

## Gary Pisano



The author of the landmark book *Science Business: the Promise, the Reality and the Future of Biotech* discusses key challenges in life science commercialization.

Harvard Business School's Gary Pisano has spent several decades studying business and management strategy in the biotech sector. Here he talks about the current challenges in commercializing life science.

### What kinds of problems does any biotech business face?

**Gary Pisano:** There are essentially three challenges. First, you have to solve the problem that you have uncertainty surrounding the science that prevails over very long periods of time, much longer than we see in almost any other industry. And we don't have good structures and models for doing that. This has meant that investors have tried pulling off-the-shelf business models from other high-tech arenas, like software and electronics, where the product cycles are much shorter. These are just inappropriate, given the time horizon. Second, this business is not a one-discipline sport, it's multidisciplinary. We use the terms 'the life sciences' or 'the biotech revolution' for convenience, but it's very misleading. So there's a fundamental problem in integrating the constellation of tools needed across disciplines, particularly for young companies, because it requires a certain scale. And then finally, there's the challenge of learning; at any time, the state of the art is evolving rapidly and there's a lot of trial and error. Organizational experience is really important to learn over time and figure stuff out. But in the biotech model, many new entrants come in with the mission of what's the fastest exit strategy. This is not a criticism of entrepreneurs or entrepreneurship, but at some point you have to start to accumulate, as an organization, experience in how to do things.

### How do you see the biotech model changing going forward?

**GP:** Biotech and pharma are part of the same ecosystem. And pharma can play a powerful

role in driving integration. What's been happening, though, is some are going in the opposite direction. They're saying, "We're getting out of the early-stage R&D. We're not going to be the experts. We just want to buy from that market." So they're counting on biotech to generate drugs for them. But my data show that biotech is no more productive than pharma; the productivity problem is shared. So it's very important for pharma to retain expertise in the science. If you want to play in the scientific ecosystem, you have to be good at it. The other thing that I was hoping for, but we're not seeing it at all—again, we're going in the opposite direction—is that leading biotechs could emerge with new models and new ways of doing business. I think both biotech and pharma have to

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learn to work together differently. They don't do collaborative development. They do a lot of short-term deals. And it's actually gotten worse as pharma companies have faced pipeline pressures. What they want is a late asset, which I can completely understand. But it doesn't build the fundamental organizational capabilities required to do drug discovery.

### Why haven't larger biotech companies done more in this respect?

**GP:** The large biotech firms have fallen into some of the same patterns as big pharma, partly because they face similar financial pressures. As a biotech company grows, it starts to look more like a big pharma from an investors' perspective. Suddenly, they're an earnings-per-share story. And, that's a trap. I would argue they're too small and have too much inherent volatility to play this game. I

think it is going to require a certain amount of guts for CEOs and leaders in the business to say, "What's the model that we want to pursue that makes sense in the longer term for our investors?" And I don't think there's one answer. There's certainly a 'Pfizer model' that suits some investors, but there are other investors who look longer term and are willing to accept more volatility. At the end of the day, there's a mismatch between the business model in a publicly traded firm and what biotech needs.

### What's the solution?

**GP:** We need different capital structures that are more long-term private-equity oriented. And this is again where big pharma could play a role. Investing in companies, even buying them, but letting them run independently and where appropriate, preserving the culture. Operating almost as part of their own private-equity portfolios. At the moment, too often they buy companies, assimilate them, cut costs, and ultimately kill them.

### What other central problem does the industry face?

**GP:** There is a huge mismatch between the drugs biotech entrants are developing and the drugs pharma companies want to commercialize. In essence, the supply side and the demand side of the market for know-how are out of balance, and it's been that way for 30 years. As I argued in my book, the reason for this imbalance is that markets for know-how don't work very efficiently in this context, because know-how is a very, very hard thing to transact. For buyers (pharma), there's an asymmetry of information; no two sellers are alike, much of their value is hidden or proprietary. For sellers (biotech), it's a struggle to know what buyers want (or what they'll want in 10 years), and even if they do know, product timelines are so long it's difficult to respond. This is what leads to such a huge mismatch on the supply side and the demand side. And when big pharma companies say, "We're going to do less internal R&D and in-license external projects instead," I say good luck to them. I predict they won't find what they need; and in the meantime, their internal R&D capabilities will atrophy. This is probably the single biggest strategic blunder being committed in the industry. **ib**