The Need for Change

Despite global economic growth, advances in medical technology and the approval of new medicines, important areas of unmet medical need remain. These include 1) neglected diseases in the less developed parts of the world, neglected in large measure because investment in new technologies and medical innovations are driven by market forces rather than societal needs, 2) rapid industrialization of emerging economies, accompanied by environmental degradation and the westernization of diet with an epidemic of diabetes, cardiovascular diseases, and certain cancers, and 3) changing trends within developed countries, such as an aging population, rising obesity and a widening gap between the rich and the poor. In addition, rising public debt in the West in the face of an aging population is creating the double-edge challenge of an increase in need for healthcare and social services while simultaneously shrinking the proportion of young workers who form the tax base. Furthermore, the R&D strategy of major pharma companies in the past decade has been to move towards specialized products, with high retail prices and low marketing costs. This strategy calls into question not only the individual accessibility of these treatments to those who need it, but the affordability at a societal level (Figure 1). These considerations will continue to drive innovation in all aspects of healthcare, from discovery to delivery.

Unfortunately, the current model employed to foster drug discovery and development to help meet these needs is faltering, and the pharmaceutical industry is facing serious challenges that call into question the sustainability of the old paradigm and the survival of the industry. R&D costs have doubled over the past decade, while new drug approvals have dropped down to a third. With the R&D cost now at more than US $1.2 billion per drug approved, only one in five drugs approved is able to pay for the cost of its own development.

As health agencies become increasingly risk averse with respect to safety, drug approvals have become progressively more difficult as larger studies and more data, both pre- and post-approval, are being mandated. Furthermore, regulatory approval is no longer the last hurdle in major markets, but success depends increasingly on whether a new drug will receive reimbursement based on favorable health economic assessments.

And in this increasingly challenging landscape of rising costs and falling approval rates of new drugs, the pharmaceutical industry is rapidly moving towards an impending “patent cliff” with an estimated $128 billion of branded revenues losing patent protection between 2009 and 2014 (Figure 2). Reflecting this gloomy outlook, the pharmaceutical stock values have fallen far behind the broad stock market indices (Figure 3).

Clearly, the need to reinvigorate the healthcare industry and rejuvenate its product pipeline with the right therapies for the right population has never been more critical.
Biotechs in Distress

For biotech firms, the challenges are particularly acute. Once viewed as a source of fresh innovation, many biotech companies with new molecules or technology platforms are struggling to access capital, and are finding it increasingly difficult to find large pharmaceutical partners willing to take over promising products in early-phase development. Indeed, a 2010 survey by Lazard indicated that 89% of Big Pharma execs say filling late-stage pipeline is one of the top driving forces in pharma-biotech consolidation, while only 32% chose filling early-stage pipeline as one of the top three factors. In the wake of the global financial crises, biotech companies are caught between a risk-averse pharmaceutical industry unwilling to license products in early development, and skittish financial markets where access to capital has become increasingly challenging.

As a result, many biotech firms find themselves in the discouraging position of having met their strategic objectives of progressing a bio-asset to a pre-determined end point of pre-clinical or early clinical development, but unable to find a partner willing to complete clinical development and commercialize the product. This poses a formidable problem for the biotech industry in three important ways:

- **The most expensive part of clinical development is Phase III**, requiring large studies with patients enrolled over a large geographic spread. On average, for every new molecular entity (NME) that reaches registration, 90% or more of the R&D costs occur in Phases II and III. Most biotech companies do not have the financial capital to progress a compound through late stage development.

- **The skills needed for research versus clinical development are very different**. Successful biotech companies have excellent discovery platforms and scientists, but generally lack the knowledge and skills needed for clinical development and the commercial acumen to build value into their late phase studies.

- **While research and discovery are a physically concentrated activity requiring limited, albeit specialized, infrastructure, clinical development is a much more expansive global process**. Therefore, many biotech companies often find the challenges of product development nearly insurmountable—the need for cross-functional teams representing clinical pharmacology, medical, regulatory, clinical operations and drug safety, plus marketing input and market access strategies dispersed across geographic regions as diverse as the US, Europe, Japan and China.

Growth in Asia: New Opportunities in Drug Development

Asia’s fast-paced growth, vast markets and access to fresh sources of capital promise to herald in a new era of drug discovery, development and innovation and to provide a solution to the existential challenges facing the global biopharmaceutical industry. As the Asia Pacific region develops, its ability to support the global biopharmaceutical industry by performing work that moves higher and higher up the biopharmaceutical value chain is rapidly expanding.

The past decade witnessed a sharp increase in the number of clinical trials being run in Asia. However, this increase has primarily been the “off-shoring” of patient enrollment from the West to Asia because of the cheaper and easier access to patients, while the study concept and drug development strategies remained in the US and in Western Europe. However, akin to trends in other industries, this initial phase of off-shoring of low cost, low skilled operations will soon be followed by the demand for more highly technical and knowledge-based drug development capabilities in Asia.

Three important changes are already taking shape towards this end. One is the rise of Asia both with respect to R&D activities and the pharmaceutical market size. The region’s impressive growth is increasingly giving rise to Western companies seeking to move more of their R&D and commercial operations to Asia, while the emergence and growth of Asian biopharmaceutical companies is translating into products being developed for commercialization in the global market. For both Western and Asian companies, diseases prevalent in Asia—the world’s most populous continent—are the engine that will drive innovation.

The second change is the fracturing of the linear, monolithic “go-at-it alone” model of pharma—from drug discovery through development to commercialization—in favor of a model replete with multiple partnerships and strategic alliances (Figure 5). In the latter, companies will focus on their core strengths, and partner or outsource all other activities to
other firms better at performing those tasks. This model will lend itself to the principle of “how can we work to win together?” and away from “how can I win before you do?”

On the heels of these changes, the demand for strategic drug development in Asia will rise rapidly, driven by three groups:

- Global multi-national corporations lacking expertise and infrastructure in the region and seeking to develop, register and launch global products in Asia.
- Asian biopharmaceutical companies seeking to develop compounds for the global market but lacking both in-house expertise and international reach.
- Emerging biotech companies in Asia seeking strategic guidance to develop their pipeline.

Strategic drug development capabilities are still not widely present in Asia and their absence contributes to a common misperception that drug development is formulaic, following a technical, cookie-cutter approach from Phase I through to Phase III. Nothing is further from reality. Proper development of a drug is highly strategic and intuitive, and involves providing answers and gaining meaningful insights to a series of questions, such as: What is the drug’s therapeutic potential? What is the nature of the disease, what makes patients suffer, and what makes the disease difficult to treat for physicians? How is the disease perceived and managed in different parts of the world? What treatments of the disease will be available 10 years in the future when the drug finally reaches the market? How much will people be willing to pay for it compared to other available therapies, and how much will it cost to develop? How can I differentiate my product from other similar products in order to add value that payers will desire?

These questions frame the strategic and commercial context for drug development, and in turn give rise to the regulatory strategy that will determine the level of evidentiary data the health authorities in each potential market will require. Based on the regulatory strategy, the clinical development plan is constructed, with the number and design of Phase I, II and III studies, the comparators used in the studies and the regions of the world from which patients must be recruited. If drug development can be compared to designing a building, the commercial strategy would be the purpose of the building, the clinical development plan would be the architectural blueprint and the individual studies would be the building blocks.

From the Ashes: Emergence of a New Model

The fundamental problem with the existing healthcare model is that it has lost its way. Rather than being the central focus, patients have sometimes been pushed to the periphery, with market potential rather than true medical need guiding R&D strategy. While the obvious fallout of this financial-driven approach has been the growing public mistrust of the pharmaceutical industry, more ruinous has been the drop in the R&D productivity in the bid to churn out blockbusters. True blockbusters tend to be innovative, first-in-class molecules that offer distinct advantages over other treatments available for that disease. Given the long product development cycle of 10-15 years, it is almost impossible to predict what the medical landscape will look like at the time the product is ready for launch. In fact, a truly innovative drug may have no measurable market while under development.

Paradoxically, the single-minded focus on blockbusters gave rise to a plethora of “me-too’s”—new products that provided marginal or no benefit over existing identical treatments. The opportunity cost of this blockbuster strategy was the loss of true innovation, as well as the consumption and misdirection of hundreds of billions of dollars from R&D investment to aggressive sales and marketing practices.

Clearly, a new, more innovative drug development model needs to emerge that will address the needs of all global stakeholders, and rebalance medical need and market success. In this, the emerging economies and growing biotechnology infrastructure of Asia will undoubtedly play a major role. The fundamental weakness of the old model was that the product development cycle was 10-15 years. This linear, monolithic “go-at-it alone” model will give way to a “wheel-and-spoke” model of multiple partnerships and strategic alliances. In the latter, companies will focus on their core strengths, and partner or outsource all other activities (Figure 6). The hub of the wheel may be a large biopharmaceutical company that is outsourcing or partnering many of the tasks it previously undertook on its own, or a biopharmaceutical service company, such as a CRO, that works with many companies across the biopharma landscape.

For their part, service companies will be well placed to occupy a central position within this re-engineered biopharmaceutical landscape, creating new and innovative solutions for the industry. From the unique hub position that they occupy, they will be able to provide services and to broker deals between various parties with complementary needs, from innovators seeking capital or development partners, to companies seeking assets to commercialize.

Furthermore, firms specializing in
clinical research will become more important in clinical drug development, not only from a contract service provider prospective, but also as experts with deep global experience in strategic drug development. And with a cross-industry view of trends, these service companies will be ideally positioned to evaluate risks and make informed decisions within these partnerships.

A New Path Forward

As the old model of drug development and discovery falters, it is time to pause to reflect on the consequences of playing a zero-sum game. Healthcare is about patients, and in the end, we are all patients. The realization that is dawning, is that in a win-lose game, we all eventually lose.

The rapid ascent of Asia, with its access to fresh capital and willingness to discard old assumptions, is injecting new life into global drug discovery and development. Within the changing landscape, patient empowerment and market access considerations will be the drivers of innovation, and a rebalancing of medical need and commercial considerations will occur.

Through multiple strategic alliances, and the recasting of roles and relationships within the larger value chain, companies that focus on their own strengths while partnering in other areas will be the ones most likely to thrive in this new landscape. And within the workings of this new and more collaborative hub-and-spoke model, new opportunities will arise for connecting the companies with the skills, assets or capital they need, thereby creating new medicines and commercial opportunities for all.

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Dr. Amar Kureishi is Chief Medical Officer and Head of Strategic Drug Development for Quintiles in Asia-Pacific. Dr. Kureishi joined Quintiles in August 2010 with more than 20 years of experience in industry and academia. In this new role, Dr. Kureishi is establishing strategic drug development capabilities for Quintiles in the region.

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Dr. Kureishi is a physician and infectious disease specialist by training. He received his medical degree from the University of Alberta in Edmonton, Canada. He is also a fellow of the Royal College of Physicians and Surgeons of Canada and held several academic positions at the University of Calgary, Canada prior to joining industry. Dr. Kureishi has published more than 60 articles in peer-reviewed journals and is an alumnus of INSEAD.