

# Unlocking innovation: Lessons from big pharma

**Following investments in biotech, IESE's Thomas Klueter offers insights into how incumbents may best invest in new, potentially disruptive technologies.**

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When confronted with game-changing, radical technologies, some companies adapt and some fail as their industries are transformed.

What do the companies that adapt have in common? Is it that they invest in the radical technologies disrupting their industry?

It's not so simple. Consider this: Both Kodak and Polaroid invested in digital camera technologies and yet neither company survived the digital revolution that made film processing all but obsolete.

When business models are challenged, there is more going on. Incumbent companies that want to adapt to industry upheaval must not only invest in radical technologies, they also must see those investments all the way through the development pipeline, countering internal resistance.

In their research, Rahul Kapoor of Wharton and [Thomas Klueter](#) of IESE seek to better understand when incumbents' investments in radical technologies lead to new product development and when these investments are more likely to be undermined by organizational inertia.

In an [award-winning article](#), published in the *Academy of Management Journal*, Kapoor and Klueter look at the emergence of several new technologies in the pharmaceutical industry

that shed light on how incumbents are managing radical technological change.

Using public company data gathered from 1989 to 2008, combined with interviews with senior management at large pharmaceutical firms, the authors analyze how 50 companies approached two promising advancements based on genetic engineering -- monoclonal antibodies (mAbs) and gene therapy (GT).

## **Organizational inertia between research & development**

The article challenges the notion that incumbent firms simply get blinded by the emergence of radical technologies and then do not invest in them.

Instead, the co-authors separate incumbents' actions into upstream research ("R" of R&D) and downstream development ("D" of R&D) and track when research discoveries are translated into new product development attempts.

Although all radical technologies challenge incumbents' existing knowledge base, the article considers that technologies can differ in the extent to which they conform to the incumbents' existing business model in terms of how they generate revenues and appropriate profits.

In their study, mAbs represent a sustaining technology for the incumbent pharmaceutical companies, because mAbs are used as long-term medical treatments and result in recurring costs for patients and insurers. In contrast, GT represents a disruptive technological regime because gene therapies are typically one-off or significantly less frequent, customized treatments and are very different from the incumbents' existing business model. The authors argue that this difference may represent an important source of organizational inertia when incumbents decide to move their research discoveries toward development and commercialization.

The authors further consider that incumbents invest in radical technologies in different ways - including in-house research, external contract research, alliances and acquisitions. They argue that these modes differ in terms of who does the research and who is involved in the decision to translate research discoveries for subsequent development and, as a result, may face different sorts of organizational pressures.

## **Disruptive technologies: Square pegs in round holes?**

The paper illustrates that the decisions to pursue development following in-house research are strongly influenced by the incentives of strategic decision-makers and the resource allocation processes within incumbent firms. While these characteristics facilitate firms' development of sustaining technologies, they induce inertial pressures when the technological regime is disruptive. As a result, investments in internal research are less likely to lead to development.

The authors cite several executives who shed further light on their findings. For example, one executive of a large pharmaceutical firm explained that while mAbs was in line with the firm's existing business model, its management struggled with GT.

"The idea that in gene therapy, the technology in-house struggles to move forward in commercialization is not surprising... -- this is the square peg round hole. We have it -- [but it] does not look like an antibody, does not look like a small molecule -- we are struggling [to justify the economic opportunity]," the executive said.

The authors further illustrate that contract research, while external, behaves very similarly to in-house research. This is because the subsequent development decisions remain internal and incumbents' investments in contract research in GT do not readily translate into development.

## **The advantages of alliances and acquisitions**

While investments in GT through in-house and contract research did not result in subsequent development by incumbents, those in research alliances and acquisitions were more readily moved into development and commercialization.

The authors explain that the development decisions following research alliances involve outside partners from start-ups or research organizations. The influence of these outsiders may be one way to counter organizational inertia.

A pharmaceutical executive agreed with this assessment and offered the opinion that collaborations are based on collective decision-making with outsiders, which facilitates the management of disruptive innovations.

In a similar vein, the authors emphasize that when large incumbents acquire start-ups with radical new technologies, they tend to leave the start-ups' leadership in place and grant them

some autonomous decision-making, which leads to structural separation from internal decision-making. Such separation can be another way to counter organizational inertia so that, even if a technology does not conform to the incumbents' business model, they may still move their research discoveries toward development.

## **Overcoming inertia at the right stage in the game**

Kapoor and Klueter show that organizational inertia, while not necessarily present at the stage of investing, may appear when research discoveries need to be moved toward development and commercialization. They also demonstrate how "research alliances and acquisitions offer a means to overcome such inertial forces and help incumbents navigate the changing technology landscape" in this article.

Incumbents, hence, need to go beyond simply investing in new technologies. They also need to be mindful of some of the challenges in moving research discoveries toward commercial markets.

This article was awarded second prize for the "Innovation Management Best Paper Award" presented at EBS Business School in December 2014. The prizes recognize papers that "combine cutting-edge research and high practical relevance."

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