Managing The Discovery Factory: Can Innovation Be Organized?

by Mark V. Pauly

The Business of Healthcare Innovation
edited by Lawton Robert Burns
(New York: Cambridge University Press, 2005), 373 pp., $90 (cloth), $43 (paper)

Innovation in medical goods and services improves health outcomes, but it also drives spending upward. Relative to their predecessors, new medical products are used more frequently, and sold at higher prices, precisely because they are better. Much of this innovation comes from private businesses. This book provides an encyclopedic discussion of how those innovations are supplied, and what the prospects are for future supply, in the four main areas of actual or potential private innovation: pharmaceuticals, biotech, medical devices, and health information technology (IT).

The book is based on materials used for graduate health management students at the Wharton School in a course led by Rob Burns, whose goal is to bring them up to speed on what businesses think they are doing in health care innovation and what they are worried about, or optimistic about, as to the future for their products and for the medical care system as a whole. In addition to Burns's introductory piece, a set of industry experts provide extensive, detailed essays on the four sectors mentioned above. The wealth of institutional detail, product names and types, and clear discussion of what happens is not available anywhere else.

This frank business perspective provides a useful explanation of how businesses see the medical world and how they process what they see. That explanation should be of interest to everyone concerned about the fundamental goals of quality, efficiency, and access. One message will come as no surprise: The industry experts see more innovation in the future, and they think that is a good thing, even if it means higher spending for consumers. What might be a surprise is that they do not see a perpetual process of profit-improving innovation universally distributed across all sectors. The book also focuses on the relationships between firms inventing and distributing new products and individual physicians, as influences on the development process, as opinion leaders, and as adopters. That relationship, we are told, has "as much to do with the innovative features of new products as with intense sales and marketing support that goes with them." As appropriate intermediaries between capitalists and medical consumers, physicians cannot be left out of the loop, but it is a challenge for firms as much as for policymakers to decide how to include them and how to deal with them.

Although the angst quotient in the book is low (compared, for example, with work on innovation and rising spending), the yield in terms of information on how the value chain of innovation works is high. The relatively high measured margins for drugs and devices do not call for an apology; they are both the cause and the effect of successful efforts to deal with medical needs (and might, according to one of the more interesting discussions, eventually lead to transfers back to profit-starved hospitals, which control the gateway to a large part of innovation).

The single most common (and most infor-

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DOI 10.1377/hlthaff.25.2.564

mative) element across three of the four sectors is the discussion of the multiplicity of ways in which capital is made available for innovation. If there is a vehicle for doing deals to move a new product forward that is not discussed in this book, I cannot imagine what it is. So, for example, innovative small firms that have yet to generate their own profits can and do access capital through venture capitalists; through arrangements with larger, more established firms; and (in the ultimate sacrifice) through being acquired. In pharmaceuticals, biotech, and devices, raising money for new ideas for those who are patient enough to wait out occasional cyclical droughts is not a problem.

However, despite the general positive tone to all of the discussion, there are differences across these sectors that the authors note, and there are some possible storm clouds on the financial horizon. This mixed message is most explicitly treated in the long essay by Jon Northrup, a drug industry veteran, on the pharmaceutical sector. He notes the long (although by no means uninterrupted) record on new drug products and high measured profits. But he also notes a more-than-decade-long downward trend in the rate in introduction of new products, despite a profit rate that until recently remained high. This pessimism is echoed by Burns, Sean Nicholson, and John Evans, who found (as others have) that mergers to obtain greater size do not seem to be an effective way for drug companies to improve their rate of innovation; the only thing that works is buying up smaller companies that have already made promising discoveries and possibly using size to help shepherd these products through the approval and marketing processes.

For the biotech companies discussed by Cary Pfeffer, a physician-consultant, the prospects are brighter: a good deal of capital availability, even in the absence of realized profits, and a good flow of new products. The high prices charged for more recent discoveries still have not yielded enough profits to cover the cost of investment in this sector; investors have been net donors to sick patients and their insurers thus far.

The devices sector is viewed by Kurt Kruger, a health-sector investment analyst, as having more stable profitability (despite the recent difficulties of some large firms), if not as excitingly high. There is a clearer link between investing funds and coming up with solutions, and the regulatory and approval processes are much less subject to uncertainty. Once the doctors tell the engineers what they want the product to do, the firm can usually come up with a moderate success, and sometimes with a smash hit. Perhaps surprisingly, one of the contributors to firms' success is said to be the absence of large-scale direct-to-consumer (DTC) advertising. The ability of hospitals and physician specialists to control the market, without having to deal with stimulated patients, makes things much more manageable.

The odd person out in this generally upbeat quadrilogy is, of course, IT. Despite strong beliefs in the promise of major gains in quality, so far, as discussed by Jeff Goldsmith, neither investment capital nor purchase orders have flowed in. Goldsmith attributes this "glacial pace" to the sheer complexity of the problem; this is probably true, although solving complexity is exactly what IT is supposed to be good at. We do not yet see DTC advertising of IT. ("Worried about your next hospitalization experience? Ask your local hospital whether it has installed the latest interoperable IT.") Those physician-collaborators are few and far between; most doctors, we are told, are stuck firmly in the mud and would like to stay there if they can.

This last counterexample raises interesting and fundamental questions. Why do some innovations become the darlings of Wall Street and no-brainers for the physician community, while others languish? There are always some minor imperfections in medical care markets, but are there glitches big enough to keep really great ideas away from venture capitalists and from physicians looking to do the best they can for their patients? This book will help readers formulate possible answers to this question. At some point, of course, time will tell the story on innovation, and readers of this book will be better positioned to anticipate and explain.