

Pharmaceutical industry perspectives on the Global Innovation Survey 2013: The insatiable appetite of society, investors and patients for pharmaceutical innovation is linked to the breakthrough advances in science and technology by the innovation process. Managing small steps in that process can make a big difference.

Managing innovation in pharma



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Foreword

Every day we see the impact of innovation up close. Pharmaceuticals (Pharma) is one sector where innovation has a dramatic impact on the health and wellness of millions of people and the bottom lines of companies that provide it.

For most of our clients innovation is the central element of their corporate mission and they aspire to build an internal culture that can deliver it to the market. The rewards for success are high and the risks of failure can threaten a company's very survival. Right now pharma is having trouble keeping up the pace of innovation that patients want and investors expect.

This paper seeks to shed light on the innovation process by calling attention to some critical intangible factors that don't always get sufficient attention. Finding the right talent, pursuing the right partners, keeping patients and payers at the center of the process and getting the right metrics in place to measure innovation are all factors that could push the innovation process forward.

In this report we look at these challenges and urge you to start asking yourself some key questions so that you can rethink innovation for your pharma company.

Steve Arlington and Nick Davies

About this report

Managing innovation in pharma is a companion paper to PwC's survey report, *Breakthrough innovation and growth* and the *Pharma 2020* series of papers.

Breakthrough innovation and growth draws on insights obtained from interviews with the 1,757 C-suite and executive-level respondents, across more than 25 countries and 30 sectors, who are responsible for overseeing innovation within their company. Our sample included 76 respondents from the Pharma sector from 13 countries.

The report explores the impact that innovation has on growth and examines how leading companies are making innovation work for their organisations. The report explores three key questions:

1. How are companies using innovation to drive growth and what is the return on this investment?
2. How are approaches to innovation changing, particularly in light of a trend towards more disciplined innovation?
3. What are the leading practices and critical success factors that deliver tangible business results?

Managing innovation in pharma shows why pharma executives should take a fresh look at their innovation strategy, enhance collaboration – especially with healthcare payers, providers and patients – and broaden their innovation efforts beyond drug discovery.

Breakthrough innovation and growth



Managing innovation in pharma



Innovation: from inspiration to perspiration

Developing a new medication can cost billions – and it's getting more difficult. In recent years the industry's R&D success rate has been under pressure. In 2013, the US FDA approved 32 new medicines, a figure which has remained largely flat over the last few years¹. Pharma companies will need to ramp up innovation to maintain the solid results that shareholders expect.

We defined the top innovators using a balanced scorecard approach based on six factors:

- the importance interviewees place on innovation,
- their appetite for innovation,
- the proportion of annual revenue from products or services launched in the last year,
- the proportion of annual revenue spent on innovation,
- the proportion of products and services co-developed with external partners and
- their project revenue growth over the next five years.

The pharma respondents in our survey say that less than 14% of revenues are coming from new products and services launched in the past year – compared to 25% for the top innovators. That's lower than in most other industries.

According to analysis by EvaluatePharma², the percentage of sales from products launched over the past five years by ten Big Pharma companies has fluctuated between seven and ten percent over the last five years and is likely to stay in the same range over the next five years. But the companies topping the current and projected lists are averaging over 20% of sales from most recently launched products, approaching the figures for the top innovators in our study.

To just meet their ambitious targets, we think pharma executives will need to review and refine their innovation strategy, focus on creating the correct culture in place to implement it, get the most from external collaborations, and make sure they include a variety of innovation approaches. Decisions taken today will have an impact over the next decade, independent of pharma's efforts to speed up the idea-to-approval process.

¹Food and Drug Administration, 'Original New Drug Approvals (NDAs and BLAs) by Month', <http://www.accessdata.fda.gov/scripts/cder/drugsatfda/index.cfm?fuseaction=Reports.ReportsMenu>, PwC analysis
²EP Vantage, "Reinventing Big Pharma – a question of freshness". (16 October 2013)



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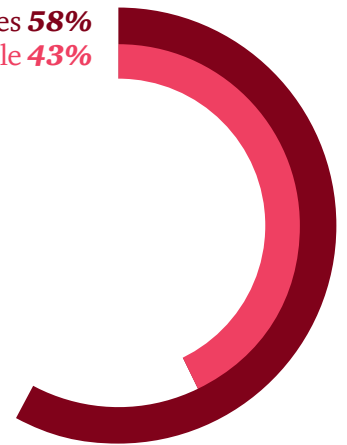
Strategy is important

Figure 1: Pharma executives view innovation as vital to future success

Q: How important is innovation to the success of your company now?

A: A competitive necessity

Pharma executives **58%**
Overall sample **43%**



Source: PwC Global Innovation Survey 2013.
Base: Pharma, 76

The returns on effective innovation are huge. We found a clear correlation between innovation and growth: over the past three years, the most innovative 20% in our study grew at a rate 16% higher than the least innovative. Looking forward, the top 20% of innovators in our overall survey anticipate three times as much growth as the bottom 20% over the next five years.

A clear majority of our Pharma respondents (86%) say innovation is important to their business. And for 58%, it's a competitive necessity – both now and in the future (see **Figure 1**).

But despite emphasizing its importance only 63% of executives say their companies have a well-defined innovation strategy.

We've identified some fundamental aspects that Pharma executives need to consider carefully to achieve their company's innovation vision. These intangible factors are not easily managed but can make all the difference. Pharma needs to focus on finding (and retaining) the right talent, pursuing the right partners and keeping patients and payers at the center of the process.

The stakes are higher in pharma than in other industries. The pharma executives we spoke with say their companies are spending a significantly higher portion of revenues on innovation (11.6%) than the overall average of 8.6%. Our sample includes some smaller companies, though. Looking at just 'big pharma' the rate would likely be significantly higher, similar to that spent by "innovation pioneers" – generally between 15% and 25%.

In a recent study of R&D spending by Booz & Co, seven pharma companies made a list of the top 20 R&D spenders – but not one made their list of the top 10 innovators³.

³Booz & Co., 'Global Innovation 1000: Navigating the digital future' (2013)

But innovation really starts with culture

Every innovation strategy needs highly skilled and motivated people to implement it. That's a challenge for most industries and it is even more acute in Pharma. Nearly three-fifths of Pharma executives (59%) say finding and retaining the best talent to make innovation happen is a challenge for their organisation, compared to 53% of respondents overall (see **Figure 2**).

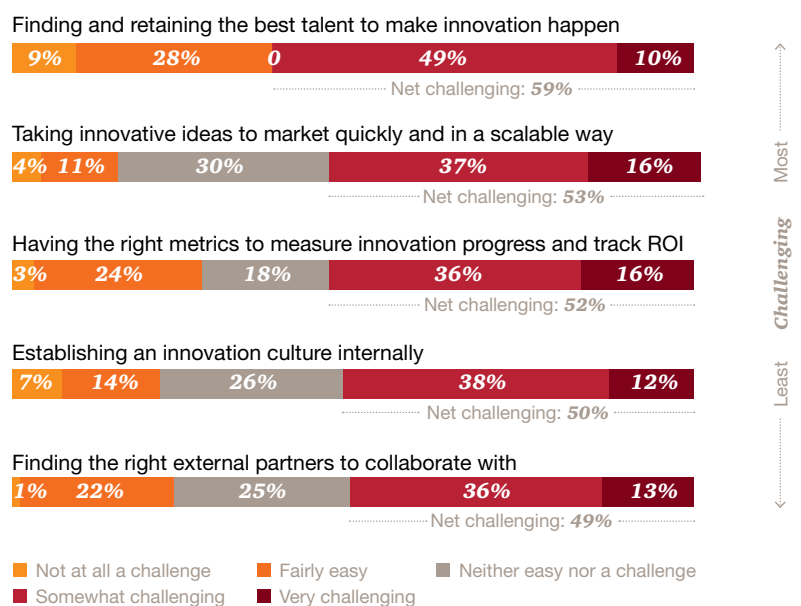
Pharma executives already tell us that they're focusing on their people and the three Rs of innovation – recognition, reward, and risk.

Nearly four-fifths of Pharma executives say that giving employees the chance to lead or participate in high-profile innovation initiatives is important to developing a strong innovation culture, and just as many are convinced of the need to recognise and reward innovation initiatives. We've found that both financial and non-financial rewards, like letting scientific staff participate in conferences or take 'thinking sabbaticals', are important⁴.

That doesn't mean it's easy – half say that establishing an innovative culture internally is a challenge. And getting the right metrics in place to measure innovation success is equally tough.

Figure 2: Talent leads the list of innovation challenges for pharma executives

How challenging do you find the following aspects of making innovation happen within your company?



Note: Graph excludes the 'don't know' responses
 Source: PwC Global Innovation Survey 2013. Base: Pharma, 76

⁴PwC Health Research Institute, 'New chemistry - Getting the biopharmaceutical talent formula right' (2013)

59%



Nearly three-fifths of Pharma executives (59%) say finding and retaining the best talent to make innovation happen is a challenge for their organisation

About half of Pharma executives say having the right metrics to measure innovation progress and track ROI is a challenge for their organisation. It's far easier to define metrics to understand the perspiration half of the innovation equation than the inspiration piece but breakthrough innovation is often the result of the latter.

Pharma executives also see many other factors as important. More than two-thirds of them are looking to create a failure-friendly environment, establish 'tone from the top' with senior executive participation in innovation projects, and set up internal communities of interest (see **Figure 3**).

Our other research⁵ suggests that the first two are vital, but not all incentives are created equal. Companies that only reward researchers for getting new molecules to the point immediately prior to testing in man encourage those researchers to push unviable compounds further down the pipeline. It's equally important to promote a 'fail early, fail cheaply' mindset by providing incentives for terminating weak candidates as fast as possible. Punishing failure socially or economically discourages risk-taking and dampens creativity.

Figure 3: Pharma execs say a lot goes into building a strong innovation culture



Source: PwC Global Innovation Survey 2013. Base: Pharma, 76

⁵PwC Health Research Institute, 'New chemistry - Getting the biopharmaceutical talent formula right' (2013)

Added leverage from external collaborations

Various approaches managing innovation are being applied across a wide range of industries. Open innovation stood out as the innovation process that executives felt was most likely to drive growth. Put simply, open innovation means external and internal people teaming up to generate and commercialize ideas together. There are some examples, like Eli Lilly's Open Innovation Drug Discovery (OIDD) platform, where Lilly shares proprietary data with researchers looking to test their own compounds. According to Lilly, over 360 universities, research institutes and small biotechs, representing 34 countries, are now affiliated with the programme⁶.

Whether collaboration means joint development of new molecules through an open portal, licensing agreements, investing in a start-up exploring new therapeutic ideas or working together with others in the healthcare ecosystem, partnering will be absolutely essential.

The vast majority – 96% – of pharma executives say their companies have plans to collaborate with strategic partners over the next three years. That's not all. They're planning to work together with suppliers, academics, even with the competition – to rev up innovation.

Strategic partnerships with biotech companies are still some of the most important types of collaboration and potential sources of radical or breakthrough innovation. There are many examples of competitors now working together too; pharma companies were the most likely in our survey to say they planned to collaborate with competitors. In the cancer immunotherapy space, Merck has announced its intention to work with three other players (Pfizer, Amgen and Incyte) to see how one of its experimental drugs might work in combination with other medicines⁷. Pfizer and GlaxoSmithKline are jointly investigating a therapy for melanoma⁸. Lilly's also working with Pfizer on a pain medication⁹.

⁶ John Lechleiter, "Eli Lilly at JPMorgan Healthcare Conference" (07 January 2014), CQ FD Disclosure

⁷ "Merck Enters Strategic Collaborations with Amgen, Incyte and Pfizer to Evaluate Novel Combination Anti-cancer Regimens with MK-3475" (05 February 2014), <http://www.mercknewsroom.com/news-release/oncology-newsroom/merck-enters-strategic-collaborations-amgen-incyte-and-pfizer-evaluat>

⁸ "Pfizer And GSK To Initiate Study Of Novel Combination Therapy In Patients With Melanoma" (21 November 2013), http://www.pfizer.com/news/press-release/press-release-archive-detail/pfizer_and_gsk_to_initiate_study_of_novel_combination_therapy_in_patients_with_melanoma

⁹ "Pfizer Reports Third Quarter 2013 Results" (29 October 2013), http://www.pfizer.com/news/press-release/press-release-archive-detail/pfizer_reports_third_quarter_2013_results

Figure 4: Pharma companies are starting to co-create with external partners and customers



Source: PwC Global Innovation Survey 2013. Base: Pharma, 76

Pharma companies were also more likely than most respondents to say they planned to collaborate with the academic sector. In other research we found that nearly a third of companies already have partnerships with academic medical centers (AMCs)¹⁰. Many are participating in research consortia too, such as Europe's Innovative Medicines Initiative (IMI)¹¹ which is jointly supported by the European Union and the pharmaceutical industry association EFPIA. The EU and EFPIA have each put up an impressive billion Euros in cash. The IMI is already supporting 40 projects, including a new drug discovery platform, the European Lead Platform. Foundations looking to fight particular illnesses or other non-profits are starting to fund collaborative research too.

These collaborations are bringing results. Nearly a third of pharma respondents – 29% – say their innovative products and services are co-created with external partners, more than the overall average across industries (see **Figure 4**).

That's encouraging progress. There's another key area where we feel pharma companies still need to do more: co-creating with customers. Pharma executives say they are already co-creating 22% of their products and services with customers. That's higher than in most other sectors but lower than it needs to be if the sector is going to move to a truly patient-centred model.

Pharma companies have long-established relationships with physicians and other healthcare providers¹². But the role of payers is becoming increasingly important. Payers are starting to tie reimbursement to patient outcomes. That's a radical challenge to pharma companies, who'll need to prove not only that their medications work, but that they work better, or are cheaper, than the competition. To do so, they'll need to partner with those organisations, and with patients, to get more hard data on how effective their drugs are.



Nearly a third of pharma respondents – 29% – say their innovative products and services are co-created with external partners

¹⁰ PwC Health Research Institute, 'New chemistry - Getting the biopharmaceutical talent formula right' (2013)

¹¹ Innovative Medicines Initiative: Mission, <http://www.imi.europa.eu/content/mission>

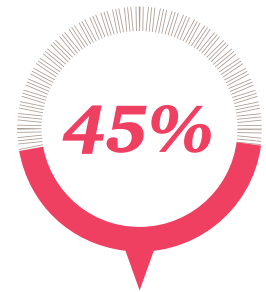
¹² PwC 10Minutes industry series, 'Drug value in the new health ecosystem' (2013)



Can innovation be more than just products?

For the pharma industry, innovation is often synonymous with new drug discovery and approval. And there's no arguing with the importance of developing new medications. Pharma executives were far more likely as executives across all industries to say that product innovation, as opposed to service or business model innovation, is their top priority in the coming year (45% compared to 28% overall). But product innovation is getting more and more costly. Between 2002 and 2012, the pharma and biotech sectors spent nearly \$1.1 trillion on R&D. And Forbes estimated that big pharma is now spending an average of \$5 billion per approved molecule, although many smaller companies spend less¹³.

¹³ Matthew Herper, 'The Cost of Creating a New Drug Now \$5 Billion, Pushing Big Pharma to Change', Forbes (8 November 2013), <http://www.forbes.com/sites/matthewherper/2013/08/11/how-the-staggering-cost-of-inventing-new-drugs-is-shaping-the-future-of-medicine/>



Nearly half – 45% – expect to make radical or breakthrough innovations in products over the next three years

The pharma respondents in our survey still have ambitious aspirations.

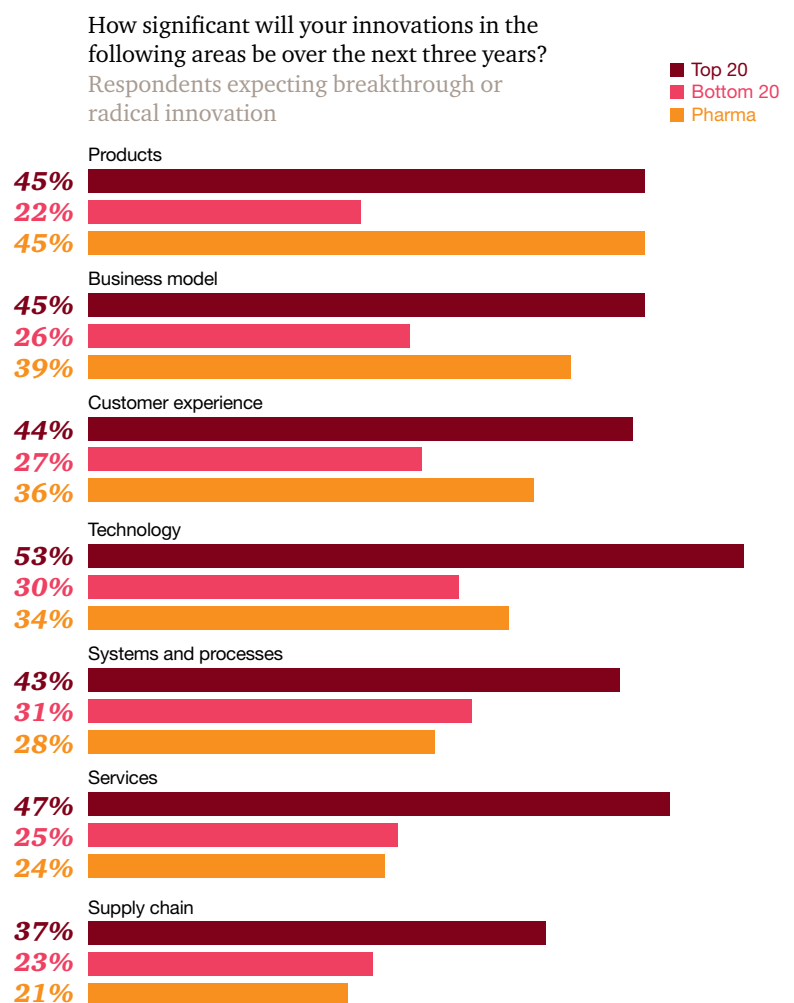
Nearly half – 45% – expect to make radical or breakthrough innovations in products over the next three years. That matches the top 20% of innovators in our study (see **Figure 5**).

Their interest in business model innovation also approaches the top innovators. And it's something that CEOs are highlighting as examples of innovative thinking to meet the world's changing health needs¹⁴.

By contrast they're below the bottom 20% when it comes to plans to innovate in systems and processes, supply chain or services. This is despite many well-publicised initiatives by pharma to wrap a service around its products.

Many have already taken the first step – making it part of their future plan. Nearly two-fifths (39%) of pharma executives expect radical or breakthrough innovation around the business model over the next three years.

Figure 5: Pharma executives are most ambitious about products, but business models and customer experience are changing too

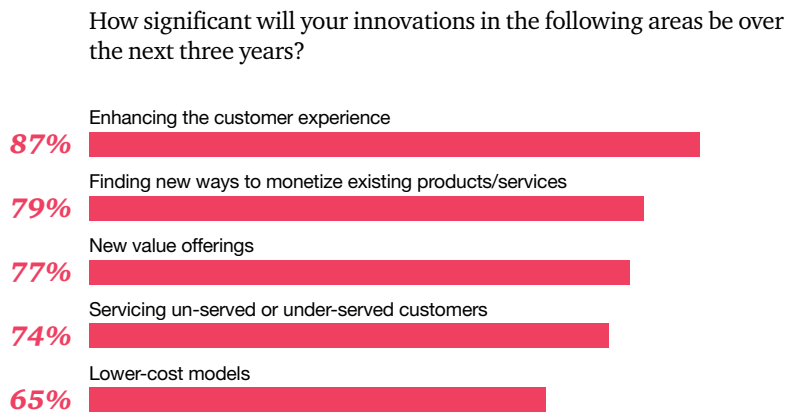


¹⁴ Joseph Jimenez, Novartis CEO, 'Rethinking Pharmaceutical Business Models', Project Syndicate, (23 January 2014), <http://www.project-syndicate.org/commentary/joseph-jimenez-describes-how-drug-companies-can-meet-the-world-s-dramatically-changing-health-care-needs>

Re-thinking existing treatments

A large majority of the Pharma companies surveyed are looking for ways to improve existing products and services for patients (see **Figure 6**). One example is to improve how the drug is delivered. Novartis recently got approval for a high-dose version of its Exelon patch treatment for patients with Alzheimer's¹⁵. Exelon patches, like other Alzheimer's treatments, help improve symptoms rather than slow down the disease. But for caregivers coping with patients who are often frightened or aggressive and resist taking their pills, analysts note that the patch offers a welcome relief, that's worth the price premium.

Figure 6: Pharma executives are focusing on enhancing the customer experience



¹⁵ Alexi Friedman, 'Latest FDA approval of Alzheimer's patch from Novartis gives patients some relief', NJ.com (7 July 2013), http://www.nj.com/business/index.ssf/2013/07/latest_fda_approval_of_alzheim.html

77% of pharma companies are looking for new ways to monetize existing products and services.



What can you do to make sure your company is a leader and not a laggard?

Where next for your business?

There's no disputing the fundamental role innovation has played in the pharma industry. Product innovation has saved and improved countless lives. And while it's getting more difficult to develop new drugs, there's still plenty of hope for the future in areas like personalized medicine and the application of genomics.

Companies with an innovation edge will have a strong competitive advantage. What can you do to make sure your company is a leader and not a laggard?

- **Know where you want to go and how you'll get there.** Innovation in the pharma industry requires careful planning and a clearly defined strategy. And companies shouldn't rest on their laurels; taking a fresh look is vital to keep up with the competition.
- **Look beyond product R&D.** Investing in research and development to develop new drugs is an important part of innovation, but it's far from the whole story. Pharma companies need to make sure that they're paying attention to fostering innovation in areas like business models, products and customer experience (for downstream) and the supply chain too.
- **Focus on people.** The executives we surveyed say it can be hard to get and keep the right people on board to make innovation happen. To cope, pharma companies need to make sure they have a strong innovation culture that supports top talent.
- **Work together with the right partners.** Finding the right external partners is a challenge for many of the executives we surveyed. But it's vital – particularly given the scope of the challenges involved in really understanding how diseases work and what mechanisms will stop them in their tracks. Open innovation initiatives will play a key role.
- **Understand how to bring value to patients and payers.** That may mean expanding service offerings, or rethinking business models.
- **Carefully measure success.** That means developing the right KPIs for different types of innovation and business units. And while looking at innovation through a financial lens is important, so are other perspectives.

Want to find out more?

For help and advice with your innovation strategy and process, please contact our pharma sector team or one of our innovation leaders.

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