

How will digitalization of healthcare change the Pharma industry?

## The emerging landscape of digital healthcare



Much has been written recently about wearable sensors, health apps, digital pills, artificial intelligence and other technological concepts as drivers of innovation in healthcare. “Digital healthcare” – or eHealth or digital medicine – is clearly a hot topic.

Pharma executives increasingly wonder how the industry will be changed by the ongoing digitalization of the healthcare industry.

Based on our market research, interviews with subject experts, and some of our M&A and strategy advisory work, we established a simple map – a landscape – of players, stakeholders and business models from the vantage point of Pharma companies. The interactive map – explained below – can be accessed through our [website](#)<sup>1</sup>

### A wealth of new data sources

New technologies and electronic devices lead to an explosion of data sources in healthcare. In the past

years it has become common for individuals to track movements, heart rate and sleep cycles as a matter of course, using convenient apps on mobile phones or sensors hidden in jewelry. In the labs, DNA sequencing has become affordable enough that genomic analysis is now performed as a matter of routine in many cases.

Elsewhere in the healthcare industry, efforts to standardize data sets gain more traction. Electronic Health Records are pushed in many developed markets to increase quality and efficiency in healthcare. Regulatory documents have been digitized and standardized for decades, and now it becomes possible to automatize standard steps in regulatory affairs.

Collecting huge amounts of real-world data promises to generate new insights into the origin and development of medical conditions, and to determine the actual benefits of new treatments. Thus, the science of collecting, curating and aggregating data becomes a core competence in drug development and commercialization.

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<sup>1</sup> <http://www.kurmannpartners.com/digitalhealthcare>

## **Communicating with the patient**

Clever apps and data collection methods may enable Pharma companies to indirectly communicate with patients without infringing data privacy, and while minimizing conflicts of interest.

The interaction can go both ways. First, Pharma companies may be able to collect context for the treatment outcome. Real-world data are very valuable, both for Pharma companies and payers: Pharma companies can improve their products and prove their worth; conversely, payers can identify those drugs which worked in clinical trials but have little or no value in real-world applications. Moreover, enabling patients to give feedback will increase adherence, as studies have shown.

Going one step further, Pharma companies can provide tools and information to support patients. Some firms develop digital biomarkers, as they are called, which alert a patient when a drug is due or when a doctor's visit should be scheduled. If a medical advantage can be shown (which is likely) and is reimbursed (less so), combining tools with a drug may become a strong differentiator, particularly in indications which are under heavy pressure by generics.

This type of interaction with patients is not possible in the classical model, where all information to and from patients exclusively goes through the healthcare provider.

## **New approach to medicine?**

Collecting real-world data from patients, and providing feedback to patients may allow Pharma companies to establish health services: a combination of wearables and sensors, algorithms and drug substances to optimally manage a

condition.

Notably, software companies and Pharma companies may be equally likely to develop such digitally enabled treatments.

## **Challenges and obstacles**

As all these exciting developments shape up, our expert interviews have yielded some notable challenges and obstacles for the adoption of digital healthcare.

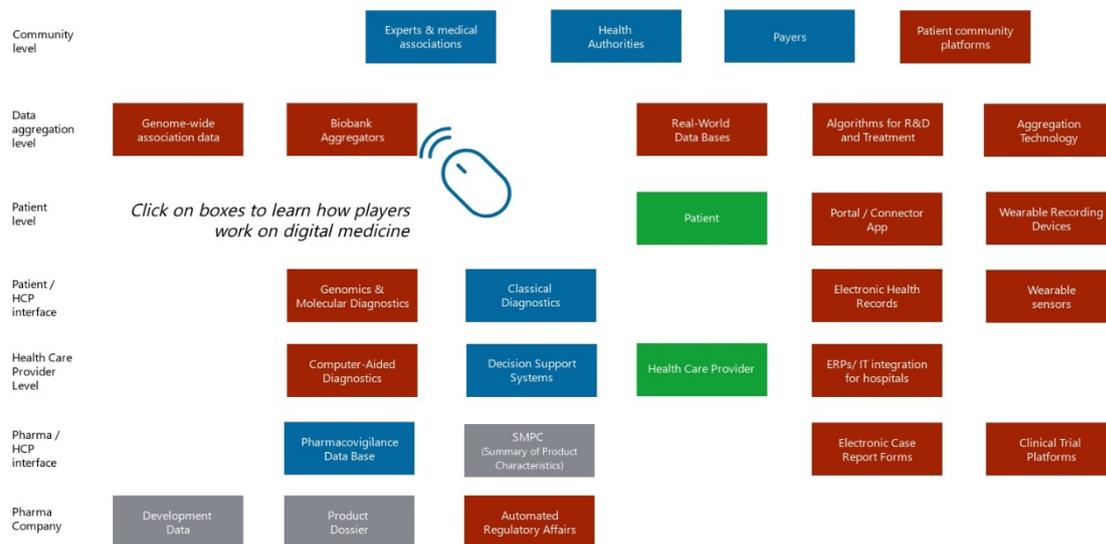
For successful data aggregation, and to apply machine learning – the holy grail of digital medicine – data must be compatible, interoperable, and curated. This is a huge challenge, given diverse medical terminologies and a mentality of data silos in healthcare. Further, artificial boundaries are raised as governments, notably China, limit data transfer across its national borders.

Further concerns are about data ownership, safety and privacy. Blockchain technologies may be the basis of a system in which patients can control access and ownership of their data. In any case, any system handling patient data will be subject to strict regulation, and substantial investments in computer system validation and information risk management will be required to ensure compliance.

Lastly, the question will arise who will profit from the data. As with many social platforms, where providers accumulate and sell data about users, new players and aggregators may be confronted with the question about sharing the value of such: Each patient giving a little bit (of saliva and medical history) contributes to creation of value with one provider (e.g. 23andme), which in the long run may lead to big discussions.



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### How the map was built

We mapped the players and stakeholders involved in digital healthcare to seven distinct levels:

- The community level, with regulators (health authorities), payers (insurers), and experts and medical associations.
- The patient level
- The interface between patient and healthcare provider (HCP)
- The interface between HCP and Pharma
- The Pharma level

These six levels are sufficient to map the classical information flow as seen by the Pharma company. Digitization and standardization of data collection allows for a new level: **data aggregators**.

Our interactive landscape has two parts:

- a step-by-step explanation of how data is gathered and communicated between the players;
- a collection of example companies and players for each type.

We have discussed the resulting map with a number of experts in digital healthcare (see editorial of the tool) but we are always glad to receive feedback – feel free to contact us.