



SECTOR ANALYSIS

# Organising for creativity and innovation – lessons from the biopharmaceutical industry

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The biopharma industry is arguably the most knowledge intense industry of all. Human creativity and ingenuity within R&D and beyond play key roles in turning that knowledge into IP and value for patients and corporate stakeholders.

Recent examples of scientific or clinical breakthroughs that are having a significant effect on patient lives include drugs curing HCV, the advent of immuno-oncology, with checkpoint inhibitors or modified T-cells (CAR-T) leading to unprecedented survival benefits in some cancers such as malignant melanoma or acute lymphoblastic leukaemia.

In addition, advances in gene therapy and gene editing (e.g., using the CRISPR/Cas9 system) carry the promise of curing genetically caused diseases and offer possibilities that we cannot even fully imagine today. What are the lessons for other industries that also critically depend on creativity and innovation as a key



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source of value creation from the best performing biopharma companies involved in this seismic shift?

Contrary to popular belief, many biopharma breakthroughs and products are results of chance (the term often used is 'serendipity') – that happened in spite of, rather than because of, a large R&D organisation. Examples for this trace back to the pre-industrial stage, when Alexander Fleming discovered the first antibiotic penicillin because his bacterial cultures were 'contaminated' by a mould that secreted a substance that killed the bacteria surrounding them. The rest is history. Our estimate is that a good 50 percent of all major biopharma products had some element of serendipity in their discovery stage.

Achieving the right balance between a clear strategic direction and following a process while being open for the unexpected and sudden changes in direction is incredibly difficult to achieve, especially as organisations grow larger and become more professional and bureaucratic. Approaches to transfer management tools from other (more predictable) areas like marketing and sales and also engineering into biopharma R&D have often failed, or their implementation has led to unhealthy side-effects.

In fact, recent analyses of R&D productivity of the top 30 biopharma corporations by sales have identified smaller to mid-sized companies such as Biogen, Celgene or Gilead as the most productive in terms of value created per R&D dollar spent. Very few of the traditional pharma giants such as Pfizer are near the top 10 of the ranking.

What have these best performing companies done to let creativity and productivity thrive? In our experience, they share a number of common features.

## **Highly networked 'open innovation' approach**

In a field as complex as biopharma R&D it is virtually impossible for one organisation to cover all relevant knowledge internally. Even if there is a clear focus on one or few therapeutic areas, relevant knowledge or insights may arise in academic centres and biopharma companies around the world. Having the right approach to early socialisation, scouting and then collaboration has become a matter of survival when 50 percent of the industry's pipeline of novel drugs stems from external sources.

In the past, traditional licensing or acquisition models for accessing IP and drugs assets dominated, but over the

last 10 years the industry has become extremely flexible and creative in exploring novel models for tapping into external innovation, including: (i) corporate venture capital (VC) arms, which make small strategic investments, primarily to get a front-seat view in form of observing board membership on an emerging technology; (ii) build-to-buy constructs, which involve participating in the foundation of a company with the intent to fully buy the majority or entirety of shares upon achieving predefined milestones; (iii) option-based deals, which mean paying a comparably small fee for having an option to partner or buy an asset with predefined deal terms when achieving a milestone; (iv) open crowdsourcing, which essentially means that a pharma company defines problems and invites either the public or academics to address them, often providing access to technology and lab resources; (v) public-private consortia in the pre-competitive space that address fundamental research gaps, which can bring together hundreds of academic groups and biopharma companies as in the case of the European 'Innovative Medicines Initiative'; (vi) innovation hubs, typically set up in biomedical hotbeds such as Boston or San Francisco, which serve as local scouting



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enterprises but are also actively involved in helping entrepreneurs set up companies sometimes by providing lab space, seed financing and access to company knowledge and advice; and (vii) acquiring companies and deliberately not integrating them – the primary goal of a knowledge-driven acquisition is typically to gain access to great people and IP. Often, upon integration into a large mothership, all the good talent leaves. For this reason many companies have decided to not fully integrate these acquisitions. The Roche/Genentech relationship that some people describe as one of the most successful collaborations in biopharma history provides the template for this strategy. To this day, although Roche fully acquired Genentech in 2009, it has not integrated Genentech Research and has left it completely alone in terms of structure and strategic direction.

## **Leadership teams with deep understanding of innovation dynamics**

The best performing companies in biopharma history had CEOs or leadership teams with a clear understanding of the industry's key value drivers – creativity and innovation. Only with this understanding can one

formulate a strategy that makes best use of an organisation's innovative capabilities in an increasingly competitive landscape.

Many leadership teams lack that understanding, or have CEOs who put little emphasis on it, sometimes coming from completely unrelated industries. No wonder that cutting back unproductive R&D in the context of yet another merger was long viewed as a primary fix for companies that faced a massive loss of revenues due to patent expiration of blockbuster drugs.

Examples of leaders who shaped the biopharma industry based on their deep understanding of creativity and innovation include: (i) Arthur Levinson, a scientist turned CEO at Genentech (arguably the biopharma industry's best organisation for more than a decade); (ii) Roy Vagelos, an MD turned CEO at Merck & Co, when they were still America's most admired company; and (iii) Paul Janssen, a chemist turned CEO at Janssen Pharmaceutica, the industry's most productive R&D organisation ever, before Johnson & Johnson acquired them.

## **Free creative spaces and sense of urgency**

What at first glance appears self-contradictory is an important feature

in most innovative companies, not just within the biopharma industry. Some companies like Genentech, 3M or academic institutions like the Massachusetts Institute of Technology achieve this by granting 10 to 20 percent of free time to pursue problems of personal interest during work hours and using company resources (within limits).

This 'day-off' helps scientist to stay connected to their original areas of expertise or pet projects. From these areas, oftentimes creative sparks help solve problems in the core portfolio. The other side of the coin is the insight that much freedom is typically not good for creativity, as most people also require a sense of urgency to keep on pushing and to leave comfort zones, be they personal or corporate.

Ideally, this sense of urgency stems from the company's aim of making a meaningful contribution to patient lives. This is the equivalent of Steve Job's famous question to John Sculley when he wanted to lure the Pepsi executive to Apple by asking "Do you want to sell sugared water for the rest of your life or come with me and change the world?" A sense of urgency also implies a high-degree of professionalism when it comes to portfolio and project management, process efficiency and all



the other elements of high-performing organisations.

**An open environment in which chance encounters happen often**

This is a major challenge for highly matrixed global organisations spanning different continents and time zones. It is no coincidence that the most creative organisations share one principle: ‘co-location’, often in single-site campus like setups.

A physically co-located community of creative minds was one of the

ingredients of the success of Genentech or the early Apple. Beyond the practicalities of scheduling meetings, etc., the most important impact is that such setups enhance the likelihood of chance encounters and findings across epistemological and organisational barriers that often lie at the root of innovative breakthroughs.

Nowadays, many Big Pharma companies are trying to mimic that model in their Boston-based innovation centres, be it Novartis, Pfizer, AstraZeneca or Takeda, which all

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set up shop in that most energetic and creative US biopharma cluster.

Overall, we feel that these lessons can serve companies in other industries that are also in the business of turning knowledge into innovation. Creative people need a supportive environment that provides both freedom and a strong sense of urgency and purpose. Those who strike the right balance between these two forces can unleash the creative potential of their team and hugely benefit in today’s innovation hungry markets. ■