

# Principles for winning digital health strategies

In a recent study on digital health in the pharmaceutical industry, management consultancy Arthur D. Little provided an industry snapshot of pharmaceutical companies' goals for 2020 and their progress so far. The study indicated that by 2020, the business model of the pharmaceutical industry would be transformed by digital health.

The results of the study suggested that executives and senior managers had appreciated the opportunity to enhance value propositions and, even more so, the business potential behind digital health. Digital health – the application of digital technologies in healthcare – and especially mobile and wireless solutions are expected to prosper in the near term (see Figure 1).

The global digital health market is estimated to more than double over the next three years, and to exceed \$200 billion in 2020. A key driver of this impressive development will be an increasing mobile health market with innovative mobile solutions, applications and services. Additionally, such offerings will trigger growth in neighbouring areas such as wireless network technologies, sensors and devices. This momentum will invariably attract new players to the market and disrupt current business models.

The changing market environment will be a promising opportunity for established pharmaceutical companies to participate in a highly attractive and innovative segment. New market entrants will most likely be ICT companies lacking significant healthcare expertise. Therefore, partnering opportunities will arise for pharmaceutical companies to capture the full market potential by combining key strengths of both areas and designing winning digital offerings.

Thus far, digital health solutions have not quite delivered on their promise. Arthur D. Little views the major impediment to be the approach of pharmaceutical companies and other established healthcare

stakeholders regarding the management of innovation aligned with organisational responsibilities.

Over past years, companies have cautiously approached the digital health space. Different solutions have been tested, primarily designed for marketing purposes. All leading pharmaceutical companies, the majority of health insurances, and numerous medical device companies have managed to design and bring early generations of their offerings into operation. An overview of offerings currently on the market shows the main components and patient benefits addressed (see Figure 2).

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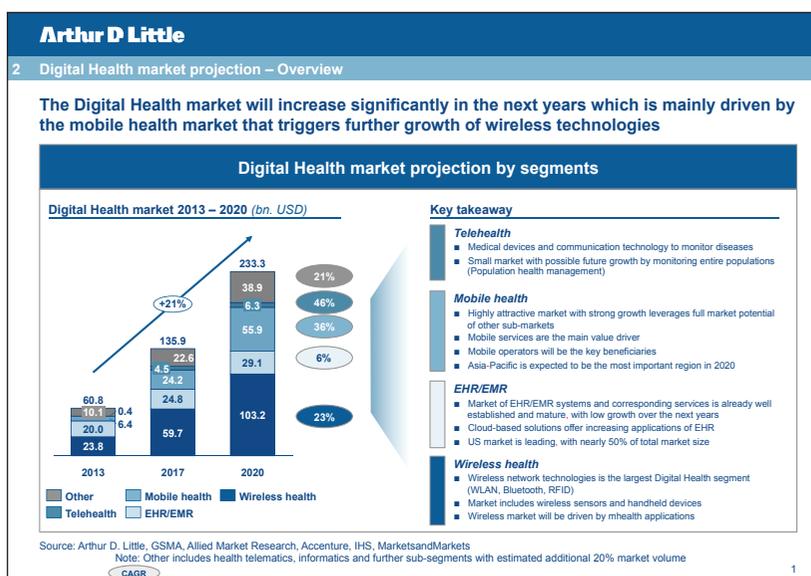


Figure 1: Digital Health market projection by sub-segment

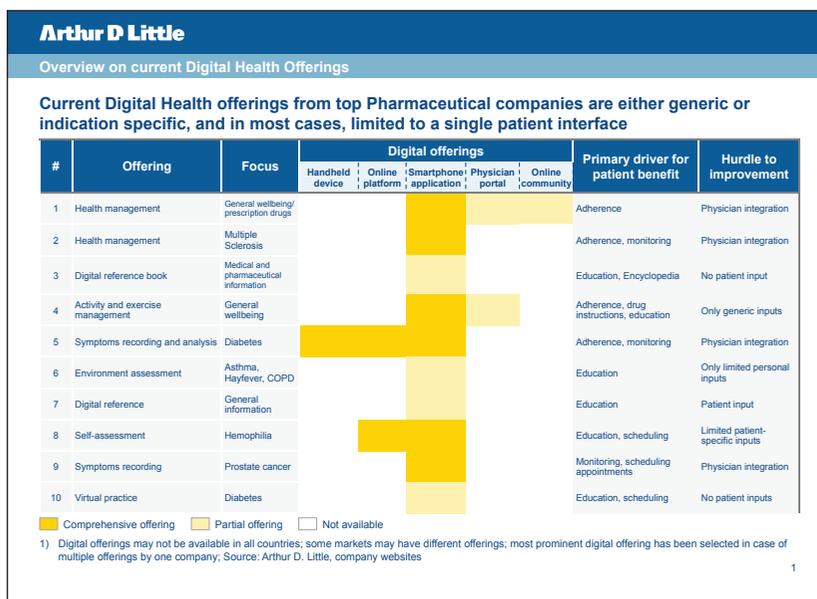


Figure 2: Typical offerings

To capture the full potential of digital health and realise their ambitions, the players in the healthcare field are likely to come up with smarter designs that target specific patient needs, leverage existing digital technologies, make use of accessible patient data and incorporate all parties along the treatment pathway. Furthermore, companies will face the need to reassign the respective organisational responsibility, which today commonly remains within marketing departments and therefore is evaluated and compared to marketing-related KPIs.

### Winning digital health strategies

Arthur D. Little views the following three elements as prerequisites for a successful engagement in the digital health space:

- The definition of a digital vision and a comprehensive digital strategy: as long as digital initiatives and prototypes are conceived only in marketing departments and remain in disconnect from the wider corporate strategy, the risk of failure is simply too high.
- Offering real value to the patient: solutions have to target unmet needs and improve the human condition or life with a disease, utilising the full potential and broad spectrum of digital solutions.
- A tailored approach to innovation: redesign innovation metrics for digital health developments and offerings and no longer apply marketing metrics and company-wide ROI hurdles that are commonly used to compare and prioritise investments in the healthcare industry.

### Vision and strategy formulation

A digital health strategy should start with the company finding a clear vision and deriving a corresponding corporate mission. The strategy can then be formulated and executed to fulfil the vision. To become a leader of the digital revolution in the healthcare industry, it is crucial to make digital health an integral part of the overall company strategy. A digital health strategy requires adjusting the corporate strategic approach in the same way other functional strategies do. Furthermore, a successful digital health strategy addresses the entire value chain and, in doing so, ensures the alignment of external stakeholder demand, internal capabilities and digital resources.

The majority of traditional players in the healthcare industry have not yet incorporated digital health elements into their overall and business unit strategies. Therefore, current digital health strategies and the associated offerings leave the opportunities digital health presents largely untapped.

### Arthur D. Little's principles of winning digital health strategies

Arthur D. Little uses nine principles to assess whether digital offerings have what it takes to create winning solutions. In the long run, the strategic value should be in the focus, but the short-term viability and impact on the existing business model should not be kept out of sight (see Figure 3).

**Interaction:** A winning digital solution reflects the whole customer journey and targets specific interactions in the healthcare system. By connecting the stakeholders – patient, physician, payer, healthcare provider and supplier – the solution facilitates easier communication and transaction between parties. One of the principal stakeholders for the entire digital health value chain is the physician. Ultimately, in most healthcare ecosystems, physicians could drive patient behaviour. Pharmaceutical companies have an inbuilt association with doctors, and hence could be in a potentially stronger position to drive the adoption of digital solutions through clinicians – provided their offerings address doctors' needs. Medical device companies have not interacted with clinicians as effectively in the past, and hence would have to build related capabilities. This is where they need to step forward and think of solutions that directly facilitate clinicians' thinking and decision-making processes.

**Value-add:** The offering addresses the patient's needs and creates additional value for him or her

as a customer. A smart solution improves the quality and outcome of a treatment by simplifying processes and saving time and money. Thus, it is a powerful tool to overcome the gap between healthcare provider and patient interests, which allows building and fostering of customer loyalty. The starting point should be the actual disease – how it impacts the patient’s life and the recommended treatment pattern. Continuous digital treatments should support the patient in tracking their health status and sharing data with all involved physicians, renewing their prescriptions, predicting likely changes in health status based on available data, and so on. To date, what can mostly be found instead is collections of web pages with information or pill reminders that are not integrated into patients’ calendars and itineraries.

**Platform/connectivity:** A good solution uses a multi-channel approach to properly satisfy each patient’s demand. Social media, websites and apps offer touchpoints to the customer, and are embedded into the internal organisation and value chain. Connectivity links the patient’s devices, transports data and allows a view of the patient in real time. A strong platform that can integrate other applications is of integral value. Processes, analysis and data transfer should run automatically and keep a patient’s details confidential.

**Data:** Digital solutions collect and take advantage of comprehensive user data. Electronic health records offer the possibility of tracking and sharing the patient’s health status and customising the treatment.

**Intelligence:** Intelligent systems make use of individual and patient group data to identify and track changes to their health status in real time. By considering external factors, treatments and solutions become predictive instead of reactive.

**Devices:** Winning digital health solutions require devices that collect and analyse the data, communicate with the patient, and provide multiple interfaces to other medical devices and communication platforms. They link to the most recent technology standards, and thus allow building of closed-loop systems. The device must become a lifestyle product for the patient. One reason patients are non-compliant is that they are too often asked to use separate and inconvenient devices.

**Sensors:** Sensors enable tracking of a patient’s health status in real time, and yield precise and continuous measurements. They mitigate the gap between home care and professional equipment. Furthermore, sensors are designed to be convenient for the patient: wearable, inconspicuous and suitable for daily use.

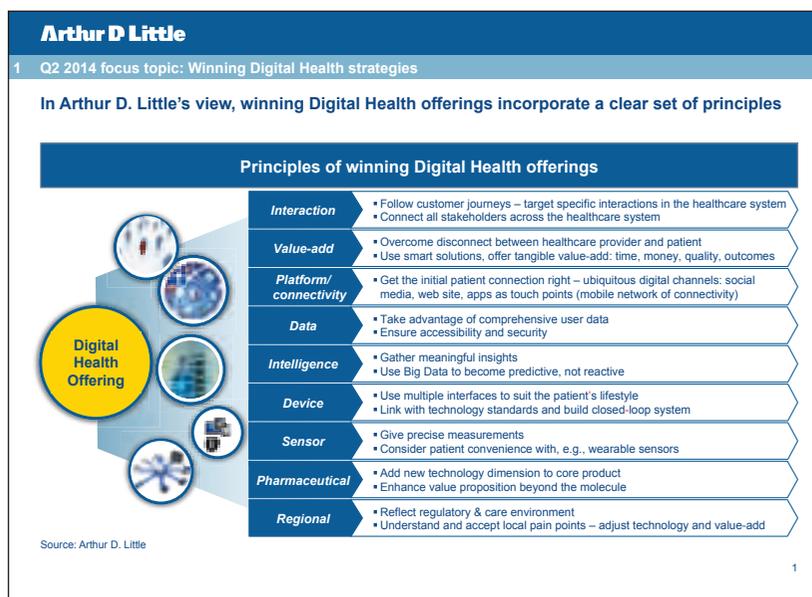


Figure 3: Principles of winning strategies

**Pharmaceuticals:** Digital offerings can potentially enhance the value proposition of a pharmaceutical and the related therapy. Technological dimensions can add to the core product and enable a tailored treatment. RFID chips on pharmaceutical boxes, sensors on inhalers, pumps, smart pills, cloud-based patient records, video platforms, patches and implants to track the status – for example – of the cardiovascular system or glucose concentration, learning programmes, and many more options are available to enrich the value proposition.

**Regional:** The most successful digital offerings will reflect the regulatory and care environment in each respective region. Not only will they understand, but also accept, local pain points and accordingly adjust their value propositions.

**The role of new technologies and technology scouting**

A common pattern of pharmaceutical companies today is to remain focused solely on sustaining innovation. This results in ever more innovative, yet still conventional treatment options, which are often targeted at niche indications and have attractive margins. R&D becomes ever more focused and targeted. Niche and orphan applications target unmet needs and yield high per-patient spend.

By doing so, companies fail to hedge against future disruptive innovation. The nature of disruptions is to make existing solutions obsolete and target a broad customer base, usually at a very competitive price. From an established player’s point of

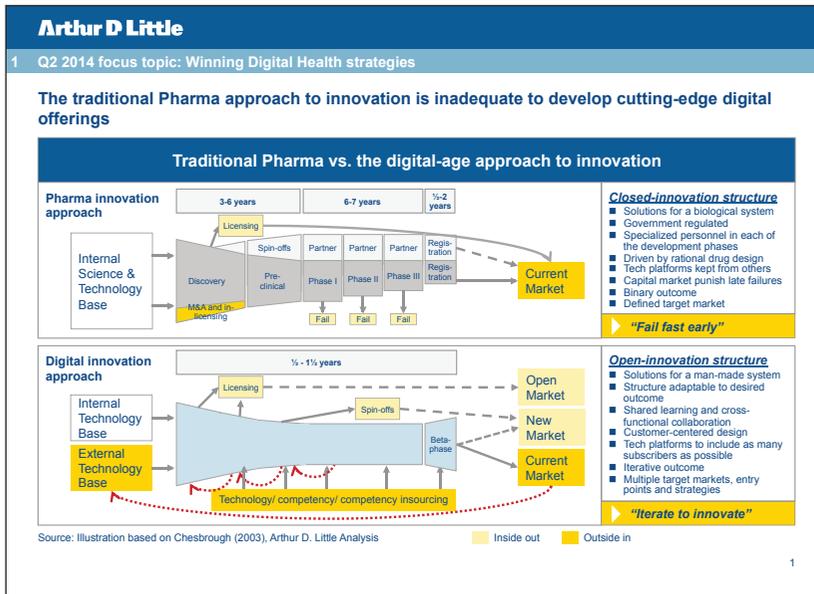


Figure 4: Incompatible innovation processes

view, it would be smart to scout technologies that extend any existing offering and enhance the value curve and competitiveness to ensure continued usage alongside evolving treatment paradigms.

Integrated solutions, probably relying on closed-loop systems, will play an important role in the future. The main elements of such solutions will be:

- Constant monitoring of relevant symptoms and/or laboratory indicators.
- Continuously documenting of pharmaceuticals and providing personalised application.
- Broad usage of sensor technology on a pharmaceutical's packaging, the patch or, for example, the inhaler, as well as in tracking of vital and cardiovascular parameters.
- Meaningful use of data across patient populations.
- Video consultations with physicians.
- Leveraging of social media for free and systematic exchange of information among patients and between patients and companies.
- Seamless interaction between all healthcare stakeholders.
- Application and utilisation of cross-industry standards for patient records and exchange platforms, driven by joint multi-company initiatives within and across therapeutic areas.

Currently only a few integrated solutions are being offered due to companies' short-term concerns. A close look reveals a clear approach to

innovation and development of new technologies: established players almost exclusively aim to improve their pharmaceuticals or medical devices. New entrants or non-industry players address the technology solution part and aim to find ways to integrate those into their offerings.

**Approaches to innovation and how to measure success**

The traditional pharmaceutical industry's approach to innovation (and that of established players in the wider healthcare space) is vastly different from the digital age's approach. Figure 4 compares the two approaches and visualises the core challenge of digital innovation for traditional players in the healthcare sector, exemplified with pharmaceutical companies' approach to R&D: opening its innovation pipeline to third-party technology platforms and continuous collaboration.

Drug development has long been governed by clearly defined thresholds. The discovery phase, pre-clinical testing and Phases I, II and III of human clinical trials contain narrowly defined research targets with one of two possible outcomes: success or failure. The regulatory environment prevents pharmaceutical companies from deviating from this path, and drives them to develop a particular drug for one specific medical indication – or, put differently: rational drug design for one existing target market.

Pharmaceutical development starts from a company's internal science and technology base or a closely connected technology that the company acquires for one specific development purpose. Digital development, however, often takes a software platform that multiple users subscribe to at any time, and eventually allows the future product to be compatible with as many user devices as possible.

The development stages in the digital age are not as clear-cut as they are with traditional companies, and can take multiple directions. Prototypes allow reconfiguring or dismantling, only for their ideas to be used in other products. This iterative process offers companies the possibility of putting products on the market that aren't free from error beyond a reasonable doubt; these are known as beta versions. This is seemingly practical, as the quality of data a digital company has at its disposal to decide whether to proceed or abort development pales in comparison to the validity of the data pharmaceutical companies must generate throughout their processes.

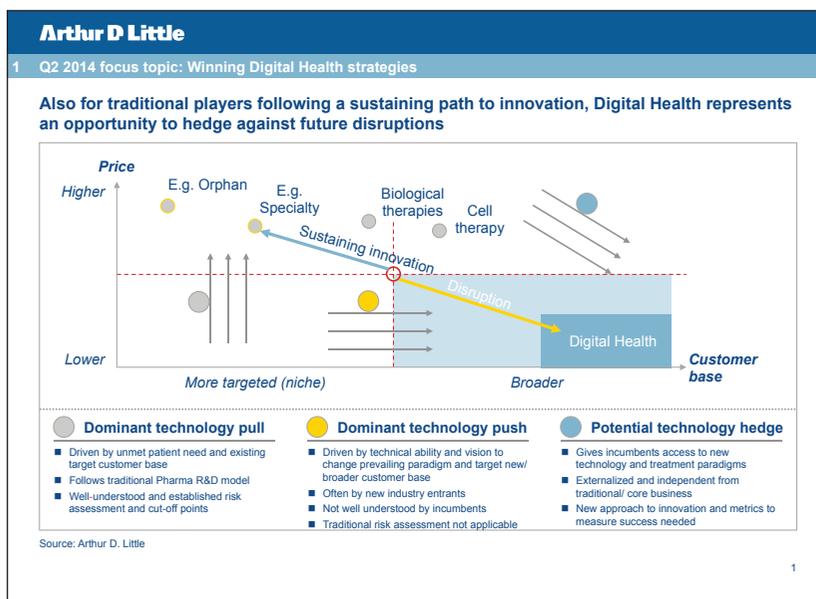


Figure 5: Paths to innovation: sustaining versus disruptive

### Changing innovation pathways in the future

Even though companies may be hesitant to enter into such unknown territory and incorporate it as part of their missions, the nature of digital disruption creates an imperative for pharmaceutical players to take exactly this step. In our view, many pharmaceutical companies follow a logic that has been termed ‘sustaining innovations’ by Clayton Christensen. Products and services get more sophisticated even for broad indications, such as diabetes. In addition, companies tend to increasingly focus on niches with fewer patients, where the unmet medical need and technology of the products justifies price premiums (see Figure 5).

Digital health, in comparison, is potentially more disruptive in several ways: offerings are simpler and empower the patient. Thereby, it allows a whole new population to access health-related services. In addition, the gross margins appear to be unattractive because the user base is still too small.

Therefore, established players should assess which superior digital solutions they could add to their portfolios to leverage their deep understanding of diseases or therapeutic areas. Companies that decide not to enter the digital health field with their core business should at least consider investing or partnering for the purpose of technology hedging. Even the more agile and digitally versed technology companies can equalise this advantage.

### Digital standards and customer expectations

The digital standard is set by the leading players in the technology and digital industries. Patients will expect the standards they are used to with internet and digital companies to be kept by pharmaceutical and medical technology companies.

Moon-shot thinking, often applied in Silicon Valley and other IT incubators across the world, is not part of traditional healthcare players’ DNA. Traditional players in healthcare are required to conform to set standards. Iteration and excellence that are not congruent with the existing innovation approach hinder established players into using one-size-fits-all solutions. Nevertheless, these are grass-roots principles in the digital industry. So is the use of crowdsourcing to harness the potential of external and internal stakeholders to get the most valued insights and data. IT architecture that so far has been primarily used to optimise internal processes will need to integrate with front-end commercial offerings. In the future, pharmaceutical and medical technology companies will have to manage regional and national product offerings and marketing authorisations, as well as the horizontal and unstructured pathways on which digital communication will flow. For example, social media that was intended for the Nordics market might well be picked up by a patient in Latin America.

### Benefiting from the expected impact on established business models

To tap into the full potential this evolving market offers and avoid the threats outlined above, successful and compelling digital health strategies are needed. These will result in transformation across five areas.

The value proposition will change: In the current business model, the focus has been primarily on the drugs or devices, and lately, the offered value. In the future, companies will have to add digital solutions and technologies to offer integrated solutions. The focus will no longer be on the medication or device itself, but also the patient’s needs and a holistic integration of stakeholders and data usage.

**Driving patients’ roles as consumers and primary clients:** Digital health leads to a shift in the patient-versus-consumer strategy and the way established players will communicate with their customers. Based on the hypothesis that the importance of out-of-pocket payments will increase and the resulting patient involvement will be significant, typical front-end communication channels such as social media and mobile applications are ideal to

establish a relationship and image with the patient.

**New competencies and partnerships are needed:**

The strategies of combining digital service offerings with traditional offerings in healthcare markets also require new sets of competencies. What remains to be seen is which competencies will enable companies to drive integration and facilitate closed-loop systems and lasting competitive advantage. In addition, life cycles will shorten significantly.

**Changing organisational structures:** The traditional structures of organisations will migrate towards cross-functional departments. To develop successful offerings, balance risk and market their offerings, established players should consider spinning off digital health efforts and running them independently. Incubators and joint ventures are just some of the methods that may appear common practice to some, but this kind of externalisation remains unfamiliar to large pharmaceutical players. Shorter development cycle times with continuous streams of product iterations also require adoption of fluent decision-making processes: the goal of digital technology is not one of efficacy and safety, but one of user convenience and value-add.

**Integrated systems require new revenue models:**

Integrated digital health offerings will essentially be service offerings with a broader spectrum of components, potentially targeting unmet needs beyond the actual treatment of the disease or symptom. An offering that truly adds value to patients and payers and combines traditional and digital components will require a new revenue model. Improved medical outcomes, media, convenience and macro data need to be priced differently, and will be paid for by different parties. Pharmaceutical and medtech companies will need to experiment with pricing mechanisms, as well as customised packaging. A first step would be to have results measured by third parties, to involve payers and to offer patients the option of paying on top for additional services. In the short run, this appears to be a dilution of margin, but in the long run it builds the platform and relationship needed to compete.

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*players. Many of these projects have been on launch excellence, where he has supported the launches of new molecular entities in different specialty indications.*

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