Succeeding in a digital healthcare market

Few pharma executives dispute the disruptive potential of digitalization in the healthcare industry and the birth of new "ecosystems" within which their companies will choose to operate. What is much harder for all of us to see is what (digital) success will look like five to ten years from now and based on that, to place strategic bets accordingly.

Future success in the healthcare industry is not necessarily synonymous with success in the digital industry, yet digital is important because it is an element that permeates and connects all stakeholders in healthcare. Even more, it is the substrate on which much new value is expected to be created and on which new ecosystems are expected to evolve.

Five determinants of digital ecosystems

But if we agree that "digital" and "ecosystems" have become part of business reality, stakeholder executives need to carefully consider five attendant aspects that are central in determining the roles and relationships of players as well as what success will look like in this future healthcare landscape. They are: *sensors, data, analytics, fitness functions* and *networks.*

- *Sensors*: there is much talk and excitement about sensors including fitness trackers, smart refrigerators to monitor diets, other objects in an Internet-of-Things, web sites and social media. Sensors are used for collecting primary data and organizing it in ways that allow downstream activities to extract value. But, at least for now, sensors are not without problems: Is the data collected truly personal (e.g. which person of a family has consumed which specific item in the family's smart refrigerator)? Is the data collected valid? Are sensors used as intended? Already sensor and mobile app developers recognize the fact that FDA approval is becoming a major requirement and determinant of future success. So amidst the excitement surrounding sensors and apps, executives should ask themselves what is realistic today and make sure they develop solutions with a solid scientific basis. At the same time, it is probably the task of the academic community and the government/regulators to develop the science that will eventually underpin many of these new products and services.

- *Data*: presently, much of the discussion around new products and services is predicated on the ready exchange and sharing of valuable data such as patient records, claims records and CT data between stakeholders. But in a "data is the new oil" world, this is much easier said than done. The nature of data means that data creators, owners and aggregators are not ready to share their data without having a clear understanding of "what's in it for them". Health insurance companies, hospitals, physicians, pharmaceutical companies and increasingly social media actors, each have their own sets of valuable data. Instinctively, everybody recognizes that "more data is better", yet until the value is shown and value distribution agreed, most will be reluctant to share openly. So while we can envision pilot projects, moving to full blown solutions and new functioning value chains will require answers to questions such as: "What new 'pies' can we create with what data?", "How do we divide these pies?", "What is the

business model?" and increasingly "How do we pay back individuals who so far have been sharing their personal data in exchange for some free service but eventually will demand some part of the value add?" Solving this conundrum will require from top management good faith, a preparedness to back pilot projects and strong determination to achieve early successes that will identify utility, demonstrate value and inform workable business models.

- *Analytics*: extracting value from data requires algorithms that will be used to drive anything and everything from clinical decisions, to evidence-based argumentation in support of new therapies, to clinical practices, reimbursement and personalized insurance plans. But if this is so, it does not require a giant leap to imagine cases where, like in the financial and military domains, algorithms are pitted against each other: pharma-developed algorithms in support of the efficacy/differentiation of a drug/therapy/outcome pitted against payor-developed algorithms looking to micro-optimize and drive costs down. So whose algorithm will be used? It will depend, and most probably we will see at least three kinds of scenarios: in the first, the algorithms will effectively be assessing a criterion agreed between two parties but using the same data set (for example patient perceptions of a therapy based on tweets); in the second, the stakeholders' algorithms use different data sets to assess the same criterion (for example risk assessment based on clinical trials for a pharma company versus risk assessment based on patient/claims records for an HMO); in the third, the criterion is more global (for example the relative performance of competing therapies for a disease) in which case the algorithm will be developed by a third party such as the FDA and EMA.

- *Fitness functions*: Which brings us to ecosystems and the possible role of governments and the healthcare community as a whole. An ecosystem is defined by the organisms that inhabit it, but it is also defined by the various "fitness functions" that determine success and failure within it. It seems to me that in the case of fitness functions (such as for example certain algorithms) that essentially define the new rules of the game, there is a clear need and role for impartial bodies such as governments and industry organizations to define the rules of the game, pursue sustainability and where appropriate, support the development and maintenance of certain valuable resources that will be open to all.

- *Networks*: As stakeholders contemplate their future strategies, analyzing opportunities from the additional perspective of networks becomes essential. The internet together with social media have made it easier than ever for interested parties to coalesce around issues of interest and create networks, the existence of which could represent significant opportunities for other stakeholders. Exploiting network effects to achieve winner-takes-all status has worked to date (see for example Apple, YouTube, WhatsApp and Facebook). But at the same time certain players are beginning to realize that long-time success will be based not so much on dominating a closed platform but on ensuring the interoperability with multiple platforms, an approach which seems consistent with the concept of sustainable ecosystems. For pharma companies and other stakeholders in the healthcare industry, this suggests the need to pursue alliances that will be optimized for specific fitness functions and distribute the value generated in equitable ways.

Executives are currently presented with multiple opportunities to combine with different players and create multiple new value chains and ecosystems, yet uncertainty and risk remain high. Yet again, one cannot remain still, waiting to see what the optimum solution will turn out

to be, since this is an evolutionary process and markets move on. So what could executives use as a guide for making choices as to which ecosystems to join, which pilot projects to back and which not?

Future markets in healthcare

Envisaging possible future markets and the attendant ecosystems within which companies may choose to operate could offer some initial guidance. There are at least three such markets, not necessarily mutually exclusive, that one can envisage and that broadly correspond to Porter's three competitive strategies: a health economics market (cost), a risk minimization market (niche/focus) and an outcomes driven market (differentiation).

- *Health economics driven market*: in such a market competition is based on minimizing costs and payors (healthcare insurance and governments) probably have a leading role. Therapies are "commoditized" and "consumerized". Healthcare providers select on the basis of cost and features that are secondary to the efficacy of the active ingredient, such as convenience, route of administration and more. In order to compete, pharma companies will need to focus on R&D and manufacturing efficiencies, distribution channels and novel market access and engagement practices targeting physicians and patients through the use of digitally enabled solutions.

- *Risk-minimization driven market*: in this market the goal is to increase efficacy but also reduce side effects by optimizing the use of available therapies to specific patient population groups to start with, and eventually even to specific patients. Pharma companies will seek to predict populations at risk, in the process better differentiating their offerings, and consequently being in a position to justify price premiums. Insurers will seek to corroborate such predictions and optimize their insurance plans accordingly. Patient-monitoring apps will seek to ensure compliance while physician-targeted decision support systems will seek to identify undesirable interactions (drug-drug or drug-nutritional supplement) or patient life style elements that could antagonize the prescribed therapy.

- *Outcomes driven market*: in this market the focus is "beyond the pill" on the total health and quality of life outcome for each patient. Solutions will combine the drug itself with companion diagnostics, education, monitoring and compliance apps and devices at the patient level and analytics on aggregated data at the payor and/or government level with a view to establishing performance and value in a framework strongly driven by strong differentiation and value added considerations.

The healthcare industry is presently in a phase of transition towards a data enabled, digitally intense, networked market where information parity, pressure from a client base with an increasing "show me" mentality, and the need to lower costs create new challenges that all stakeholders will need to address. There are many unknowns and each new technological capability that comes online multiplies opportunities to choose from but also increases possible failure points. In such a context, all stakeholders will need to adopt a more open, collaborative and ready to experiment attitude in order to develop products and services that are fit for purpose, assess their value and inform the design of appropriate business models. At the same time governments, the academic community and industry-wide organizations will need to catalyze the development of open resources and of the "fitness functions" that will ensure that future healthcare markets will be functioning, efficient and sustainable.