

Nanobiotechnologies: disrupting the logic of the drug industry

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The emergence of nanobiotechnologies in the drug industry is not only a scientific challenge, it is also challenging corporate strategy and business models. Based on an analysis of recent changes in the drug industry, we identify which are the triggers of change in an industry's dominant logic, defined as the general scheme of value creation and capture shared by its actors. Breakthrough innovations leading to technological discontinuities are a necessary, but not sufficient, condition for the disruption of such dominant logics. The emergence of new business models questions an industry's existing value chain and the relations between its actors.

We argue that in the drug industry, experiencing strong discontinuities and with high technological uncertainties, business models will tend to fit into the dominant logic of the industry and value chains will remain unchanged. But, as the new technologies evolve and uncertainty decreases, *disruptive* business models will emerge and challenge dominant industry logics and reshape established value chains, especially if they involve new and diversifying players joining the industry.

As technologies emerge and converge, they are leading us towards a more holistic healthcare industry. New approaches to healthcare – such as personalized medicine, nanobiotechnology, theranostics, or systems biology – are opening new business opportunities that build on new ways to address patients' needs and that provide physicians and hospitals with new therapeutic principles. Nanobiotechnologies, defined as the applications of nanotechnologies in the life sciences [1], promise improvements in diagnostics and drug delivery, particularly in the quantity and toxicity of drugs injected into patients. It offers the promise of a convergent approach that can merge diagnosis, treatment and monitoring.

We observe here the beginnings of a new industry that will emerge from the upheaval of the established drug industry and its merging with the diagnostics and other industries. We will discuss the new business opportunities and what firms are doing today in order to prepare tomorrow, in a new drug industry being transformed by nanobiotechnologies.

References

[1] Briquet-Laugier V, Ott M.O., Biofutur, 265 (2006) 57-62.