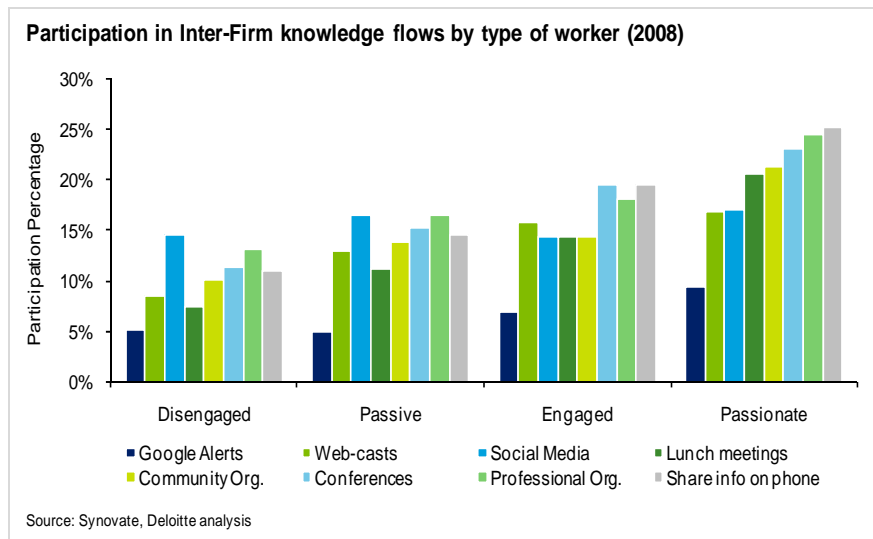


Exhibit 3: Workers who are passionate about their jobs are more likely to participate in knowledge flows and generate value for companies

### Impact Index

The Impact Index, with a 2008 score of 111 at a 2.4 percent rate of change since 1993, tells the story of intensifying competition taking its toll on corporate performance despite a steady rise in labor productivity across all the industries in our study. Consistent with our view that new digital infrastructures create the potential for much greater improvements in productivity, it is striking that the Technology and Telecommunications industries – the ones most heavily involved in defining and deploying the digital infrastructures - have led the pack in terms of productivity improvement.

At the same time the economic environment has become considerably more unstable, as shown by increases in the topple rate at which companies lose their

leadership positions, a doubling in stock price volatility since 1972, and growing divergence between winners and losers, as measured by both shareholder value creation and ROA.

Meanwhile, creative talent continues to capture increasingly disproportionate returns in terms of total compensation relative to the rest of the labor force. These increases in returns to creative talent appear to be correlated to an acceleration of growth of the most creative cities. On the customer side, new generations entering the marketplace appear to be more willing to exercise their market power to switch to products and services that more effectively meet their needs, putting greater pressure on vendors.

The growing power of creative talent and customers as competition intensifies helps to resolve the mystery of why ROA is declining so markedly at the same time that productivity improvements continue to occur. The answer is not to find ways to squeeze creative talent and customers in a zero sum battle to capture more of the existing pie.

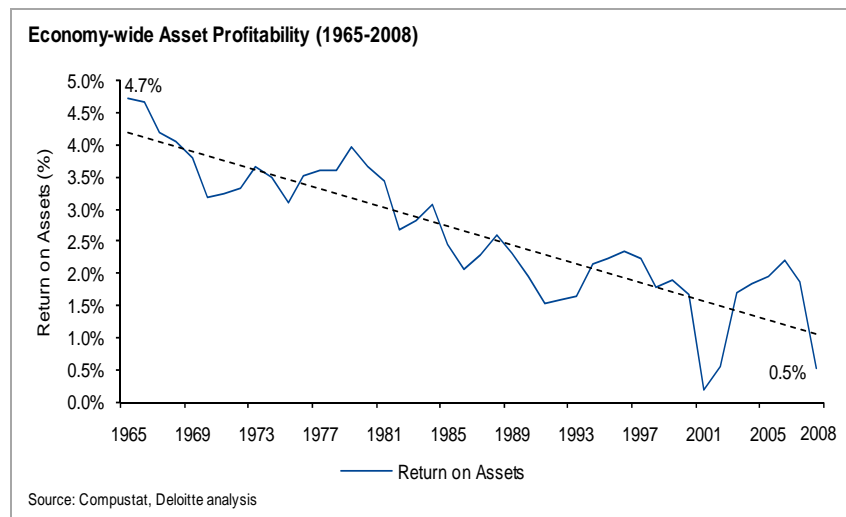


Exhibit 4: Asset profitability for U.S. firms steadily fall more than 75% over the past four decades

The Shift Index suggests that in some industries companies have pursued aggressive M&A strategies. While this may help to drive new scale efficiencies and market power in the short term, these defensive strategies are a diminishing returns game. This tends to be confirmed by the fact that “winners” in the growing performance gap are barely hanging on in terms of sustaining existing levels of performance – even they are finding it very difficult to hold on to the bottom line benefits of productivity improvements.

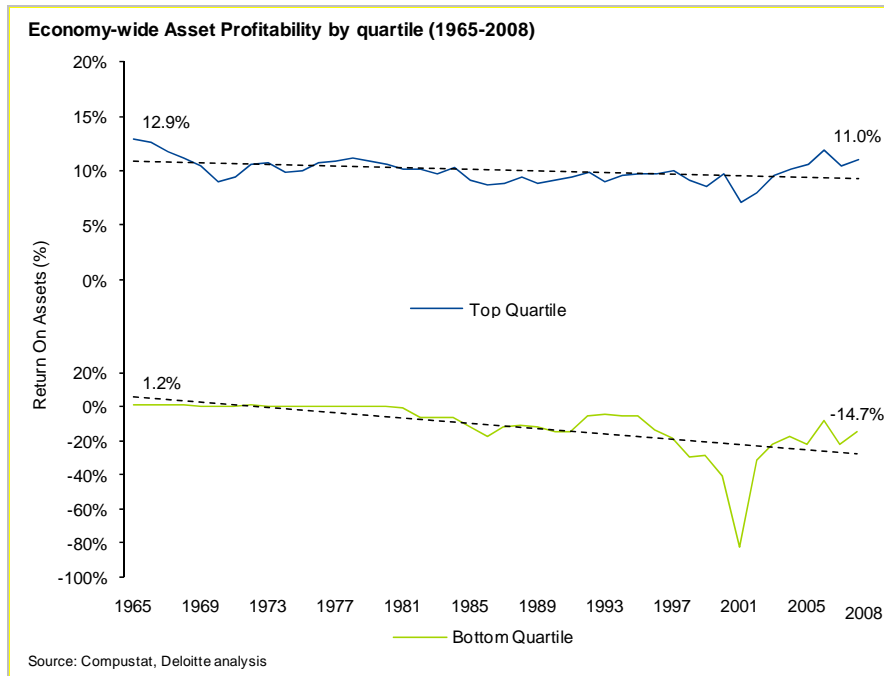


Exhibit 5: Winning companies are barely holding on, while losers are rapidly deteriorating

As an alternative, the opportunity is to drive institutional innovation to more effectively harness the performance potential of digital infrastructures and find ways to unleash the creative potential of the rest of the workforce (not just the “creative” professions) so that there is a much bigger pie in terms of total returns that can be shared more fairly with all relevant constituencies.

## Summary

It is completely understandable that we all have become so focused on the short-term economic events playing out around us. At the same time, though, it is very dangerous to lose sight of the deep changes that will continue to play out long after the current economic downturn is a distant memory. We face a long-term performance challenge that continues to intensify. The steps we take now to address this challenge will not only help us to weather the current economic storms but will position us to create significant economic value in an increasingly challenging business landscape. We believe that the Shift Index can serve as a useful compass and catalyst for the actions required to turn a performance challenge into a performance opportunity.

**John Hagel III**  
**Co-chairman,**  
**Deloitte's Center for the Edge**

John Hagel III has nearly 30 years experience as a management consultant, author, speaker and entrepreneur, and has helped companies improve their performance by effectively applying information technology to reshape business strategies. John currently serves as co-chairman of the Silicon Valley-based Deloitte Center for the Edge, which conducts original research and develops substantive points of view for new corporate growth. Before joining Deloitte, John was an independent consultant and writer. Prior to that, he held significant positions at leading consulting firms and companies. From 1984 to 2000, he was a principal at McKinsey & Co., where he was a leader of the Strategy Practice. In addition, he founded and led McKinsey's Electronic Commerce Practice from 1993 to 2000. John has also served as senior vice president of strategic planning at Atari, Inc., and earlier in his career, worked at Boston Consulting Group. He is the founder of two Silicon Valley startups.



John is the author of a series of best-selling business books, including *Net Gain*, *Net Worth*, *Out of the Box* and *The Only Sustainable Edge*. He has won two awards from *Harvard Business Review* for best articles in that publication and has been recognized as an industry thought leader by a variety of publications and professional service firms.

- [Deloitte Center for the Edge](#)
- [The Big Shift Blog](#)
- [JohnHagel.com](#)
- [EdgePerspectives](#)
- [EdgePerspectives Blog](#)

**John Seely Brown**  
**Independent Co-chairman,**  
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John Seely Brown is the independent co-chairman of the Silicon Valley-based Deloitte Center for the Edge, which conducts original research and develops substantive points of view for new corporate growth. In addition, he is an Advisor to the Provost and a Visiting Scholar at the University of Southern California, a position he has held since 2003. This position followed a lengthy tenure at Xerox Corporation, where he served as chief scientist (1992-2002) and director of the Xerox Palo Alto Research Center (PARC) (1985-2000). While head of PARC, John expanded the role of corporate research to include such topics as organizational learning, complex adaptive systems, micro electrical mechanical system (MEMS) and Nanotechnology. His research interests include digital culture, ubiquitous computing, service-oriented architectures, global innovation networks and learning ecologies.



In 2009, John was elected as a member of the American Academy of Arts & Sciences in the field of Computer Sciences. He is also a member of the National Academy of Education, a fellow of the American Association for Artificial Intelligence and a trustee of the MacArthur Foundation. He serves on several corporate and advisory boards. John has published more than 100 papers in scientific journals and authored or co-authored five books, including "The Social Life of Information" and "The Only Sustainable Edge." He holds a bachelor's degree from Brown University, a doctorate from the University of Michigan and honorary doctorates from Brown, the University of Michigan, Claremont Graduate University, the University of London's Business School and North Carolina State University.

- [Deloitte Center for the Edge](#)
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- [JohnSeelyBrown.com](#)

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Lang Davison is the executive director of the Deloitte Center for the Edge, which conducts original research and develops substantive points of view for new corporate growth. In this role, Lang defines and guides the marketplace positioning and development of the center's platforms and key activities, and helps represent Deloitte with select clients. He is also responsible for discovering and developing distinctive intellectual capital and distributing it to audiences in new and meaningful ways.



Lang joined Deloitte from McKinsey & Company, where he was editor of its flagship publication, *The McKinsey Quarterly*. During his 14 years at McKinsey, Lang served in a variety of senior communications, content and media roles, leading the development team for [mckinseyquarterly.com](http://mckinseyquarterly.com), which he edited from 1998 to 2003. He was the collaborating writer for the best-selling and critically acclaimed books *Net Gain* and *Net Worth* and for more than 300 articles in *The McKinsey Quarterly*, *Harvard Business Review*, *Financial Times* and *The Wall Street Journal* by thought leaders like Stanford's Robert Sutton, Harvard's Pankaj Ghemawat, McKinsey's Lowell Bryan and Eric Beinhocker, and International Institute for Management Development's Phil Rosenzweig. Under his own byline he has published in *Harvard Business Review*, *The Conference Board Review*, [Deloitte Review](#), and other publications.

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This abstract is part of a larger research effort around the Shift Index conducted at Deloitte Center for the Edge led by Duleesha Kulasooriya and Tamara Samoylova with the support of Brent Dance, Mark Astrinos, and Dan Elbert.