

Succeeding with Digital Health

Winning Offerings and Digital Transformation



Content

| | |
|--|----|
| Executive Summary | 3 |
| 1. High Aims and Hopes, but Strategies and Implementation are Lagging Behind | 4 |
| 2. Winning Digital Health Strategies | 6 |
| 3. Innovation Excellence in Digital Health | 9 |
| 4. Benefiting from the Expected Impact on Established Business Models | 12 |
| 5. Arthur D. Little's Offering in Defining Winning Digital Health Strategies | 14 |

Executive Summary

Globally the market for digital health is expected to double its volume within the next three years and by 2020 to surpass USD 200 bn. The growing mobile health market is one of the main contributors to this development; its mobile solutions, applications and services will generate an increase in adjacent markets such as wireless network technologies, sensors and devices. This is an invitation to new players to enter the market and it will disrupt existing business models.

Established pharma and healthcare companies are urged to take part in this attractive development. Combining strengths from both ends and designing winning digital health strategies will be the challenge to come. Arthur D. Little values smarter designs targeting specific patient needs, leveraging existing digital technologies, making use of accessible patient data and incorporating all parties along the treatment pathway as the required competencies to fully capture the potential of digital health.

Three core elements are required for succeeding in the digital health arena:

1. Definition of a digital vision and a comprehensive digital strategy
2. Offering real value to the patient
3. A tailored approach to innovation

Arthur D. Little has elaborated nine principles to gear digital offerings to success. Examples are enabling interaction within the different players in the healthcare ecosystem, integrating platforms to ensure connectivity or considering regional characteristics.

Accordingly companies need to retailor their innovation approach as it has changed significantly in the digital age. Open (both inter-and intra-company) innovation or customer-focused innovation will be the future drivers to keep track with shorter time to market and required flexibility regarding the applicability of one and the same platform for different markets.

Thus successful companies in digital health will transform in six core areas:

1. Value proposition and new types of offerings
2. Customer focus: patients to consumers
3. New competencies and new partnership formats
4. Organizational structures, risk assessment and externalization of digital health-related activities
5. Uncertainty/new forms of revenue streams
6. Digital transformation

1. High Aims and Hopes, but Strategies and Implementation are Lagging Behind

In the report “Impact of Digital Health on the Pharmaceutical Industry – Will Business Models be Reshaped by Digital Health?” Arthur D. Little provides an industry snapshot on pharmaceutical companies’ goals for 2020 and their progress so far.

The study indicates that by 2020, the business model of the pharmaceutical industry will be transformed by digital health:

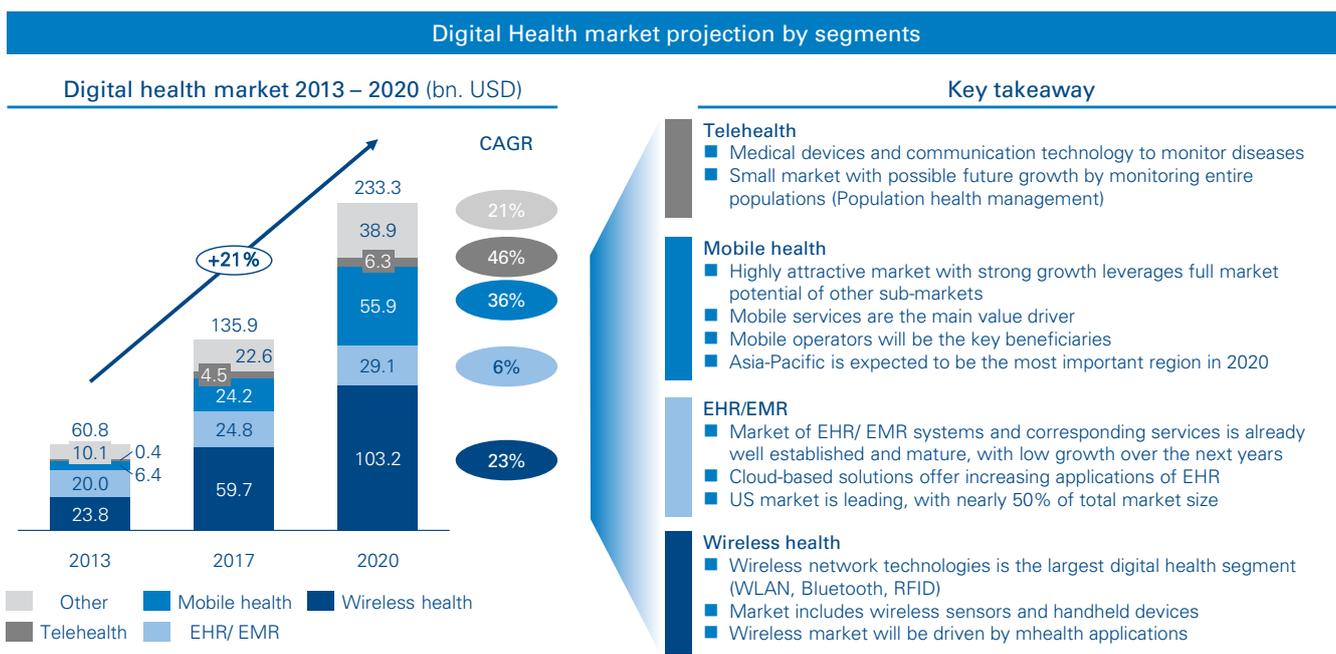
- 84% of study participants believe it will be crucial to have a digital health strategy in 2020, compared with 13% who view it as already crucial today
- Although digital health programs are still in an evaluation and pilot phase today, 73% of participants are sure those programs will be implemented by 2020
- 77% believe digital health will generate new business by 2020, and 94% believe it will either extend the existing value proposition (37%) or even prompt a new value proposition for the pharmaceutical industry (57%)

- All participants believe digital health will have an important (27%) or even crucial impact (73%) on the competitive advantage of their pharmaceutical companies

The results suggest that executives and senior managers have appreciated the opportunity to enhance value propositions and, even more so, the business potential behind digital health. The majority of industry forecasts are positive: they anticipate a remarkable growth trajectory for the application of digital technologies in healthcare and especially for mobile and wireless solutions (see figure 1).

The global digital health market is estimated to more than double over the next three years, and to exceed USD 200 bn 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 neighboring areas such as wireless network technologies, sensors and devices. This momentum

Figure 1: The digital health market will increase significantly in the next years which is mainly driven by the mobile health market that triggers further growth of wireless technologies



Note: Other includes health telematics, informatics and further sub-segments with estimated additional 20% market volume
 Source: Arthur D. Little, GSMA, Allied Market Research, Accenture, IHS, MarketsandMarkets

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. Why have digital health solutions not yet developed to their full potential? And why do traditional players in particular struggle to combine and enrich their offerings with digital elements? Arthur D. Little views the approach of pharmaceutical companies and other established healthcare stakeholders regarding the management of innovation aligned with organizational responsibilities to be the major impediment.

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 successfully managed to design and bring early generations of their offerings into operation. An overview of typical offerings that are currently on the market shows the main components and patient benefits addressed (see figure 2).

To capture the full potential of digital health and realize their ambitions, Arthur D. Little expects the players in the healthcare field 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 organizational responsibility, which today commonly remains within marketing departments and therefore is evaluated and compared to marketing-related KPIs. There will certainly be more than one option to accomplish this task. Any discussion on how the business model should be adapted must be held at each company individually.

Figure 2: Current digital health offerings from top pharmaceutical companies are either generic or indication specific, and in most cases, limited to a single patient interface

| # | Offering | Focus | Digital offerings | | | | | Primary driver for patient benefit | Hurdle to improvement |
|----|----------------------------------|--|-------------------|-----------------|------------------------|------------------|------------------|---|---------------------------------|
| | | | Handheld device | Online platform | Smartphone application | Physician portal | Online community | | |
| 1 | Health management | General wellbeing/prescription drugs | | | | | | Adherence | Physician integration |
| 2 | Health management | Multiple Sclerosis | | | | | | Adherence, monitoring | Physician integration |
| 3 | Digital reference book | Medical and pharmaceutical information | | | | | | Education, Encyclopedia | No patient input |
| 4 | Activity and exercise management | General wellbeing | | | | | | Adherence, drug instructions, education | Only generic inputs |
| 5 | Symptoms recording and analysis | Diabetes | | | | | | Adherence, monitoring | Physician integration |
| 6 | Environment assessment | Asthma, Hayfever, COPD | | | | | | Education | Only limited personal inputs |
| 7 | Digital reference | General information | | | | | | Education | Patient input |
| 8 | Self-assessment | Hemophilia | | | | | | Education, scheduling | Limited patient-specific inputs |
| 9 | Symptoms recording | Prostate cancer | | | | | | Monitoring, scheduling appointments | Physician integration |
| 10 | Virtual practice | Diabetes | | | | | | Education, scheduling | No patient inputs |

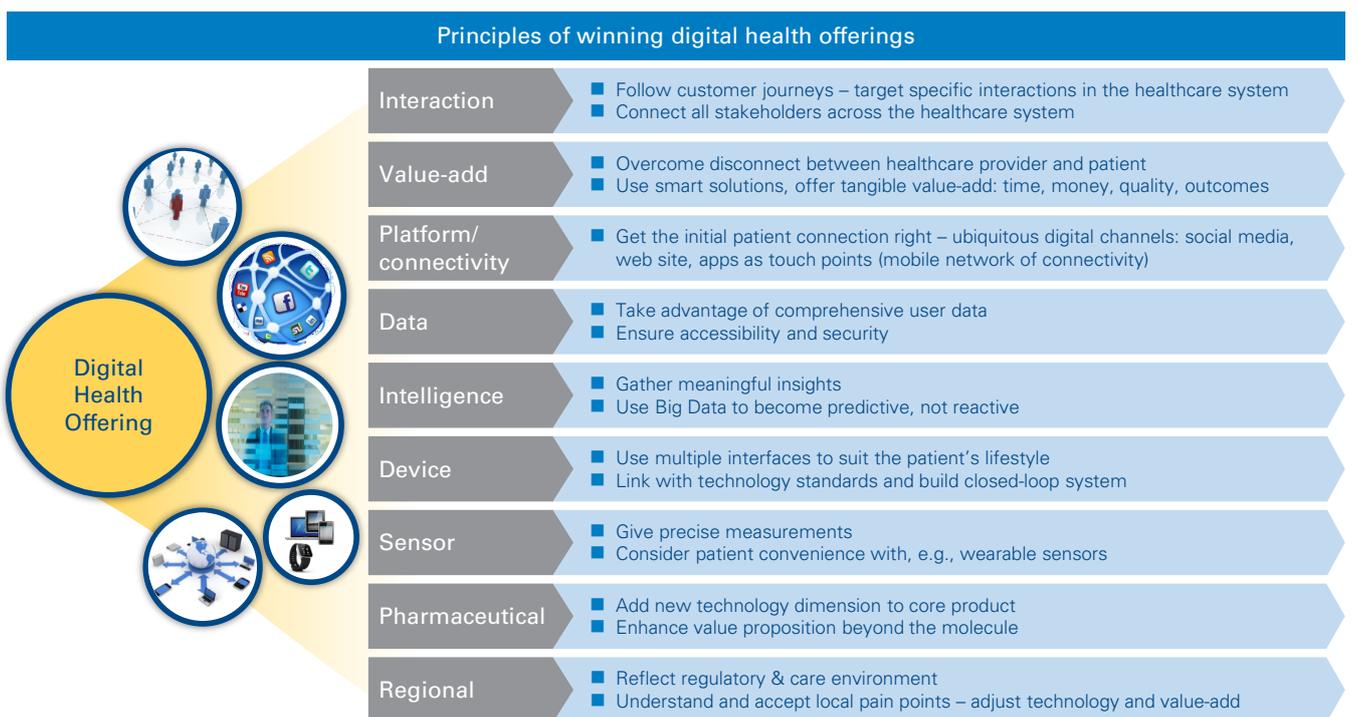
Comprehensive offering
 Partial offering
 Not available

Digital offerings may not be available in all countries; some markets may have different offerings; most prominent digital offering has been selected in case of multiple offerings by one company

Source: Arthur D. Little, company websites

2. Winning Digital Health Strategies

Figure 3: In Arthur D. Little's view, winning digital health offerings incorporate a clear set of principles



Source: Arthur D. Little

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, utilizing 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 commonly used to compare and prioritize investments in the healthcare industry

2.1 Vision and strategy formulation

Digital health strategy should start by finding a clear vision and deriving a corresponding corporate mission. The strategy can then be formulated and executed to fulfill the mission the company has set itself. 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 to 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.

With regards to digital health, Arthur D. Little notes that the majority of traditional players in the healthcare industry have not yet incorporated such elements into their overall and business unit strategies. Therefore, current digital health strategies and the associated offerings companies provide today are insufficient. The opportunities digital health presents remain largely untapped.

2.2 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. The strategic value in the long run should be in the focus. Nevertheless the short term viability and impact on the existing business model should not be kept out of sight (see figure 3 overleaf).

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 the parties involved. One of the principal stakeholders for the entire digital health value chain is the physician. Ultimately, in most healthcare ecosystems, physicians could drive the patient behavior. Also, this is where the different players in the healthcare ecosystem would have different starting points and influence to shape and drive adoption of digital solutions. 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 the clinicians. Provided their offerings address the doctor's 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 the clinicians thinking and decision making process that they traditionally are not used to doing.

In any case an offering that communicates solely with the patient will have a rough ride delivering value to the patient.

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 his health status and sharing data with all involved physicians, renewing his prescription, predicting likely changes in health status based on available data, and so on. To date, what can mostly be found instead is a collection of web pages with information or pill reminders that are not integrated into patient's calendars and itineraries.

Today's digital offerings rarely reflect the principles mentioned above, and hence provide limited value to the user. Winning solutions need to be designed from a customer perspective. Knowing patients' needs in detail and understanding their daily challenges is fundamental to developing superior-quality offerings. Smart and customized solutions do not only make the patient's life more convenient, but often also increase

compliance, and therefore improve the patient's health status and ultimately companies' revenue streams.

Platform/ connectivity:

A good solution uses a multi-channel approach to properly satisfy each patient's demand. Social media, web sites and apps offer touch points to the customer, and are embedded in the internal organization 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 customizing the treatment. Any offering that does not leverage the patient's data to track and record what is going on over time cannot leverage the full potential. The data is already there today – why not use it and make it accessible to the involved parties to benefit the patient?

Intelligence:

Superior offerings are going way beyond data collection. 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. Only when an underlying understanding of interrelated variables exists can the app itself embed the algorithm.

Device:

Winning digital health solutions require a device that collects and analyzes the data, communicates with the patient and provides multiple interfaces to other medical devices and communication platforms. It links to the most recent technology standards, and thus allows building of closed-loop systems. The device must be able to become a lifestyle product for the patient.

Sensor:

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. One reason patients are non-compliant is that they are too often asked to use a separate and inconvenient device.

Pharmaceutical:

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 programs, and many more options are available to enrich the value proposition.

Regional:

Finally, winning digital solutions cannot be developed as one-size-fits-all solutions. In fact, the most successful offering will reflect the regulatory and care environment in each respective region. Not only will it understand, but also accept local pain points and accordingly adjust its value proposition.

In the end, a groundbreaking and successful offering needs to address all of the above-mentioned aspects. If only one aspect is not considered in the solution design, chances are high that at least one stakeholder will never experience any added value and consequently won't utilize the product.

2.3 The role of new technologies and technology scouting

Traditional players especially should be open to taking the next step and begin to accept how new technologies can drive a changing treatment paradigm. Currently a common pattern of pharmaceutical companies and medical device companies is to remain focused solely on sustaining innovation. Resulting in ever more innovative, yet still conventional treatment options often targeted at niche indications and with attractive margins in return. R&D gets 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 even at a very competitive price. From an established player's point of 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.

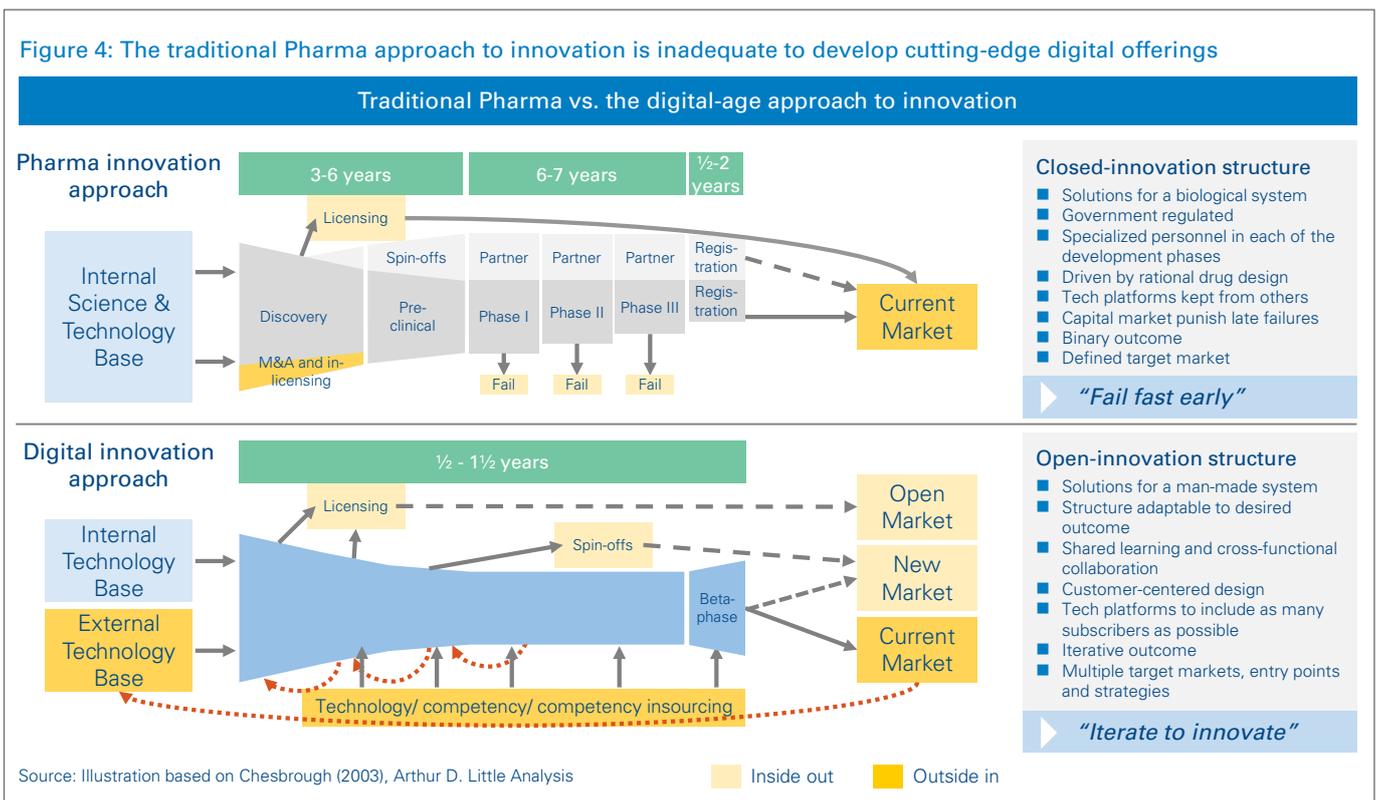
Integrated solutions, probably relying on closed-loop systems, will play an important role in the future. The main elements of such solutions will be:

3. Innovation Excellence in Digital Health

- Constant monitoring of relevant symptoms and/ or laboratory indicators. Here the offerings will have to have different cockpits and interfaces for the relationship Doctor to Doctor or HC Professionals to Patients and Doctor to Patient. This will help to drive the take-off and number of users. Currently a lower adoption rate amongst physicians can be observed, especially when there is no clear value-add built in for them. Most players seem to push for a Patient to Patient solution as a next step
- The continuously documented and personalized application of the pharmaceutical
- Broad usage of sensor technology on the 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 of physicians
- Leveraging of social media for a free and systematic exchange of information among patients and between patients and companies
- Seamless interaction between all healthcare stakeholders
- Application and utilization of cross-industry standards for patient records and exchange platforms, driven by joint multi-company initiatives within and across therapeutic areas

Currently only few integrated solutions are being offered, due to short term concerns and a close look reveals a clear approach to innovation and development of new technologies: established players almost exclusively aim to improve their pharmaceuticals or their medical devices. New entrants or non-industry players address the technology solution part and aim to find ways to integrate those into their offerings. Finally, the winning solutions will have to score along the nine principles we have introduced above to achieve user friendliness, cost savings and integration.

Figure 4: The traditional Pharma approach to innovation is inadequate to develop cutting-edge digital offerings



3.1 Approaches to innovation and how to measure success

The approach to innovation of the traditional pharmaceutical industry and other established players in the healthcare industry and that of the digital age are vastly different. A change in the approach to innovation and resulting processes and organizational structures appears inevitable. In figure 4 we compare the two approaches and visualize 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. 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 (see figure 4).

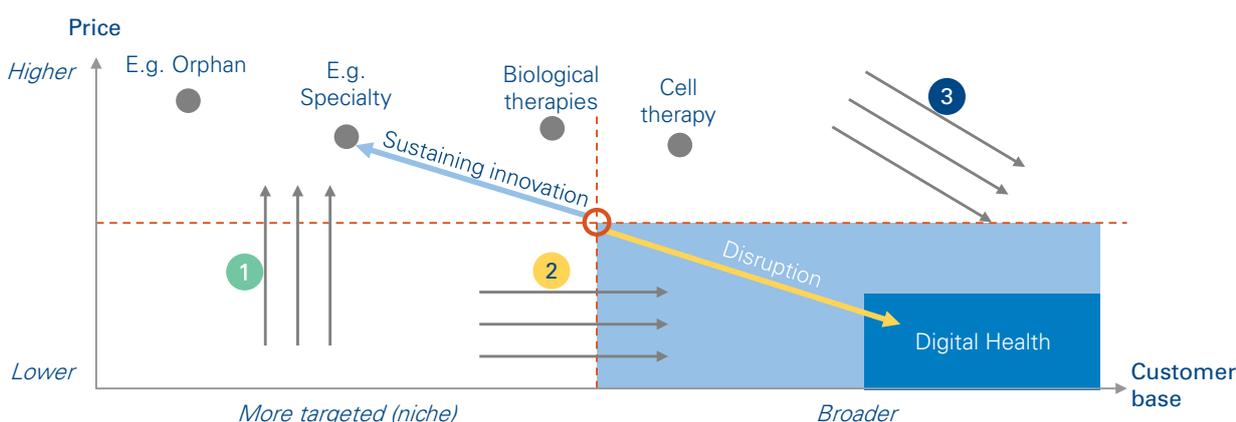
Pharmaceutical development starts from a company's internal science and technology base or a closely connected technology that the company acquires for one specific development purpose. Digital development, however, often takes a software

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 and can take multiple directions. First of all, 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 can and must generate throughout the process. Evidently, the market for a digital product may not even exist at the time of development. Digital companies such as Google therefore base their decisions to invest on a number of ancillary "soft" metrics, such as: the amount of patents filed, ideas and features that can be applied to other products, customer segments a product can target, and the number of markets a product may appeal to. These indicators are in contrast to the "hard" end points and accepted surrogate parameters found in the pharmaceutical industry.

Summarizing the main differences in the digital innovation process compared with the pharmaceutical approach are:

Figure 5: Also for traditional players following a sustaining path to innovation, digital health represents an opportunity to hedge against future disruptions



- 1 Dominant technology pull**
- Driven by unmet patient need and existing target customer base
 - Follows traditional Pharma R&D model
 - Well-understood and established risk assessment and cut-off points

- 2 Dominant technology push**
- Driven by technical ability and vision to change prevailing paradigm and target new/ broader customer base
 - Often by new industry entrants
 - Not well understood by incumbents
 - Traditional risk assessment not applicable

- 3 Potential technology hedge**
- Gives incumbents access to new technology and treatment paradigms
 - Externalized and independent from traditional/ core business
 - New approach to innovation and metrics to measure success needed

Source: Arthur D. Little

- Open innovation structure, focusing on partnering concepts and joint platform development
- Shared learning and cross-functional collaboration between development units and firms
- Customer-oriented solution design that follows changing consumer preferences
- Significantly shorter time to market, with the possibility of continuous iterative product improvements over time
- Flexibility to evolve development to meet the demands of multiple and even future markets with the same product platform

3.2 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 mission, 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 potentially is 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, Arthur D. Little recommends that established players in the healthcare field assess which superior digital solution they could add to their portfolio to leverage their deep understanding of a disease or a therapeutic area. Companies that decide not to enter the digital health field with their core business should at least consider to invest or to partner for the purpose of technology hedging. Several such joint ventures or investments through partnering business units or Venture Capital can be observed in the market and Arthur D. Little expects the number of such engagements to increase.

3.3 Digital standards and customer expectations

The digital standard is set by the leading players in the technology and digital industries. Well appreciated examples are found from Amazon, Google, Ebay, Apple stores and integration of solutions, or Vydeo. Patients will expect the standards they

are used to from internet and digital companies to be kept from pharmaceutical and medtech companies.

Moon-shot thinking, often applied in Silicon Valley and other IT incubators across the world, is not part of the traditional healthcare players' DNA. Traditional players in the industry are required to conform to set standards. Iteration and excellence that are not congruent with the existing innovation approach hinder established players into using a one-size-fits-all solution. Nevertheless, these are grassroots 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 optimize internal processes will need to integrate with front-end commercial offerings. In the future, pharmaceutical and medtech companies will have to manage regional and national product offerings and marketing authorizations, as well as the horizontal and unstructured pathways in 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.

4. 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 six areas:

- Value proposition and new types of offerings
- Customer focus: patients to consumers
- New competencies and new partnership formats
- Organizational structures, risk assessment and externalization of digital health-related activities
- Uncertainty/ new forms of revenue streams
- Digital transformation

4.1 The value proposition will change

In the current business model, the focus has been primarily on the actual drug or device, and lately also on 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 patients' needs and a holistic integration of stakeholders and data usage.

4.2 Driving patients' role as consumers and primary clients – a bridge to front-end communication channels

Digital health leads to a shift in the patient-vs.-consumer strategy and the way established players will communicate with their customers. Based on the hypotheses 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.

4.3 New competencies and partnerships are needed

The strategies of combining digital service offerings with traditional offerings on healthcare markets also require a new set of competencies. Which of these a company will build or buy and which capabilities can be accessed through partnerships will be individual choices. 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.

4.4 Changing organizational structures

The traditional structures of organizations will transform 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 as common practices to some, but this kind of externalization remains rather unfamiliar to large pharmaceutical players. Shorter development cycle times with continuous streams of product iterations also require adoption of a fluent decision-making process: the goal of digital technology is not one of efficacy and safety, but one of user convenience and value-add.

Digital companies include their lead users in the development process and place great emphasis on their opinions, allowing for more rapid yet meaningful decisions. Grooming a lead-user base is all the more important in Digital Health. Followership allows a company to test its beta versions while still preserving the scalability of its business model in case the early releases are not up to par. If rolled out prematurely to the average user, a product may be written off by the market, regardless of how much iteration there is to follow.

4.5 Integrated systems also require new revenue models

Integrated digital health offerings will essentially be service offerings with a broader spectrum of components and potentially targeting unmet needs beyond the actual treatment of the disease and/ 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 can and need to be priced differently, and will be paid for by different parties. Pharmaceutical and medtech companies will experiment on pricing mechanisms, as well as on customized packaging. A first step would be to have results measured by third parties, to involve payers and to offer patients to option to pay on top for additional services. In the short run this appears to be a

dilution of margin, but in the longer run it builds the platform and relationship needed to compete.

4.6 Digital transformation

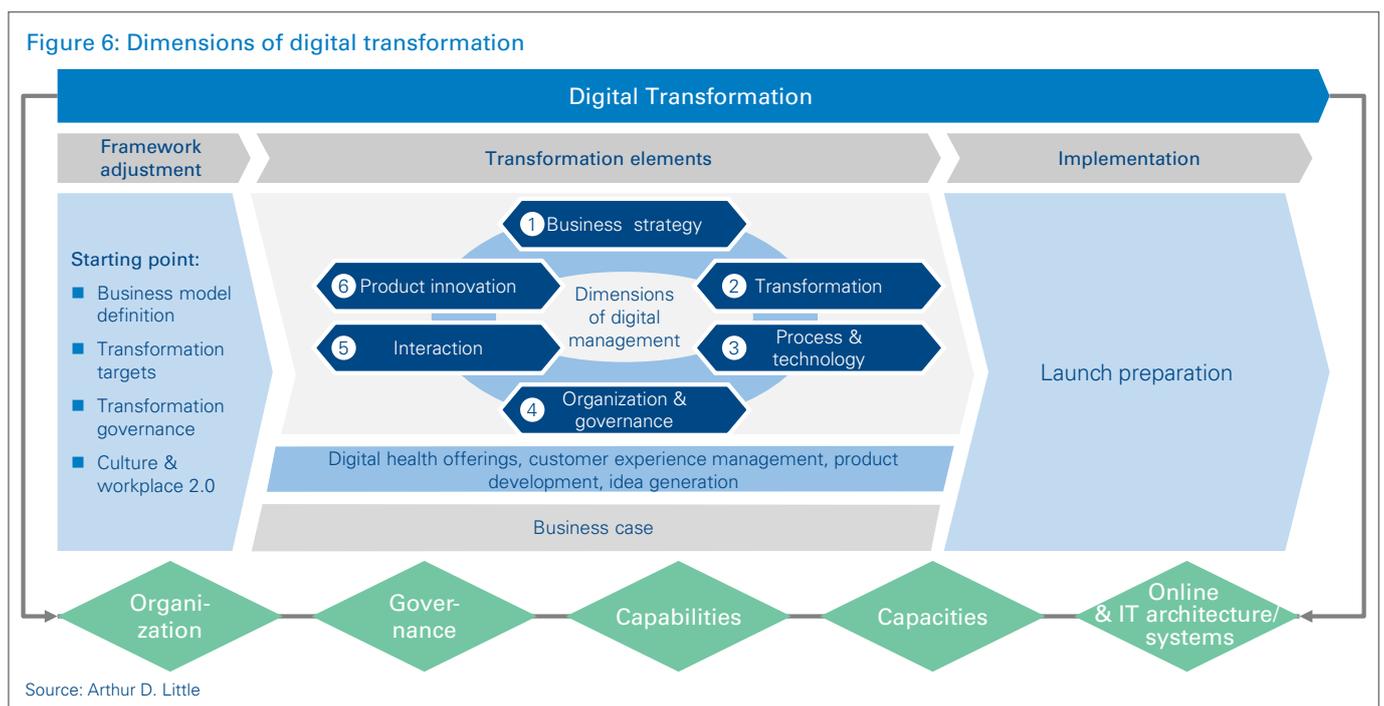
As pointed out above, the development and provision of digital health offerings will have a significant impact on the established business models of industry incumbents. Furthermore the integration of digital solutions that primarily drive a company's operational performance also increases the need for digital transformation. Such digital solutions include for example multi-channel management, e-detailing, digital order management, machine-to-machine communication or big/ value data usage. Clearly, the future business and operating model deviates from how companies generate value today. The resulting key questions that need to be addressed are as follows:

- What should the target business model look like?
 - What to do and what not
 - Smart and personalized products, product innovation, customer experience
- What is the status quo in terms of digital maturity?
 - Product innovation management, interaction management
 - Organization and governance
 - Process and technology

- Which areas should be prioritized and transformed first?
 - Clear transformation targets
 - Leadership alignment
- How can existing initiatives within healthcare and other business units of the organization be integrated?
 - Customer excellence
 - CRM
 - Digital health
- Especially with regards to digital health and multi-channel management: How can digital transformation drive the company's competitive edge?
 - Compliance and regulatory aspects
 - Electronic sales representatives (E-reps)

A successfully digital transformation process clearly defines the future business model, the transformation targets and the transformation governance in advance. In addition, there will be a clear understanding of what the company individual digital culture and e.g. workplaces will look like.

Six major transformation elements will be managed, as shown in figure 6. The digital transformation process will result in delivering the new organization, the governance for this new organization and changed responsibilities, an understanding of the capabilities needed, related capacities, the process architecture, and IT infrastructure.



5. Arthur D. Little's Offering in Defining Winning Digital Health Strategies

To overcome the before-mentioned challenges and define winning digital health strategies, Arthur D. Little supports companies in the healthcare field by linking strategy, technology and innovation. Arthur D. Little has established a digital health competence center with team members from its Pharmaceutical and Healthcare, TIME (Telecoms, Information, Media and Electronics) and TIM (Technology and Innovation Management) practices. Our teams have recently been supporting pharmaceutical and medtech companies, mobile network operators and healthcare providers in their thinking on digital, and in particular mHealth, strategies. This combination of profound understanding across industries enables us to develop winning strategies, identify and assess the right technologies needed for realization, and to support our clients when it comes to successful business models and partnership designs. Typical elements of Arthur D. Little's support for established players in the healthcare field and new entrants from the telecommunications, media and electronics industry include:

- Digital transformation
- Future technology/ business environment scenario analysis
- Development a clear vision about the digital future of major business segments and landmark pipeline projects
- Identification of promising technologies, devices and digital offerings complimentary to the current focus
- Prioritization of identified areas based on client's criteria and strategic needs
- Design of closed loop offerings for lead products and initiation of a digital strategy
- Strategy execution, assessment of growth options: organic vs. in-organic, partnering support, target identification
- Definition of easy to execute pilot and implement as lighthouse projects

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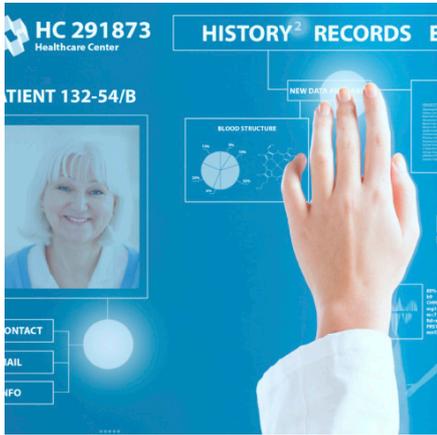
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Arthur D. Little

Arthur D. Little has been at the forefront of innovation since 1886. We are an acknowledged thought leader in linking strategy, innovation and transformation in technology-intensive and converging industries. We navigate our clients through changing business ecosystems to uncover new growth opportunities. We enable our clients to build innovation capabilities and transform their organizations.

Our consultants have strong practical industry experience combined with excellent knowledge of key trends and dynamics. Arthur D. Little is present in the most important business centers around the world. We are proud to serve most of the Fortune 1000 companies, in addition to other leading firms and public sector organizations.

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