



The Bluefin Solutions Elastic Innovation Index, 2014

Global top 50 most innovative companies

Executive summary

Innovation is changing. Executives need a guide to those changes and how to navigate them. This inaugural Bluefin Elastic Innovation Index is part of a tool kit to help identify what is new about innovation and to develop a more adaptive culture.

The Bluefin Elastic Innovation Index is a new way to understand the changing landscape of innovation and to measure how companies are turning innovation into transformation. The first multi-factor innovation index, it has been developed using a combination of big data analytics and a highly granular scoring method using 35 criteria to identify innovative capabilities.

Companies that do innovation well use innovation programs to transform their systematic culture and businesses. They become more adaptive and elastic, better able to take advantage of opportunities at short notice, and better able to maintain strategic agility. In the inaugural top 50 we have developed metrics to measure that agility.

Most attempts to measure innovation continue to focus on a small number of criteria – patents, new products, or reputation. Elasticity, broadly understood to mean the range of innovative capabilities of a firm, on the other hand forces us to look at much broader criteria.

In this inaugural Bluefin **Elastic Innovation Index**, we have identified 35 criteria to judge a company's innovation capability and a new set of metrics to judge corporate adaptability. Perfect elasticity represents the broadest range of activity a company can engage in to enhance innovation capability.

The metrics are organised into five groups:

1 Social – communications and marketing skills, and associated data, that help companies to build more powerful relationships with customers;

2 Platform and data – the combination of software, hardware, data and analytics that allows companies to develop and manage an ecosystem of customers, partners, or developers;

3 Leadership – the new approach to partnerships, creativity and peer-based leadership that allows the best companies to make dramatic moves into new markets;

4 Strategy – the collection of innovation methods and intent that marks companies out as pioneers;

5 Business process – the ability and willingness to adapt a company's core processes by externalizing many key skills requirements, or by sharing IP with partners and creating new services quickly.

Based on those five skill sets, companies can be more innovative, more decisive and more successful. They add up to a new innovation capability.

35 criteria

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Innovation capability

The criteria specifically measure innovation capability. Unlike other traditional indices, they do not score for new products or services.

Main results

1. Number one company

The most innovative company in the world, the one with the highest innovation capability, according to those criteria is the footwear and sports apparel company, Nike.

2. Sector with the most innovation capability

The stand-out sector is, not surprisingly, the computer-related high-tech sector. The average innovation capability score for the top ten of this sector is 84.8 out of 100.

3. Sector with the lowest innovation capability

The sector with the most to worry about is pharmaceuticals and healthcare. The average innovation capability score in the top ten of this sector is 49.5, less than half of Nike's.

4. Sector with the highest innovation intensity

The tech sector also comes in as the one with the highest innovation intensity with a score of 42 (Average index score/top ten spread)

5. Sector with the least innovation intensity

The sector with the biggest spread between best and least capable in the top ten is Consumer Goods with a spread of 70 points out of 100, compared to 20 points in the tech sector. The intensity score is only 8.8.

They do not focus on the breakthrough product or the new gadget. Instead, the criteria look at ways companies have been reformulating key processes, or building new ways of doing business, so that they can be more responsive to the increasing pace of change.

This first-of-its-kind index provides an innovation capability score. And, when applied to a sector, it yields metrics of innovation intensity – how intense is innovation activity in a sector – for companies to benchmark against.

We scored companies on a wide-range of criteria including patenting record, use of Twitter and Facebook, externalization of core processes, adoption of crowdsourcing, use of APIs, development of service capability, adoption of big data and analytics and many more. Based on straightforward scoring of those attributes, weighted to reflect our view of their significance, we produced a top 50 Index from an original starting point of 5,000 companies.



Company level performance : Analysis

Because the index uses a broad range of innovation criteria it captures the innovation efforts of companies that tend not to make it in to the usual lists of innovators. However, these companies have significant change underway, or are innovating in new sectors that are not necessarily obvious and evident to commentators.

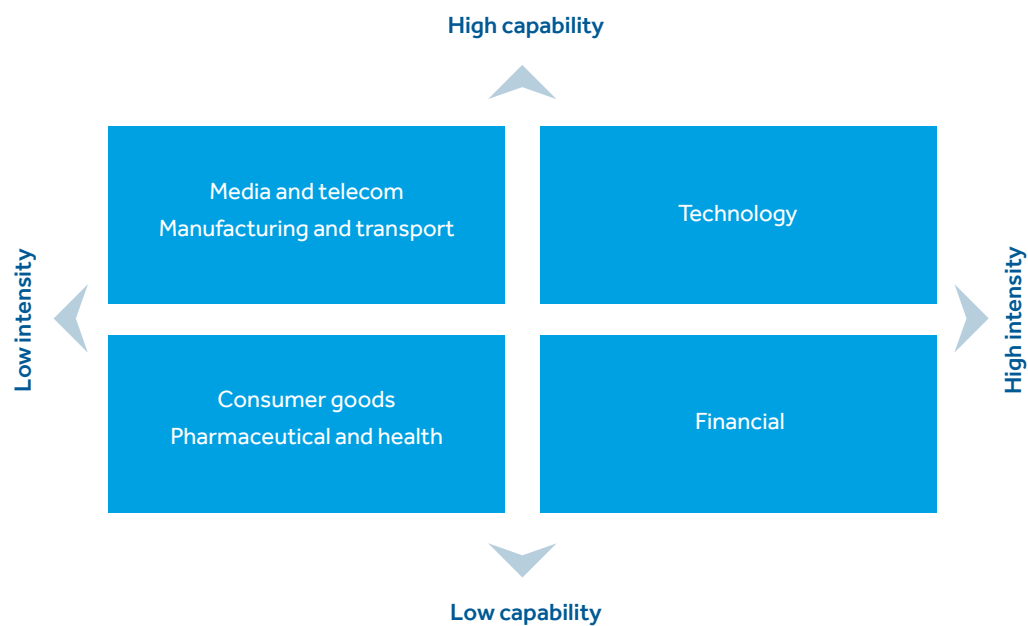
Innovation has a direct relationship with stock price performance 12 months down the line, for the most talked about companies. That is to say, a high reputation for innovation will reflect an increased stock price a year later. The relationship only holds true, however, for the top 10% of companies by media references. All other companies seem to benefit more from the resilience effect of innovation.

A strong innovation reputation also provides companies with significant resilience to recover from economic shocks such as a dramatic drop in dollar exchange value or a stock market crash. This plural reflect the fact that innovative companies become highly adaptive, and to some extent trusted to make the right moves in times of crisis.

Based on the plural finding of the research and prior studies we have carried out, we present an innovation maturity model in the conclusion of the report.

Sector intensity

Figure 1 below illustrates at a glance which sectors score high on capability and intensity.



Six take-aways:

- 1 Companies need to recognize that innovation is the new path to transformation. Companies fear business process transformation but cultural and process transformation can be achieved by focusing on innovation in the broadest sense. Those who innovate well across our broad range of criteria also transform their cultures.
- 2 By seeing innovation as a broad capability set, they can measure and benchmark their innovation capability rather than just their outputs - choosing either a sector like Tech (84.8) or companies relevant to their shorter term objectives - as a way to measure improvement.
- 3 A major focus of innovation is the use of smarter data gleaned from the edge of the business, from customer behaviour, from social networking activity, and from social content. Data needs to be engineered as part of a more holistic approach to innovation and change rather than being seen as a separate innovation challenge.
- 4 Many companies lag and need to improve their capabilities around two main areas: Platform competencies and business process improvement. Companies that were first to digital transformation (tech and media and telecoms) have built robust service platforms that help manage a broad ecosystem of partners. They have also externalized key processes like design, product development, and even innovation. These are keys to the digital future. Nonetheless, banks, pharmaceutical companies and the retail and distribution sectors evidently trail badly in these two areas.
- 5 Companies must also learn to manage their innovation reputations - doing it well reflects in better stock price performance. They need to build their narrative around innovation if they are going to perform their fiduciary duties properly.
- 6 Financial institutions illustrate a problem with today's innovation environment. They are more likely to be leaders in social communications and social data than companies in other sectors. However, their scores in innovation leadership, as well as platforms and externalization, are very low. The fact is they appear to be doing something special in social data when in fact they are doing little in other key areas. Enterprises mustn't make the mistake of adopting too narrow a focus. They have to act across all segments of innovation.

Identifying innovation potential

In this first Bluefin Elastic Innovation Index we present a new view of what it takes to be innovative and successful. To assess the world's most innovative companies, we have applied a broad range of criteria to what makes a company innovative. The results are set out below.

To construct the list we drew on a combination of big data analytics and a highly granular scoring mechanism using 35 criteria to identify innovative capabilities. On the big data side we analysed news and social media references to innovation over five years and fifteen years.

On the observational side, we explored the innovation records of 100 companies identified in the big data analysis and scored them across 35 criteria. From those two analyses we created a list of the Top 50. The data was provided by MarketPsychData (MPD), a specialist hedge fund and quantitative sentiment analytics firm based in New York. MPD has a unique data set of sentiments and stock price movements over a 15 year period.

We included over 5,000 companies in our original "sweep" using data from the NYSE, NASDAQ, Tokyo, CAC 40, DAX, LSE, Korean, and Hong Kong Stock Exchanges. To be included in the source list a company had to be rated as "innovative" in news or social media, but not just "rated". They had to be the highest scoring, either as a large cap or small cap company.

That means our source list comprises the companies most talked about as innovators by news media and social media across the globe. We then investigated in detail 100 of these perceived innovators.

We applied the 35 criteria in five categories: social, platform and data, leadership, strategy and business process. Normally, innovation rankings are created from sources such as patent information, editorial opinion or analysis of profitability.

We chose a different route because what we understand by innovation is changing. It's no longer bounded by companies inventing new products in their labs or by oligopolies using mass media to push products into a market. Something has changed in the way enterprises function and an innovation index has to capture that change.

Companies still do great invention in the old tradition. Harking back to the days of Du Pont and the invention of nylon and neoprene, South Korean electronics giant, Samsung, has invested substantially in developing the production techniques for OLED – or organic light emitting diode – displays. These are revolutionising how we see information, just as nylon transformed textiles.

But the Samsung achievement needs putting in context. Although Samsung has the largest share of the smartphone market, globally, Samsung is outcompeted by Apple, a company that does comparatively little basic research.

Apple relies instead on capturing IP, attracting large, strong, developer communities to innovate applications; and packaging services in novel ways (first iTunes and then the App Store).

This represents a diversification of innovation activity. Former Director of the US Patent and Trade Mark Office, David Kappos, recently wrote that patents, copyright and trademarks no longer perform as effective ways to protect the ingenuity individuals and companies bring to their products.¹

In this ranking of the world's most innovative companies, we have used the broader context to which Kappos alludes. Innovation is not only about invention or R&D. But it also has to include an understanding of the contribution of science or intellectual property. Likewise, innovation is not just about design, though designers increasingly are asked to embody the outputs of many disciplines in the products that they shape and craft.

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The global top 50 companies in the Bluefin Elastic Innovation Index

Rank	Company	Index score	Stock price +/- ln %	Rank	Company	Index score	Stock price +/- ln %
1	Nike	100	36.36	26	ARM	72	67.47
2	Google	97	48.75	27	DuPont	72	9.51
3	Microsoft	96	10.78	28	IronMountain	70	-17.6
4	Amazon.com	94	25.09	29	BASF	69	29.23
5	General Electric	92	12.69	30	Kyocera	69	20.08
6	Toyota	91	54.45	31	Textron	69	8.52
7	Samsung	86	11.14	32	ChinaUnicom	69	0.99
8	Hitachi	86	8.38	33	Bayer AG	68	47.43
9	Daimler	83	4.3	34	AppliedMaterials	68	34.7
10	Facebook	83	22.08	35	Under Armour, Inc.	68	29.44
11	Vodafone	83	1.45	36	Walmart	68	5.18
12	Apple	83	-31.01	37	Live Nation	67	68.25
13	LinkedIn	82	73.85	38	Morning Star	65	30.79
14	3M	82	25.08	39	Scripps Networks	64	21.34
15	Telefonica	82	-1.32	40	AstraZeneca	64	4.82
16	American Express	82	-4.6	41	RoyalDutchShell	62	1.99
17	Sony	80	57.11	42	Schneider Electric	61	38.64
18	Intel	78	-12.48	43	Merck	60	11.82
19	Siemens	77	21.58	44	VA SCO Data Security	60	0.012
20	Infosys	77	-10.43	45	Rolls Royce	59	35.03
21	Walgreens	76	47.71	46	SigmaDesigns, Inc.	59	-19.00
22	TELSTRA	76	36.5	47	Bank of America	58	64.07
23	ABB	75	33.29	48	REXAM	58	16.73
24	Aviva	75	19.41	49	EDF	57	11.45
25	NetApp	74	23.1	50	Itron Inc	57	-4.86

The global top 50 companies in the Bluefin Elastic Innovation Index / [continued](#)

The computer high tech sector is well represented; so too are the social networking sites from the Internet. Yet, the list also includes representatives from autos and old industrial. But perhaps a surprise for many is the fact that the list is topped by Nike, a footwear and apparel maker.

Nike's achievement

Nike was an early adopter of a platform approach to its business, incorporating the iPod into Nike + back in the early 2000s. There it grew a significant community of users who were incentivised to exercise through competing virtually, all focused around the Nike brand as the shoe and apparel maker began the transition to digital business. Who would have thought that running shoes could be a pioneer in digital transformation?

More recently Nike has made a huge success out of Fuelband. As wearable computing becomes more ubiquitous, Nike is well placed to reap the benefits of experience.

Fuelband allows Nike to dive deeper into data and to provide feedback to customers on their exercise regimes, taking the company across the chasm from product to service. It is also teaming with developers who will be increasingly able to develop for the Nike + Platform, taking Nike from apparel into the realm of high tech, platform, data analytics and constant responsiveness and change.



The transformation of innovation

To understand how companies now innovate we have to expand our understanding of what we mean by innovation. Even the structure of an enterprise, and its external environment, can be the subject of innovation.

This has been true over the last decade. Successful companies now create and grow their own business ecosystems, often made up of highly-scaled communities of independent developers, content providers and other suppliers.

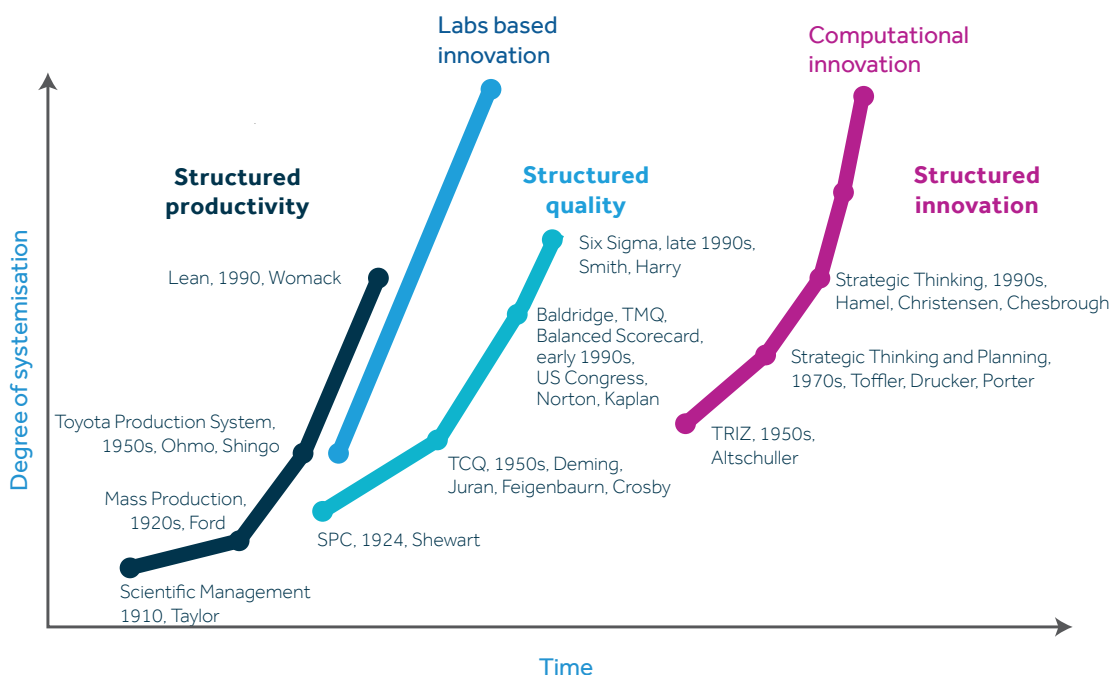
In fact, innovation of this type can be so extensive that it actually becomes transformation. Successful innovators transform themselves and the ecosystems around them. This is substantially different from the past.

Companies have always innovated incrementally as well as in more dramatic ways. But, we believe there is a transformational innovation that reaches well beyond a product or market. Let's look at how innovation is changing.

To date, our view of innovation has been something like that represented in the first diagram. Figure 2 shows three strands of innovation that have co-evolved over the last 100 years, beginning with the introduction of scientific management principles (or Taylorism) in the early part of the 20th century, leading up through the

Ford assembly approach, to Toyota's production method. These have each represented substantial change to production-oriented companies. More recently lean innovation has grown alongside these techniques, with an emphasis on smaller, more customer orientated change.

Figure 2: Patterns of innovation over time (adapted from Ciaotech)



The transformation of innovation / continued

That productivity strand has co-existed with a strand that emphasises quality as much as output. That began in the early 19th century with statistical process control and total quality control, through total quality management, to Six Sigma. More recently, continuous improvement methodologies have also emerged. All these emphasise incremental innovations that make quality better.

And, finally, there is the strategic strand. In the early days of production-oriented enterprises, many companies had their own R&D labs that promulgated significant inventions in their sector, and also helped create new markets. Du Pont's invention of nylon is a good case in point. The invention strand of innovation has fed companies' visions of the future, through the Tofler period and became much more systematic after the publication of Michael Porter's Competitive Advantage.

More recently the idea of a structured approach has given way to open innovation and broad collaboration in the development of intellectual property.

Table 1. The innovation environment until 2007

Productivity	Quality	Strategy
<ul style="list-style-type: none"> • Lean • Toyota production system • Ford assembly • Scientific management 	<ul style="list-style-type: none"> • Continuous improvement • Six Sigma • TQM • Total quality control • Statistical process control 	<ul style="list-style-type: none"> • Open, collaborative • Structured decision making • Strategic planning/ futurism • TRIZ • Labs

That stable situation began to change dramatically over the past five years. In place of these three strands of innovation we now have at least six, as illustrated in Table 2. Added to productivity, quality and strategic, are social, computational and design.

These new areas of innovation have serious implications for how companies resource and manage innovation and for their competitive capability. There is also an additional aspect of this change.

Though we have represented them here as a structured, siloed process, in reality each of these boxes interacts with and impacts on the others.

Table 2. The evolution of the innovation environment now

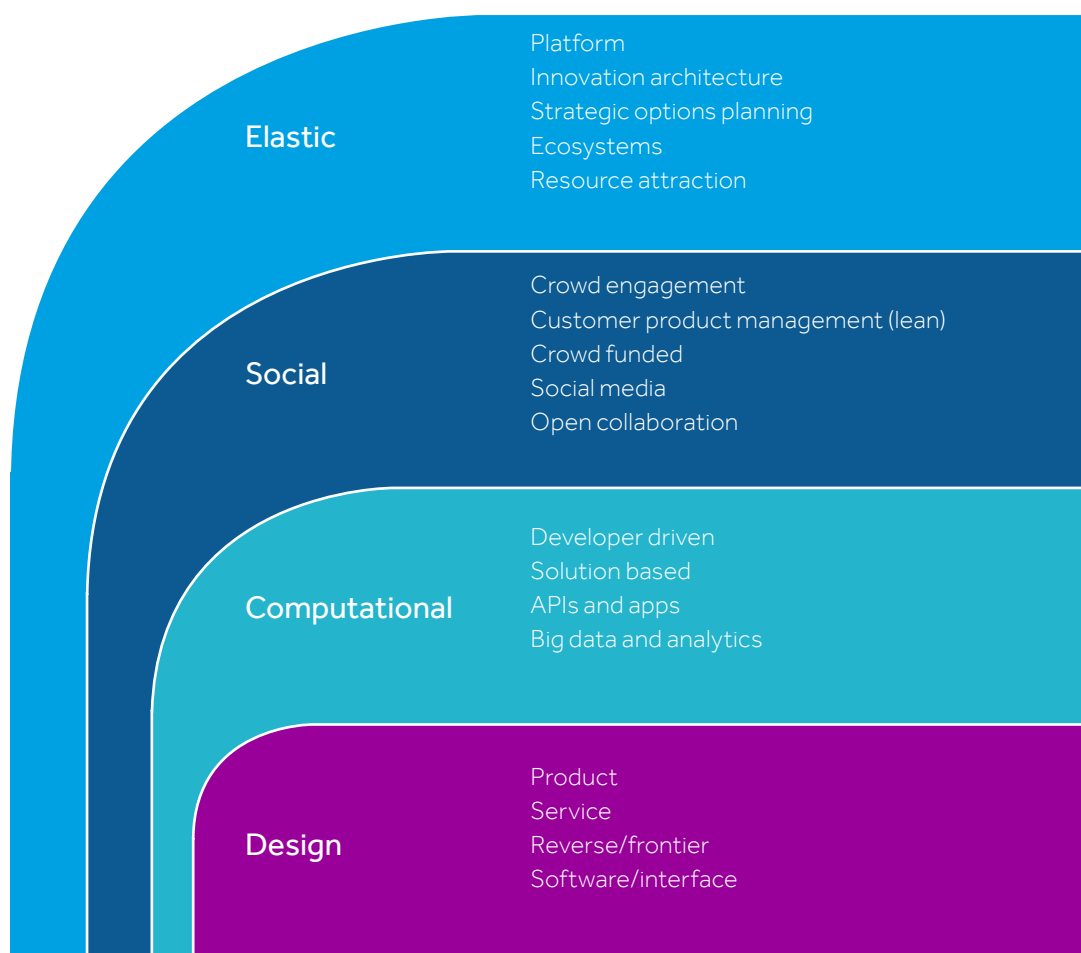
Productivity	Quality	Strategy	Social	Computational	Design
<ul style="list-style-type: none"> • Lean • Toyota production system • Ford assembly • Scientific management 	<ul style="list-style-type: none"> • Continuous improvement • Six Sigma • TQM • Total quality control • Statistical process control 	<ul style="list-style-type: none"> • Open, collaborative • Structured decision making • Strategic planning/ futurism • TRIZ • Labs 	<ul style="list-style-type: none"> • Crowd • Social • Community • Market research • Labs 	<ul style="list-style-type: none"> • Ecosystems • APIs • Open source • Object oriented software • Moore's law 	<ul style="list-style-type: none"> • Software and interface design • Reverse and frontier innovation • Service design • Product design

The transformation of innovation / continued

This can be seen more clearly in Figure 3, which illustrates the new dynamics of innovation at a more granular level. These are highly interdependent developments.

They are also, largely, new components of innovation. However, old ones such as patenting remain important, as does research capability. We have tried to capture all of these in the Index.

Figure 3: The new dynamics of innovation



Elastic innovation and corporate performance

The big question for any executive is whether a particular investment in innovation will create better corporate performance. That has always been a difficult question to answer.

Companies score well on the index when they are managing innovation in multiple areas of their business. That means in product development and also marketing through social communications, or when they are also making significant process changes or when they recruit new leaders with conceptual skills.

It took Du Pont 10 years to perfect nylon, only for the Second World War to intervene before they could commercialize it as a substitute for silk stockings. And arguably nylon only really took off when Du Pont added in spandex fifteen years later. Good innovations have a long gestation period.

Yet, we also see the stock price of some companies making serious gains as their reputation for innovation in the short-term flourishes. Google in 2013 saw its stock price rise from just over \$700 to well over \$1,000 on the back of announcements about a driverless car and wearable computing, even though the company has no discernible advantage in these products. Nor was either product actually in the market. And Google has invented neither of them.

The relationship between innovation and corporate performance is a complex one. And it becomes even more complex when we take into account stock price movements. But stock markets should be judging a company's innovation potential.

The Bluefin Elastic Innovation Index is really about that - identifying a company's capability to innovate across a range of processes, not just in its own class of products. Increasingly companies that do well are entering new markets with new products and need a broader skills' base and a more flexible definition of their purpose or core competency.

We have also tried to relate elastic innovation to stock price performance. In a sample of 200 companies, we found that there is a correlation between the top 20 by news buzz and stock price a year later. We also found that a company with a strong foundation in innovation has strong resilience in situations where stock markets are hit by external or economic shocks. Innovative companies recover from shock reversals very quickly. And, finally, we found that innovative companies can overcome negative sentiment like uncertainty and gloom more easily than non-innovative companies.

Let's explain those findings in more detail. The findings come from regression analyses of MPD's sentiment data.

This first analysis of all identifies companies that are prominent in people's minds as innovators. We took the top 200 companies by positive references to innovation across the NYSE, NASDAQ, Tokyo, CAC 40, DAX, LSE, Korean, and Hong Kong stock exchanges from 2007 onwards.

We then ran regression analyses across five years from 2007 to 2012. We tested for a relationship between stock price and positive buzz around 24 sentiments and responses - sentiments such as optimism, uncertainty, joy, fear, and conflict. Innovation was one of these sentiments.



Elastic innovation and corporate performance / continued

We ran an identical analysis for the top 20 companies. What we found is that there is a strong relationship between innovation and stock price improvements but only for the top 20, measured by buzz, and only if the buzz is in recognized news sources, rather than in social media. We also ran analysis over 15 years. The results are set out below.

What that suggests is that companies that innovate well, and manage their innovation reputation well, will see that effort reflected in a rising stock price and in strong stock price resilience when the going gets tough.

We ran a comparable analysis of each element of elastic innovation and stock price in the year covered by the study, July 2012 to July 2013.

In all cases there is no clear, strong relationship such that we could say a company that concentrates on any particular area of innovation will see a stock price improvement in the year of execution. The generic analysis seems to hold true that if you manage your reputation like an innovation leader the investment will play back into good stock price management.

Another way of asking if companies with elastic innovation skills are being judged well by the stock markets is to compare stock price movements of the overall market. However, our index is drawn from many markets.

Overall, we examined over 100 companies in detail and of these we were able to complete data for 92. Of the 92, the top 48 by stock price improvement beat the NASDAQ and the London Stock Exchange over the period we studied.

Another way to look at performance is to look at how companies are transforming their culture and becoming more capable of adapting.

To measure that we used innovation index averages, innovation spread and innovation intensity (Average index score/top 10 spread).

Results

Findings from multiple regression analyses of more than 5,000 companies over 5 and 15 years

There is a very positive correlation between companies with a strong innovation reputation and stock price performance but only for the top 10% of companies

Companies with a strong reputation for innovation recover from stock market shocks more quickly than those without innovation reputation. Over a 15 year period, we found over 11,000 instances of short term stock recovery by innovative companies

Companies with a strong innovation reputation recover from stock decline quickly even if they also suffer from negative sentiments like gloom and uncertainty

The most innovative industries

It's no surprise that the high technology sector should turn out to be the most innovative but it is enlightening to think about why.

Previously, we detailed some of the changes that have been taking place in innovation. The tech sector embodies many of these changes.

It is driven by a computational mind-set, which can be defined as a search for creative but systematic and novel solutions to problems identified by developers. This mind-set has taken over in the high tech sector, as programmers have matured from "coders" to "developers."

The high tech sector is also most likely to be familiar with the intricacies of social communications. They are early adopters and able to catch up quickly if Facebook, Twitter or Google + change anything in their marketing infrastructure.

There is a new emphasis in tech on design patents and on using design for competitive advantage.

These are just some of the reasons why the tech sector dominates other sectors in the breadth of its innovative capabilities.

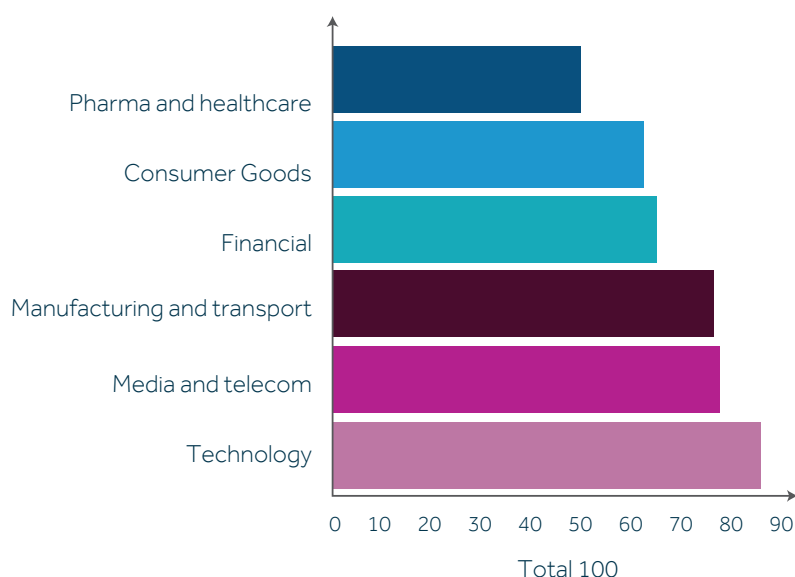
Not all of the promise of the tech sector is always realized, by any means. Google, which is number two in our overall rankings, has substantial innovation potential with investments in wearable computers, new design capabilities, investments in driverless cars, relentless innovation in data infrastructure, and has its own social networking tools.

As the stock price of competitor Apple has gone down, that of Google has gone up. Yet Google has not generated any particularly successful new businesses and is struggling to come to terms with its Motorola investment.

But the point of the Index is to highlight potential, and the tech sector tends to define many aspects of the new, digital-business skill set.

Media and Telecoms scores the second highest in the Bluefin Elastic Innovation Index, and now shares many of the characteristics of the high tech sector. High tech companies like Apple and Google could as easily be placed in the Media and Telecoms section. The reality is these sectors are converging rapidly.

Figure 4: The average index score per sector



The most innovative industries / continued

Perhaps surprisingly we found that the **Financial Services** sector is not quite the laggard people might expect. Companies like American Express have rapidly emulated many of the platform and ecosystem strategies found in the high-tech, media and telecoms sectors. Overall, however, Financial Services is a very low innovation intensity sector.

The sectors with the lowest innovation capability are **Pharma and Healthcare** and **Consumer Goods (including retail)**. The healthcare subsector has some interesting developments with advanced equipment makers pushing the innovation needle. And some of the large pharmaceutical companies retain a significant innovation capability. But compared to their peers in all sectors, from Financial to Technology, they lag behind, despite the presence of innovative companies such as Amazon.com.

The diagram Figure 5 below illustrates the respective strengths of leading companies in each sector.

It shows the degree to which

companies are adopting each discreet element of innovation, bearing in mind that these discreet elements make up the components of the Index.

For example many pharmaceutical companies and younger medical device companies are more likely than in the past to develop key partnerships and to **externalise** key processes, such as R&D, through open innovation.

That means they are scoring more highly on the category "business process" than some high tech companies, though as a whole the high-tech sector scores more highly. Business process is the dark red bar, far right.

A comparison with Apple Inc. illustrates some of the differences. Apple limits its key partnerships to supply chain partners, and doesn't engage in open innovation (though does participate in open source software). In balancing the behaviour of companies like Apple with those in the Pharmaceutical and Healthcare sectors, it appears the latter are catching up, despite the sector as a whole being ,through

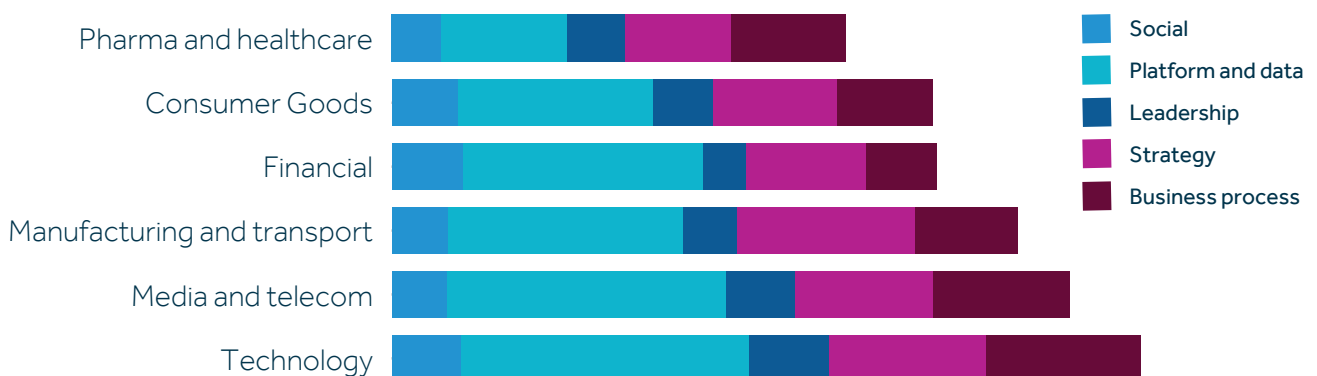
techniques like open innovation, far too limited in the range of innovation activity it engages in.

Financial companies on the other hand are very reluctant externalizers of core processes and scored lower than all others.

We count **externalisation** as a positive new process because it gives companies access to the best transformational capabilities and it relieves executives of the burden of decision making at too granular a level.

In the technology sector, leaders tend to be more like peers than their counterparts in other industries. Leadership is represented by the dark blue bar. Studies of leadership effectiveness show that companies with complex decision making structures, where executives have to manage many different boardroom interests, tend not to be good innovators. Under **leadership** we counted factors such as having executives who were founders and thought leaders as key innovation attributes.

Figure 5: Comparison of innovation capability across six sectors



The most innovative industries / continued

Another strong differentiator is the platform business – having the mix of software, hardware infrastructure, and commerce processing capabilities to sell at scale online. The high tech sector scores highly here in part because these are native attributes but also because the leading companies tend to have well-developed business ecosystems, such as Apple's content community around iTunes, or Microsoft's extensive solution communities. The financial sector is not as much of a laggard here because of initiatives like American Express's Open Forum. EManufacturing and transport are also attempting to grow platform elements to their businesses.

Although technology tops the sector list, the Manufacturing and Transport sector is the one most endowed with good innovation method and strategy. The Financial sector, surprisingly, has made as much progress as any other sector in adopting the tools of social communications.

We'll go into more detail on these attributes below but, in summary, the sector highlights are:

1. Sector with the most innovation capability

The stand-out sector is, not surprisingly, the computer-related high-tech sector. The average innovation capability score for the Top 10 of this sector is 84.8 out of 100.

2. Sector with the lowest innovation capability

The sector with the most to worry about is pharmaceuticals and healthcare. The average innovation capability score in the Top 10 of this sector is 49.5, less than half of Nike's.

3. Sector with the highest innovation intensity

The tech sector also comes in as the one with the highest innovation intensity with a score of 42.

4. Sector with the least innovation intensity

The sector with the biggest spread between best and least capable in the Top 10 is Consumer Goods with a spread of 70 points out of a 100, compared to 20 points in the tech sector. The intensity score is only 8.8.

The most innovative industries / continued

The technology sector is the most innovative because of its computational mind-set and mastery of new wealth creating techniques such as platform businesses.

Google exemplifies the capability, promise and frustrations of tech companies.

Industry: Technology

Rank	Company	Index score
1	Google	97
2	Microsoft	96
3	Samsung	86
4	Hitachi	86
5	Facebook	83
6	Apple	83
7	LinkedIn	82
8	Sony	80
9	Intel	78
10	Siemens	77

Google's achievement

Google has been very busy in innovation. It launched Chromecast, a dongle that links a handheld device to the TV. Immediately before that it launched a new Nexus tablet that reviewers judged to be better than the iPad Mini. That's on top of its innovations in data infrastructure and its moonshot projects – driverless cars, Loon, and Glass. Time will tell if Google's future lies in the former category of small devices or in the bigger world of autos and the newer market of wearables. What is indisputable is it shows exceptional innovation promise by making bold moves and by innovating across its business.

However, there are companies on the list that appear to be anomalies. Can Microsoft really be judged in the same company as Google and LinkedIn? These are younger generation companies that invented the categories that they now dominate. And if the comparison is valid what does that tell us about innovation?

The first point to make about the tech list is it covers excellence in software, data, platforms, production, devices, vision (Hitachi is currently working on plans for entire new cities), social networking, content and microprocessors.

Still, Microsoft appears to be a throwback. It innovated at the start of the PC era but is it innovative now?

Well, it is converting its SharePoint platform, which dominates enterprise collaboration, to an ecosystem model. To do that it is creating partnerships with companies that can add to the SharePoint community and has made acquisitions like Yammer. It is also reducing the software release cycle for most of its products, and has moved Office to the Cloud, so it is developing new services. Its Cloud offer is in fact a strong one. It continues to evolve its consumer products and released its new generation Xbox at the end of 2013. Meanwhile its Kinect Fusion product is taking Microsoft into the space between domestic computing and 3D scanning and design, and potentially into open hardware.

In the computing market it has made big misjudgements around its tablet product, Surface, and the same goes for mobility where its Windows 8 operating system is now showing a few signs of gaining on Android and iOS. On the other hand, it has a well worked out strategy to create Internet access infrastructure in Africa, a growth market for the future. Its low

cost infrastructure technologies could also function in India, Latin America and China. It takes bold decisions that sometimes go wrong, because leadership is empowered to act. With Skype it is positioned for future telephony opportunities and is monetising Skype far more effectively than its founders did.

The fact is Microsoft has a strong innovation track record but mismanages analyst perceptions. It still dominates its legacy markets and seems to struggle when it steps out of oligopoly positions. But if you look at the ingredients – the continued involvement of the founder generation, the radical adjacencies it takes into new markets, the development of new services, its willingness to partner and so on, these are all evidence of innovation capability. Whether senior executives can capitalise on that or not is a second order question. To date they have a mixed record but that has been the case for fifteen years. They continue to turn out impressive profits.

Google on the other hand has a very high reputation for innovation and has all the ingredients for elasticity but has failed so far to replicate its success in search advertising. What the tech sector teaches us is how nuanced the innovation game is. It is often about reputation and capability, both of which can go unfulfilled.

The most innovative industries / continued

Media and telecoms, and high tech, are fast converging areas. Where the big players in these sectors really sit is an open question. Apple is a high tech giant but also a dominant force in content. Amazon pioneers Cloud services but is becoming an innovative force in media.

Industries: Media and telecommunications

Rank	Company	Index score
1	Amazon.com	94
2	Vodafone	83
3	Apple	83
4	Telefonica	82
5	Sony	80
6	TELSTRA	76
7	China Unicom	69
8	Live Nation	67
9	Morning Star	65
10	Scripps Networks	64

In both cases you see a new phenomenon at work. Sectors are converging and leading players take advantage of that by making radical adjacency moves from one sector to another. It's for that reason that companies like Apple and Amazon excite the stock markets.

Amazon's achievement

Amazon has pioneered a form of radical innovation, what we have called elsewhere radical adjacency.²

Though ostensibly a retailer, Amazon is also a leader in data infrastructure, a device maker, a publisher and a pioneer of crowd-based labour. All through its development it has managed to take the stock market along for the ride and managed also to keep its competitors guessing.

The differences between high tech and media and telecoms are really quite marginal. High tech is slightly better at developing the context for platform businesses, shows a greater propensity to externalize key processes, and is more proficient with social communications. But the differences are just a place or two on the learning curve.

Where the media and telecom sector differs mostly is in its international composition. The high tech sector list is comprised of American companies and Japanese – even Samsung has strong Japanese influences as any of its core capabilities were developed in partnership with Japanese companies when Samsung was emerging as a supplier. If you exclude Google, Facebook and LinkedIn from the list then these organizations are actually a hold-over from old high tech of the 1980s. What that also means of course is that these companies have also adapted successfully over time, though in cases like Microsoft their share price does not reflect successful adaptation.

The media and telecoms list is more diverse. It includes the UK company Vodafone, the Spanish group Telefonica, and China Unicom. As well as carriers it includes live event leader Live Nation, and two media innovators in specialist financial information ,company Morning Star and lifestyle programmer Scripps Networks Interactive. In the older companies like Vodafone and Telefonica it shows a profound capability to adapt. Scripps, emerging from an old media company, is another good case of that.

While these companies show great potential for innovation, in the sense of having broad capabilities, it might still be argued that they should be doing more. Telecoms carriers are finding it tough to step out of being a pipe for other people's content and a channel for device makers' phones. They sit in the middle of converging technologies without making the radical adjacency moves that would give them a new kind of leadership.

On the one side, device makers and mobile operating system owners have laid the groundwork for oligopoly control of future markets. On the other side, smart content companies are securing the loyalty of eager consumers.

The story of the sector is very mixed but there is no denying that the capability to innovate is in place.

The most innovative industries / continued

We were surprised to find companies like Toyota and Daimler high in the list of innovative companies. Overall Toyota is 6th and Daimler 9th. It should not be too much of a surprise.

Industries: Manufacturing and transport

Rank	Company	Index score
1	General Electric	92
2	Toyota	91
3	Samsung	86
4	Daimler	83
5	3M	82
6	Textron	75
7	ABB	9
8	Applied Materials	68
9	Rolls Royce	59
10	Embraer	48

Over the past five years auto companies have responded surprisingly quickly to digitisation and have evolved their vehicles as platforms for software and services innovations.

In February 2012 Renault-Nissan opened a 26,000 square foot research facility in Silicon Valley, California. They were simply joining BMW, Toyota, Ford, and General Motors. Even though Ford heir, Bill Ford, acknowledges the car industry is still slow to innovate, the presence of two auto companies in the Bluefin Elastic Innovation Index top 10 suggests that they are getting there.

At the very least they are, developing a broader set of innovation capabilities, converging product, software and service, treating the car as a service platform, and accelerating the product update cycle.

Like the media and telecoms sector, manufacturing and transportation is an eclectic list culturally. It has companies from Japan, Germany, Holland, France, and the UK as well as the USA. In fact American companies are less represented on this list than on any other. The prevalence of non-US companies in an area that is becoming more dynamic should be a worrying sign for policy makers in the USA. But the picture is mixed rather than negative.

GE's achievement

GE comes in for considerable criticism in the USA for its lack of innovation. That might be more true of its energy division than, say in health. It is known to have cultural change problems in energy, particularly in driving convergence, or digital behaviours.

However, it also has some of the most forward thinking innovation programs among major companies. Ecomagination was an attempt to crowdsource future ecological product ideas. Healthymagination is an attempt to create a new cross-disciplinary ecosystem for cancer treatment. In India and China GE has succeeded in creating new mobile health devices, like a portable electrocardiogram. In its strategic marketing GE is making more and more extensive use of external agencies to crowdsource market intelligence. On the negative side, however, GE is slower than its Asian rivals in forging new LED-based lighting products.



The most innovative industries / continued

The consumer goods sector includes some of the best known names in business. Most originate in the USA. In fact 7 of the top ten are American. Whereas in the tech sector there is only a 20 point gap between number 1 and number 10, in retail and distribution the gap is 70. That reflects a lack of comprehensive attention to innovation at the retail level.

Industry: Consumer goods

Rank	Company	Index score
1	Nike	100
2	Amazon.com	94
3	Walgreens	76
4	Under Armour, Inc.	68
5	Wal-Mart	68
6	Burberry	56
7	Kroger	49
8	Big Lots	38
9	Premier Foods	36
10	Morrisons	30

On the other hand, it also means there is considerable scope for companies that want to take a lead.

Of the top ten companies only four operate online as the major channel for their business.

A recent GigaOmPro report into the future of retail pointed out: "With the online share of sales growing at more than five times the rate of overall retail sales, it's clear retail will continue to morph but that over time it will eventually take its entire supply chain with it."³ Albers also points out that Wal-Mart began making acquisitions in 2012 specifically to build up a retail R&D capability.

Only three of the top 10 (Nike, Walgreens and Under Armour) are innovating in the use of personal sensor technologies which puts them on a convergence course with smartphones. In all three cases the objective is to make use of sensors on the individual customer to improve service in specialised needs, such as asthma sufferers, or high performance athletes. This is far more forward thinking than the use of contextual mobile technologies in-store.

This ability of leading companies to see beyond the category to converging areas of technology is where executive thought leadership drives really smart companies. Integrated fashion and retail company Burberry is attempting to raise its innovation capability by becoming a social businesses. That means it scores highly on social communications and has a narrative

to tell about transformation. However, social business innovations are really limited to process.

Nike is a standout leader in this category because it goes much further in seeking out convergence opportunities, starting way back with the Nike + adoption of Apple's iPod technology, the development of its own powerful online communities, the use of design and related innovation methodologies, careful intellectual property management, the development of key partnerships, new services around data as they develop their presence as a product and service company, and the externalization of core processes such as the development of Fuelband with Astro Studio, Whipsaw and Synpase.

Arguably Nike belongs in a different category anyway but we included it here because of its online sales, customisation and community platforms. The willingness to take a comprehensive approach to innovation, as Nike does, is what gives companies an underlying capability. In consumer goods the vision and capability are under-developed.



With the online share of sales growing at more than five times the rate of overall retail sales, it's clear retail will continue to morph but that over time it will eventually take its entire supply chain with it.

GigaOmPro



The financial sector suffers in comparison with tech, media and telecoms. We could only identify five financial companies for inclusion in the overall 100 that we studied in depth.

Industry: Financial services

Rank	Company	Index score
1	American Express	82
2	Aviva	75
3	Bank of America	58
4	Unum	48
5	Credit Suisse	45

Perhaps as surprising is the fact that so few companies made it on to the list from the centres of financial excellence such as London. One explanation could be that finance companies are now particularly wary of innovation, but that has to change.

American Express' achievement

American Express, on the face of it, is a credit card like any other, yet the company has invested heavily in developing its own ecosystem of business customers in its Open Forum. It is also a pioneer in the use of social technologies, for example the low friction coupon system that it operates with Twitter, and its Passion Project contests. American Express is going with the times. They are also working with Apple's Passbook, Foursquare, and developing data insights for marketers.

Part of the challenge executives face in the financial sector is to manage reputation better, not just the reputation for innovation, of course.

Banks tend to think that innovation sends the wrong signal to customers, and certainly the idea of "creative banking" now has strong negative connotations.

It may be that our analysis has overlooked important initiatives. For example, we instinctively would have expected to see ABN AMRO in the list. But the fact that it is not there is most likely down to ABN's unwillingness to promote a reputation for innovation and transformation.

Finance though is like all other sectors in one crucial respect. There are strong convergence factors at work in the sector, and that means they are vulnerable to companies making adjacency moves into finance – crowdfunding is emerging quickly as a mechanism even for some forms of structured financing, the virtual currency BitCoin is attracting attention from the telecoms sector, and search giant Google has invested in peer-to-peer lending.

Finance is increasingly vulnerable to adjacency moves from players in other sectors but financiers are accustomed to that threat. The idea of telecoms carriers emerging as rival banks was

first mooted 25 years ago; alternative payments systems emerged with PayPal over ten years ago; and peer-to-peer lending is nearly a decade old. The question is whether banks are capable of innovating in the face of this threat, should the threat become more real.

Financial companies are vulnerable not only because of the impact of the 2008 crisis. Many of the innovations that threaten the established order are now maturing. Companies like Google and Apple in tech, start-ups like BitCoin, and players from the telecoms sector like Ericsson, have the global reach and data processing capacity to supply financial services to a new type of customer, one that is active in global consumer markets and is friction free commerce at low relative cost. These activities are often more peer-like than in the past.

The traditional financial sector suffers from having weak peer-to-peer cultures and leaders, is low in thought leadership for the digital economy, tends not to have platform and ecosystem models of business, and does not externalize core processes. Nor is there much evidence of a broad grasp of innovation method.

But American Express is an exception, with its Open Forum it explicitly set out to develop a financial ecosystem that it could serve and learn from. It is programmatic about that and other innovations and has partnered to achieve growth in its communities. Though it still retains the aura that banks believe is essential for reputation, it is becoming more peer-like and offers leadership in how the financial community can evolve. These are all important capabilities.

One more capability that could be added into the mix is the ability to craft and convey a transformational story. Few organizations in banking have that, even though companies like American Express and ABN are challenging themselves to change.

The Pharmaceutical and Healthcare sector is dominated by older, established companies but it is also the worst performing sector if your yardstick is innovation. Four of the Top 10 are long established drug companies. One of the reasons they score highly is the use of Cloud based services for processes like marketing. Bayer healthcare for example, has been experimenting with first Oracle and then Salesforce CRM for more than five years now.

Industries: Pharmaceutical and healthcare

Rank	Company	Index score
1	Bayer AG	68
2	Astra Zeneca	64
3	Merck	60
4	Varian Medical Systems	54
5	Novartis	52
6	Air Products and Chemicals	46
7	Heska Corporation	46
8	Accuray Incorporated	44
9	Oculus IS	32
10	Forest Laboratories	29

That willingness to change to a more platform-centric approach scores high on the Elastic Innovation Index because it suggests an improvement in capability. Big Pharma has quickly adopted Big Data in the genomics sphere, where it is also making use of Cloud-based data services.

Bayer's achievement

Bayer Healthcare was a 2011 winner of CIO magazines award for IT contribution to business with its "A Better Business Intelligence" initiative. CIO's citation describes it as:

"an enterprise data warehouse and analytics-delivery system that incorporates social media and collaboration technologies. For brand teams, reporting on new data has been reduced from as many as 12 days to just two. Collaboration has been enhanced between Bayer and other companies that comarket its products, and patient use of Bayer's products is better monitored. Financially, the outsourced, cloud-based system has already reduced fixed costs by 80 percent because Bayer pays only for information services as they are consumed."

Big Pharma companies are not short on ideas for how to improve processes, and if their reputation for innovation has slipped, then the focus on tough health challenges is part of the explanation.

Nonetheless, even with a small slate of smaller and more agile companies in the Top 10, Pharma and healthcare is the only category that scores below the median line of 50 index points.

The problem that the Index highlights for this sector is that its approach to innovation is too narrow.

Companies are not building innovation capability across a range of competencies. One standout problem is leadership where there are too few people with a founder background and a thought leader capability. The sector is not moving quickly enough towards a transformative model, does not design and integrate enough services, externalizes too few core processes, and doesn't make enough use of the broader range of innovation methods that are now available.

Conclusion:

The innovation maturity model

To understand what is happening to innovation we need to dip briefly into what is happening in the wider enterprise economy.

From the late 1980s onwards enterprises were implored by Governments and by business advisors to adapt to the “service” economy. That meant leaving behind manufacturing or the industrial past, and transitioning to something more modern: services.

In an analysis of the Harvard Business Review archives undertaken by the author it appears that there is a clear demarcation around 1990 where business writers began to focus more on the problems of adapting to a service economy than on the challenges of the manufacturing economy – problems associated with innovating in services, and in securing employee loyalty to this new way of thinking. These concerns continued to be a problem up to 2006.

A parallel development though was the transition of the basic infrastructure of communications to the web. During this period, rapid service development became possible online and industries such as media and telecoms were transformed by “digitization”.

However, the real changes came in 2006/7. At that point business writers redirected their attention from a range of internal concerns – how does the firm look and behave, to the external environment – what is going on outside the walls.

The fact that 2007 is also the eve of financial crisis might be coincidence were it not for the fact that this crisis brought home the need for rapid adaptation. The need, however, was already there. By 2007 many aspects of enterprise activity were external – look at Apple’s developer community, upon which the success of the iPhone rested.

Figure 5 below suggests a more granular level of transition. The third column, where innovation is elastic is highly externalized.

Figure 5: A semantic analysis of 20 years of business writing in The Harvard Business Review

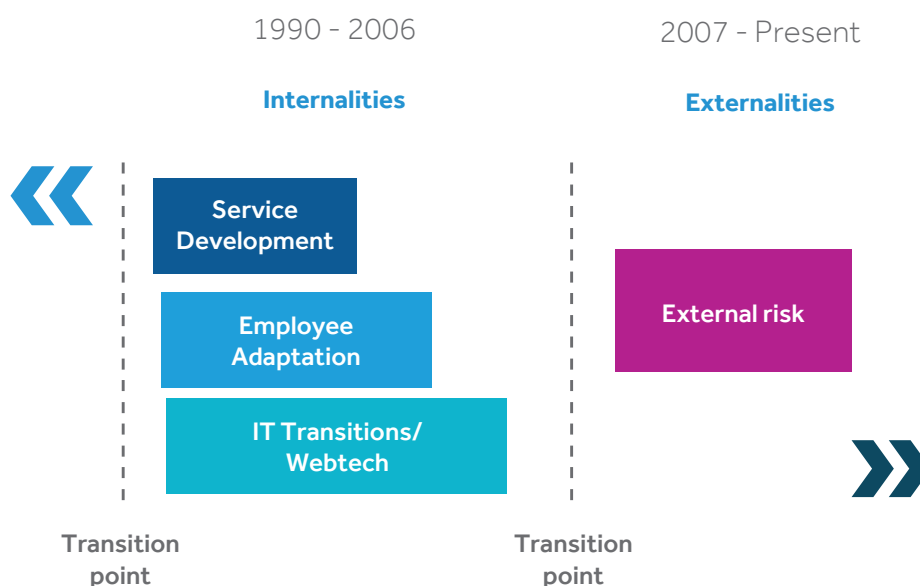


Table 3: A schematic overview of transition

Industrial	Service	Elastic
• Production focus	• Service focus	• Adaptive
• Siloed IT	• Plug and play IT	• Cloud infrastructure and device centric
• Programmer-dependent	• Design-led	• Developer-centric/computational
• Transactional ERP	• Knowledge management	• Ideas economy
• Closed R&D/Labs	• Open innovation	• Radical adjacencies
• Broadcast advertising	• CRM	• Social communications
• Hierarchical relationships	• Flatter organizations	• Ecosystems
• Protected markets	• Globalizing markets	• Mass differentiation
• Traditional roles	• More educated workforce	• Creative independent talent
• The five year plan	• Agile strategy	• Continuous strategy
• Product push	• Marketing pull	• Multiple options management

The reality is most companies will have a foot in each of these three worlds but should be evolving towards world three on the right hand side. The Bluefin Elastic Innovation Index reflects that move. In order to get there companies would be scoring 90+ on the index and still would have work to do. Innovation is not going to slow down or come to a halt for anyone. It will continue to transform and enterprises will continuously need to catch up by looking at and improving their adoption of the five pillars outlined in this report.

Methodology

The Bluefin Elastic Innovation Index comprises 50 companies that have strong reputations in the news media for being innovative.

To arrive at those 50 companies we surveyed over 5,000 companies on a broad range of stock exchanges: the NYSE, NASDAQ, Tokyo, LSE, Hong Kong, DAX, CAC40 and Korean.

To do this we used data from MarkePsychData (MPD), a big data company who supply sentiment analysis to the financial sector. MPD have 15 years' worth of data currently running at 35 Terabytes. The data addresses 24 emotions and responses connected with a stock price.

We made use of a sub-set of MPD's data, specifically referring to innovation and trust. We ranked all companies (about 5,000 initially, later refined to 2,000) by the level of positive buzz around innovation.

In other words, given how much a company is "talked" about, how much of this conversation refers to innovation in a positive way compared to a negative way. MPD represents this data as a % of all references to a company.

The initial rankings used this proportional innovation buzz as the sole determining factor. However, when we did this we found that many small cap companies appeared in the list and some of them had little to no market presence. The reason this happens is that companies such as Apple are talked about so pervasively, for example at earnings announcements, that the innovation component can be relatively low, leaving small caps a disproportionate presence.

To take account of small cap companies as well as do justice to companies that move markets we created the source list of 100 companies from the top companies by news, and top companies by social media references, and included 20 small cap. We also took recommendations where we felt the buzz factor was clearly ignoring a company for further study within our limited resources.

That gave us an initial list of 100 to explore. We simultaneously developed criteria to score the companies. The criteria belong to five categories: 1) Social 2) Platform and data 3) Leadership 4) Strategy and 5) Business process. These were weighted to reflect a company's capability to do transformational innovation.

For example leadership is important in all forms of management so it cannot be weighted too heavily in innovation. Intellectual property is important but patents don't make a company transformational, they merely reflect an element of innovation management. They wouldn't be weighted heavily. On the other hand introducing more service design elements to the business is a sign that a company is transforming away from product. That gets a higher weight than a patent.

¹ David. Kappos Design: The New Frontier of Intellectual Property National law Journal April 22nd 2013

² Haydn Shaughnessy Renewing Tech Company Growth Via Radical Adjacency, GigaOmPro July 2013

³ Bud Albers, Retail's Reinvention: Technologies impact on today's supply chain, June 13th 2013, GigaOmPro.

Haydn Shaughnessy



Haydn Shaughnessy has been at the epicentre of innovation and transformation for 25 years, beginning with the digitization of television newsrooms, the launch of the first satellite broadcast services in Europe, through the EU's RACE program experimenting with advanced communications before broadband and mobile became widely available, and social networking software design.

He is also a former partner at the first social media agency, The Conversation Group, where he helped major corporations exploit social technologies and develop new business models around Internet innovation.

Over this time he has continued a steady output of publications based on original research that has appeared at HBR.org, Forbes.com, GigaOm, and in the national press. He is the co-author of the book, *The Elastic Enterprise*, an account of how stellar companies prospered during the Great Recession, described as a must-read for anyone who wants to understand the new economy. He has worked with a succession of global companies on innovation issues including Unilever, Alcatel Lucent, and GM. He is a research fellow at the University of California Irvine, a Fellow at the Society for New Communications Research and analyst with GigaOm Research. He has presented original ways of looking at innovation conferences as far afield as Sydney, San Francisco and Dubai.

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