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# The face of biotech\*

a roundtable summary on the medium and long-term biotech landscape



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*PricewaterhouseCoopers recently organised its second exclusive think-tank session with key opinion leaders from the biotech industry to discuss what the medium to long-term biotech landscape will look like in 2020. The aim was to gather ideas as input for a “biotech 2020” research paper in line with PwC’s previous publication “Pharma 2020”, but now dealing specifically with the challenges facing the biotech industry. This document reports the main outcome of the second roundtable session held on 11 March 2010: the first was held on 15 December 2009. The two will be consolidated into one with input from similar PwC initiatives around Europe.*

*There are probably more differences between biotech and biotech than there are between biotech and pharma. Biotech can no longer be considered as one single bucket.*

## Biotech business models

The pharma and biotech business models are clearly becoming more **convergent**. Several pharma companies are positioning themselves as, while some biotech companies are aspiring to be called, “**bio-pharmaceuticals**”. Probably, within ten years the difference between the two models will have disappeared. Even now pharma has started implementing “*virtual collaboration models*” based on outsourcing their R&D activities. It could be argued that pharma firms are spending more time and money

“*outside*” their internal operations, with big pharma looking to biotech for new targets and developments and focusing more on their core activities (i.e. chemistry and manufacturing). **Pharma is thus the distributor and biotech the developer**, responsible for new targets. Clearly, big pharma companies will still continue to have their own research departments (e.g. Novartis and Roche). What this signifies, however, is that, in the future, different business models will exist, i.e. own research versus outsourced research, depending on the therapeutic fields in which a given firm is operating. Potentially, the business model could also depend on the maturity of the product portfolio: for existing products, pharma’s business model may be akin to biotech’s but, for new products, it might be very different. We might also expect there to be hybrid business models.

*Will the name “pharma” even exist in 50 years?* Probably not. If you count how the workforce has been decreased in the last few years, it would seem that the pharma model is “*bankrupt*”: big pharma is increasingly putting a stop to internal research and is looking more into outsourcing their operations.

It’s unlikely that the biotech model, created as a university spin-off, will disappear altogether. Instead, the question to ask is “**how will integration between biotech and pharma occur?**” This may well depend on the product portfolio and the related risks pharma is prepared to take.



## Biocluster business models: why they are important

**Access to scientists is the key:** in Europe, we are seeing more bioclusters based on collaboration between companies, universities or other actors in the cluster. These clusters provide the critical mass of scientists needed to perform proper research. Universities play a critical role in a cluster because they provide the required access to scientists and research initiatives. However, it should be clear that biotech companies do not only elaborate on research initiatives from universities but also rely on opportunities coming from big pharma companies or hospitals.

**Open innovation model leads to creativity:** Given the current economic climate and the decrease in available funding, there's a greater push towards the "*collaborative model*", even amongst the big pharma companies. The "open campus model" at J&J or Philips is an example of a collaborative model where they created their own "cluster". In the future, we can expect to see similar activities being set up by other companies as an "*open innovation model*" leads to creativity.

It's important, however, that we don't look at a cluster as something "physical": science is global and collaboration in science takes place on a global or virtual scale.

A cluster with an open innovation model also provides the advantage of being able to innovate based on the interaction between two distinct scientific disciplines or activities.

Clusters also offer an advantage regarding the **mobility of researchers** and other employees between companies within a cluster or from universities to companies.

Overall, the **sustainability** of a company in a cluster depends on many different factors: turnover, long-term planning, multiple projects and product portfolio, ability to adapt, people, the technology platform, and so on.



## The change in healthcare: an opportunity for biotech?

**The European healthcare system is much more fragmented than that of the US.**

In Europe, each country has its own healthcare system and this difference is a disadvantage for biotech companies, because it makes things more difficult. For example, there are different systems in Europe that pay for personalised medicine. This raises major difficulties not only for the payers but also for the biotech companies themselves: the sales approach and the skills of sales forces need to be different; sales forces need to negotiate differently and with different audiences such as hospitals or patient organisations.

Personalised medicine is all about reducing healthcare costs. The issue, however, is that, for some products, the cost of goods sold (COGS) is extremely high and for others it is extremely low. This is also a challenge for the social security system as reimbursement is based on COGS, amongst other things. The question is "will society be able to pay for extremely expensive products?" There are a lot of signs that our healthcare systems are moving in the direction of "pay for performance", **a system driven by outcomes**. However, pricing and reimbursement will continue to be difficult to manage in such a system. What is certain is that many pharma companies are now developing accompanying diagnostics and biomarkers for their products as a means

of measuring the outcome. Recently, the FDA changed its regulations to allow product approval with an accompanying diagnostic. Payer organisations will also take action, so that we are moving steadily towards a model of “pay for performance” or an outcome-driven business model.

Everybody now realises that the business model needs to change. **Companies that have real solutions, based on biomarkers and diagnostics, are those that will be successful.**

Europe spends an average of 8% of its GDP on healthcare, whereas the US spends around 14%. Together with the ageing population, there is set to be enormous pressure on healthcare. The overall cost needs to decrease and reorganisation is the only solution. Industry will also need to take responsibility. Despite payers being much more conscious about healthcare costs than in the past, it's very difficult to make changes in the healthcare system. There are many lobbyists with their own agendas, pharma being one of the most important. To remain sustainable, the industry needs to be more correct and reasonable with its pricing.

Our healthcare system is very rigid, but in many emerging countries this is not the case. In those countries, there is scope to create a lot of opportunities and new ways of dealing with issues.

## Risk

**Intellectual Property (IP):** many Chinese and Indian biotech companies are competing on the global market, which is very good because, whilst research ideas can be forthcoming from our local universities and companies, we might also rely on research ideas from those emerging countries. However, the danger lies with intellectual property (IP). India and China have a different view of IP. They do not really consider infringements of IP as unethical. In their opinion, it's not a bad thing to make copies of products. The long research & development lead times (up to 20 years) of course makes counterfeiting or the infringement of IP “attractive”.

**New business model to decrease risk:** although biotech entails much more research compared to other industries, it hasn't yet produced a real blockbuster. However, one day, there will be a biotech blockbuster, which will lead to a paradigm shift, especially in the area of “repairing tissues” and “curing” instead of “caring”. Stem-cell research plays an important role in this respect, but it all takes many years and there are many risks attached. Perhaps new business models should be developed to decrease risk. One example of such a model is the Belgian IMEC initiative. This is a long-term, sustainable model in which research risk remains within the IMEC umbrella for a sufficient amount of time. The basic science and research should stay within research institutions or universities longer, thereby decreasing the risk. Currently, about 60 to 70% of research initiatives go into commercial companies at too early a stage.

**Sharing risk:** people become entrepreneurs when they lose their jobs! Many examples of this are seen in the wake of large-scale big pharma reorganisations. Social insurance measures (like favourable pension schemes within large pharma companies) make it more attractive to continue to work in a large company, and this has a negative impact on entrepreneurship.



But there is also the question of risk averseness. *People are afraid of taking risks.* Governments can play a role in this respect and help people take risks with funding or co-investment. Often academics with an idea reach out to accountants, lawyers, etc. and spend too much time trying to commercialise their ideas rather than staying abreast of their research. It would be better if academics approached existing companies that already have business expertise instead, as this would allow them to remain focused on their research. In short, more collaboration is needed in sharing risk.

## Reputation

Pharma ranks 13th, after the tobacco industry, with respect to public reputation. This clearly influences venture capitalists. *What can biotech do about this?* Today biotech is viewed by financial analysts as a different industry to pharma. As biotech and pharma converge, pharma firms should become better communicators and spend more attention on their reputations. For the time being, it is going to be difficult to salvage pharma's reputation. Governments also need to take responsibility for the issue of pharma's reputation. For example, Belgium has some of the best scientists and many strong pharma companies, and yet getting prescription refunds or a good price from the Belgian government is a very difficult and lengthy process. *As a result, company headquarters tend not to invest first in Belgium but do so rather in other countries.* This negatively influences companies' reputations in the eyes of investors. Pricing and refund negotiations in the U.S.A. and Germany are much easier and, as a result, investments and pricing are first arranged in those countries.

Another reputation issue is the *availability of drugs to welfare countries.* Although drugs are available in most welfare countries, this is not the case in Africa. Pharma has no problem providing drugs to Africa, but somebody has to pay for those drugs, and that is currently an issue!

The high number of sales reps and somehow aggressive sales practices in pharma is another reason for the low reputation of the sector. The reduction of sales reps and a shift towards scientific advice, will improve pharma's reputation.

Pharma's negative image and reputation stem for the most part from the media. When you talk to people on the street, Joe Public is often impressed with the scientific breakthroughs from biotech and pharma companies. If pharma communicated better with the media, it would resolve many of these issues surrounding its negative reputation. Organisations like pharma.be or VIB are doing a good job with their communications.

Overall, pharma and biotech need to reinvent themselves before shedding their negative reputation and bring forth solutions with accompanying diagnostics and biomarkers, and not just products.



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