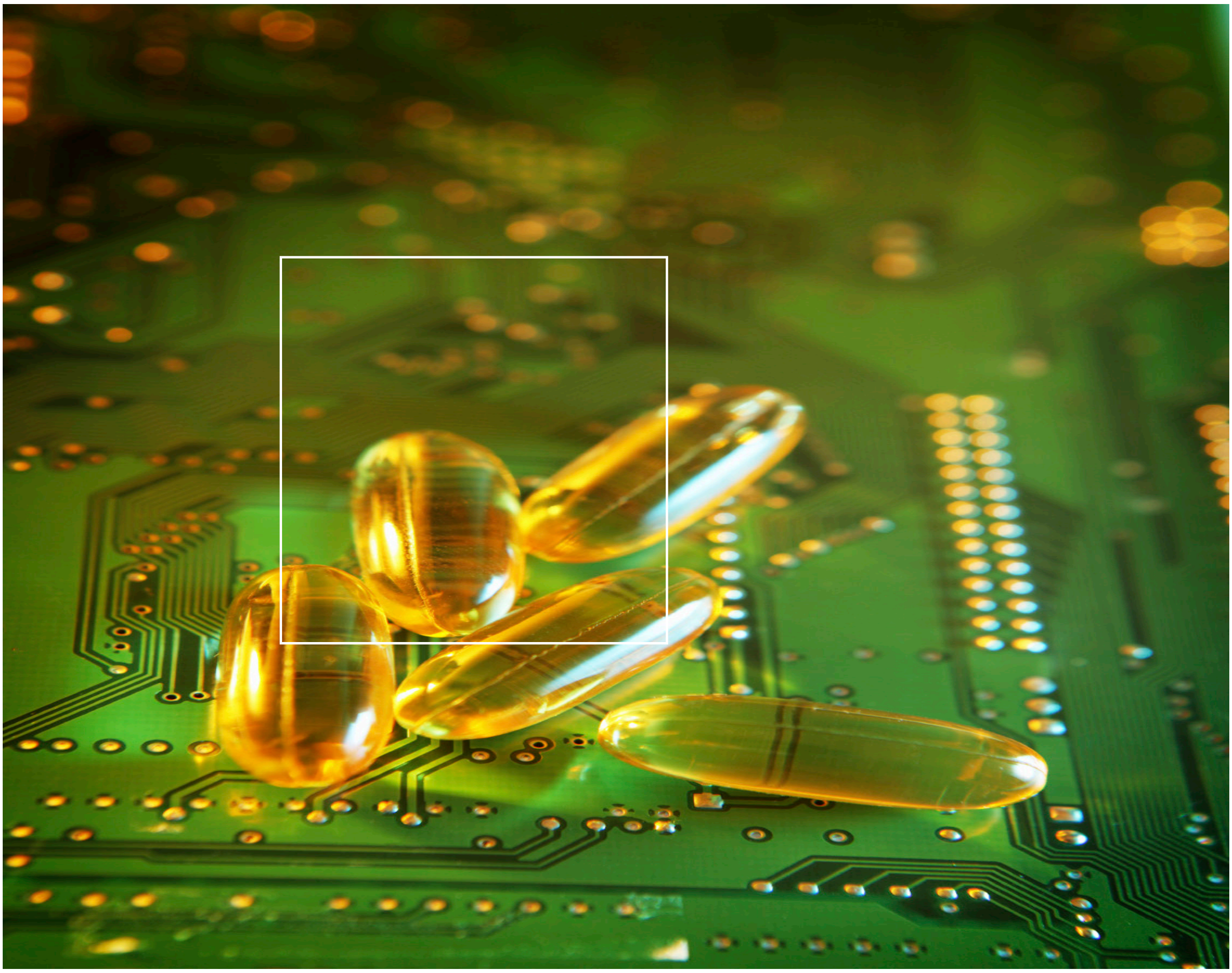
Arthur D Little

Health Care

Impact of Digital Health on the Pharmaceutical Industry

Will Business Models be Reshaped by Digital Health?



Content

Executive summary

Digital Health will transform the business models of the Pharmaceutical industry. Although many companies have not yet formulated a concise Digital Health strategy, industry executives expect that by 2020, Digital Health will enable Pharmaceutical companies to activate new business segments as well as to significantly improve their competitive advantage. This is the result of a global survey[1] conducted in the Pharmaceutical industry by Arthur D. Little and the Karlsruher Institute of Technology (KIT) to capture the current thinking and the expectations regarding the transformative impact of Digital Health.

The study results indicate that by 2020 the business model of the Pharmaceutical industry will be reshaped by Digital Health:

- 84% of study participants consider it **crucial** to have a Digital Health strategy in 2020, compared to 13% who believe it is already crucial today
- Whereas Digital Health programs are today still in an evaluation and piloting phase, 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 invent a new value proposition for the Pharmaceutical industry (57%)
- Consequently, all participants believe Digital Health will have **an important** (27%) or even **crucial impact** (73%) for the competitive advantage of their Pharmaceutical companies

The highlighted findings show that the majority of executives and senior managers have understood the value and business potential behind Digital Health and its concepts. Successful implementation of Digital Health strategies will result in transformation across four main areas: organizational prioritization, customer focus, enlargement of capabilities and uncertainty of revenue streams.

As key external drivers participants identified the increasing health awareness of consumers, technology progress and the expectation to reduce healthcare cost. Those aspects are supported by an increased desire for integrated systems in a new world of open innovation.

1 Arthur D. Little and Karlsruher Institute of Technology jointly conducted a total of 53 interviews in 2013. The survey design included an initial set of qualitative interviews followed by a second step which was guided by a quantitative questionnaire. The number of responses varies throughout this report as only completed datasets per question have been included.

Emergence of digital technologies and genetics into the traditional value chain

The global healthcare industry has seen a transformation over the last decade, which has been driven by advances in biopharmaceuticals, medical technology and surgical procedures.

Over the next decade, we will see even more dramatic changes, resulting from factors such as advances in genetic, cell and tissue techniques; interventional medical technologies; neuro-engineering; intelligent prosthetics; and improved imaging technologies. We are in the middle of a paradigm shift. Digital Health applications in integrated healthcare offerings and information and communication technologies, which can tap into the full potential of big data analytics, will transform the way we think about healthcare.

For the conducted survey[1], we have defined the term 'Digital Health' as follows:

- 'Digital Health' represents the convergence of digital technologies (especially information and communication technologies and data analytics) with elements and decision making structures of the traditional care value chain. The overall objective is to improve the wellbeing of patients, and/or to reduce costs of services.[2]

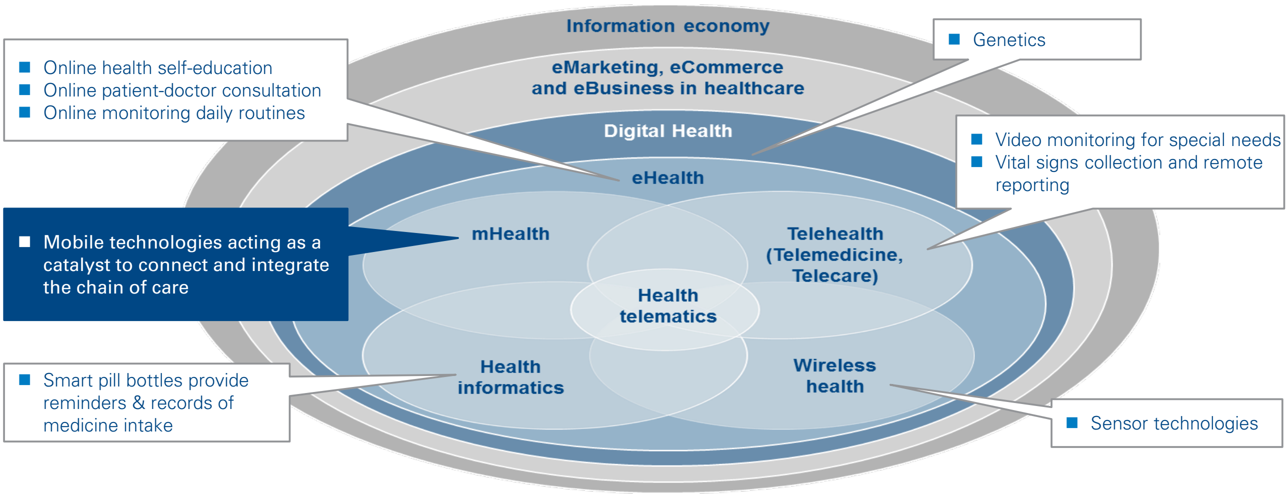
Numerous terms such as 'eHealth', 'mHealth' or 'telemedicine' are frequently used synonyms of Digital Health to describe concepts of healthcare practice that use or involve information and communication technology. Thus, they are some of the phrases used that refer to Digital Health (Figure 1).

In fact, mHealth is the building block that enables Digital Health solutions to enfold their full potential by using mobile communication technologies and concepts. Mobile technologies can potentially act as a catalyst to increase the impact of digital offerings, when they are applied as an enabler within integrated healthcare offerings. The resulting digital offerings can change the logic of existing market mechanisms and reduce costs[3].

2 The definition is based on Arthur D. Little's understanding of Digital Health and refers to the prevailing academic and business thinking, including: Frank (2000); Topol (2012; 2013); Mellodge and Vendetti, (2011)

3 Basset et al., (2012)

Figure 1. Digital Health harbors a variety of concepts and related applications – mobile technologies act as a catalyst



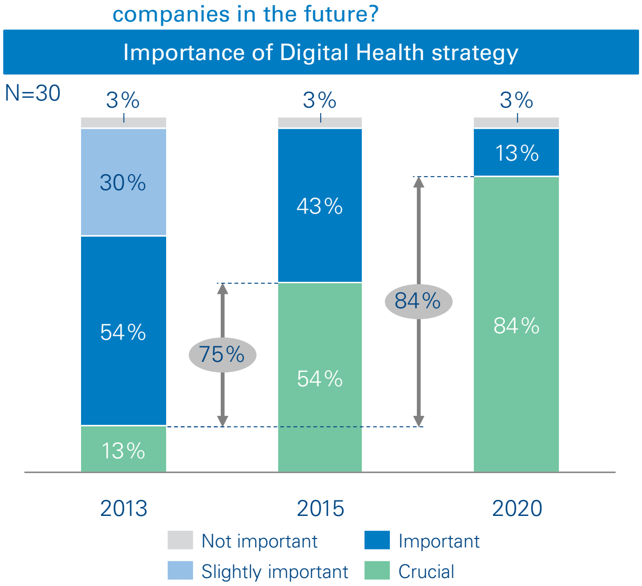
Source: Mitchell, J. & Associates (1999) The cost effectiveness of telemedicine enhanced by embracing e-health. Pawar et al. (2012) A framework for the comparison of mobile patient monitoring systems. m-healthTalk.com (2013) m-health – What does it mean and what's included. Fasano, P. (2013) Transfor-ming Health Care – The financial Impact of Technology. Sonnier, P. (2012) Definition of Digital Health. Pagliari et al. (2005) What Is eHealth. Arthur D. Little

Little engagement today, but high expectations for the near future

When asked how important it will be to have a Digital Health strategy for Pharmaceutical companies, 84% of study participants considered it 'crucial' to have a Digital Health strategy in 2020. An additional 13% answered that it will be 'important' and only 3% of participants considered it 'not important' (Figure 2).

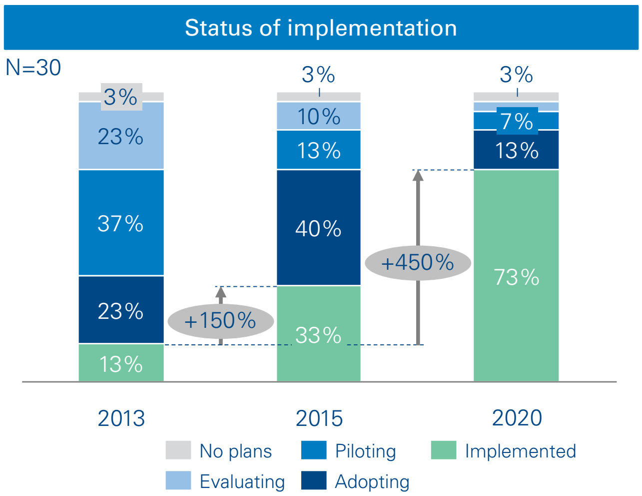
When it comes to adaption of such strategies however, the survey reveals that the Pharmaceutical industry is still at the early stage. 76% of participants reported that their organizations have no current plans in place, or are currently in the process of evaluating, piloting or adopting Digital Health plans. But Digital Health adoption in the Pharmaceutical industry is expected to increase rapidly in the following years. By 2020 and beyond, it is predicted that the majority of Pharmaceutical companies will have implemented a Digital Health strategy (Figure 3).

Figure 2. How important is a Digital Health Strategy and how important will it be for Pharmaceutical companies in the future?



Source: Joint Arthur D. Little, KIT survey

Figure 3. Which of the following best describes the adoption level of your company's Digital Health initiatives today? How do you expect this to develop in the short-term and long-term?



Source: Joint Arthur D. Little, KIT survey

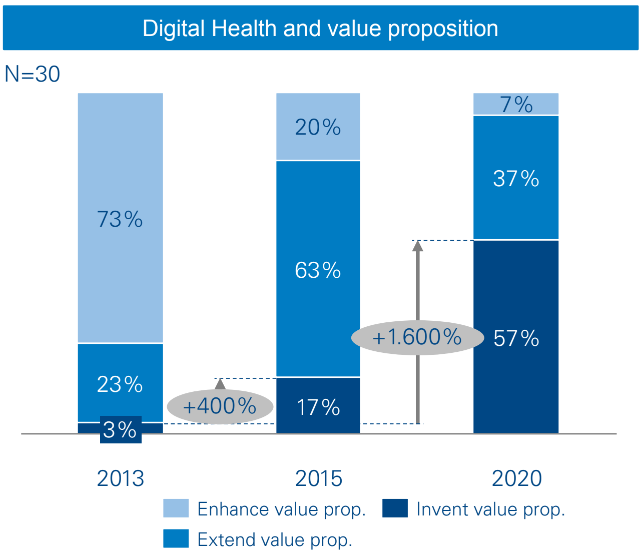
These results indicate that managers in the Pharmaceutical industry see the importance that Digital Health will have in the future. Executives also point out the need to prepare, formulate and execute Digital Health strategies soon.

Digital Health: generating new business, pushing the value proposition

When asked about the focus of their Digital Health engagements, more than 75% of respondents indicated that they understand Digital Health as means to generate new business by 2020. Executives and senior managers also say that in the short-term, Digital Health strategies will mostly target business improvements and ways to redesign their businesses (Figure 4).

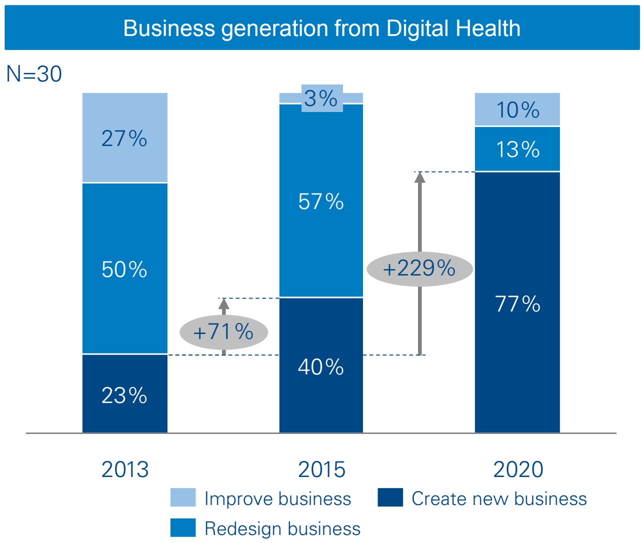
In fact, while the Pharmaceutical industry currently utilizes Digital Health to enhance the established value proposition, within the next couple of years this situation and business logic will change entirely. By 2015 the majority of companies will use Digital Health to extend their value proposition, and by 2020 more than 90% of executives and senior managers expect to leverage Digital Health in a way that helps them to invent a new value proposition (57%) or to extend their current value proposition (37%) (Figure 5).

Figure 4. What is the primary focus of your company's Digital Health strategy with respect to value proposition for the customer?



Source: Joint Arthur D. Little, KIT survey

Figure 5. What is the primary focus of your company's Digital Health strategy with respect to business generation?

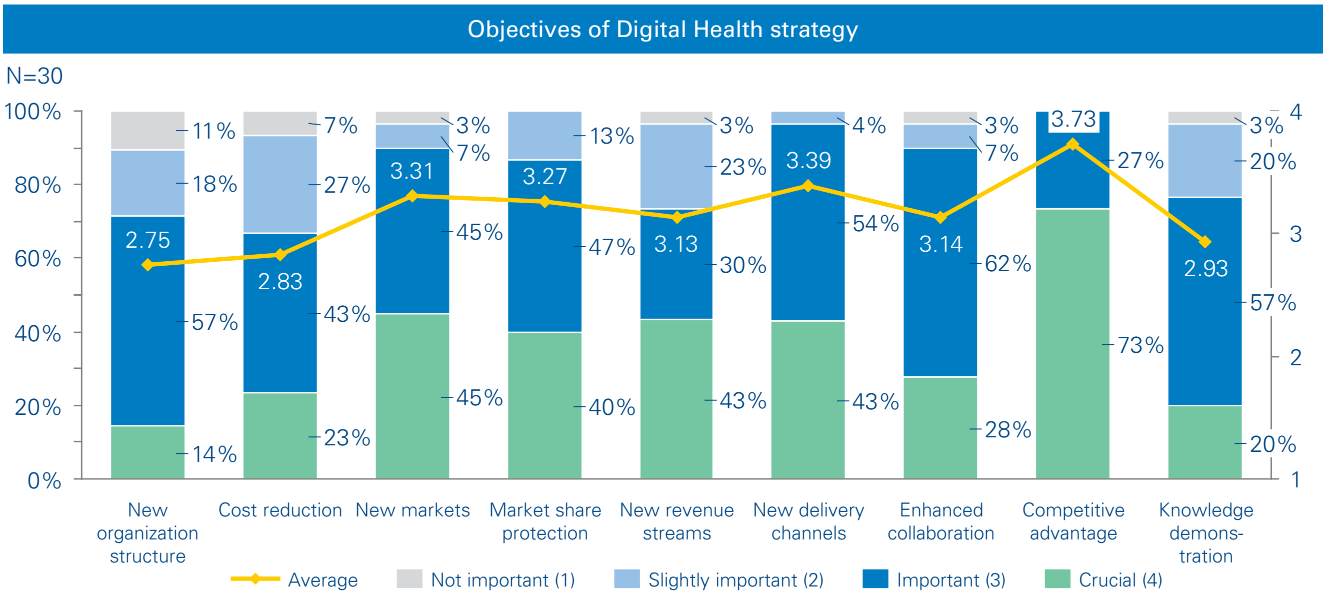


Source: Joint Arthur D. Little, KIT survey

To understand the rationale behind the expected future importance of Digital Health, participants were asked to shed light on the business objectives their companies are targeting with the implementation of Digital Health strategies. The top five business objectives are listed below (see Figure 6 for more detail):

- Improved competitive advantage (3.73)[4]
- New delivery channels (3.39)
- Access to new markets (3.31)
- Protection of market share (3.27)
- Enhanced collaboration (3.14)

Figure 6. How important are the following objectives for your company's Digital Health strategy?



Source: Joint Arthur D. Little, KIT survey

4 Numbers represent the average value of participants' assessment of importance of these business objectives for Digital Health strategy, where 1 indicates "not important" and 4 indicates "crucial importance".

Dealing with the transformation potential

The previously highlighted findings show that the majority of executives and senior managers have understood the value and business potential behind Digital Health and its concepts. Successful implementation of Digital Health strategies will result in transformation across four areas:

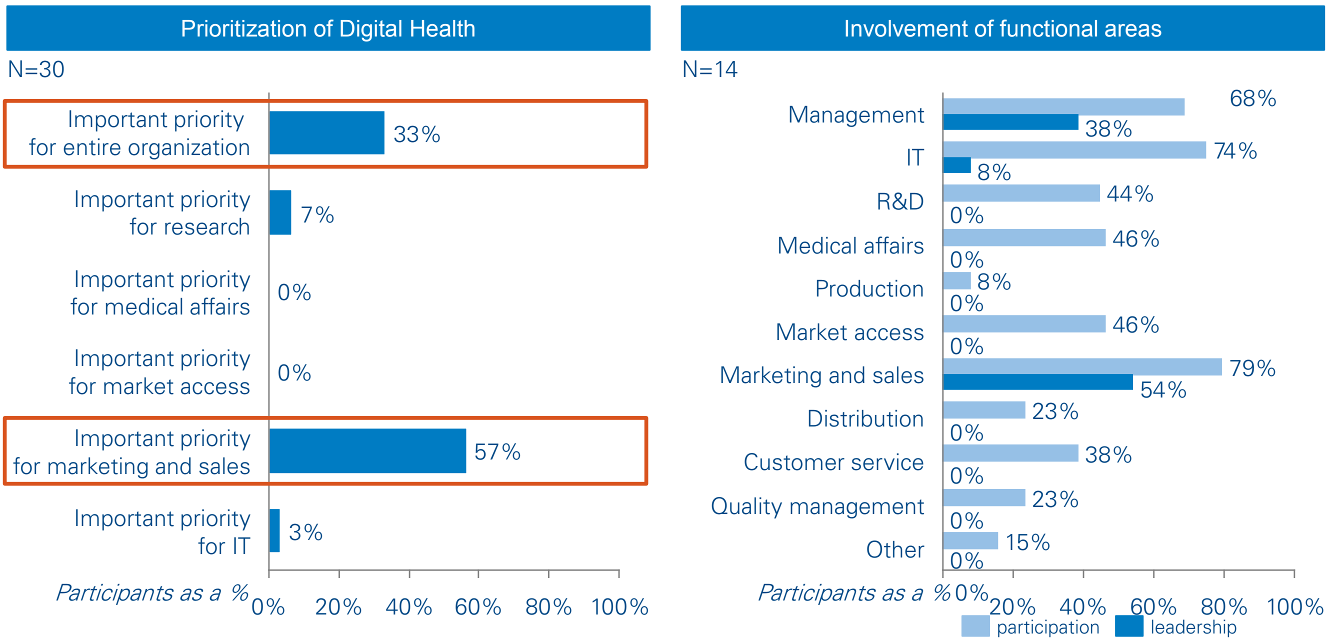
1. **Organizational prioritization:** Digital Health will need to transform into a leadership topic.
2. **Shift in customer base:** the role of patients, consumers and payers are about to change.
3. **New competencies and partnerships:** there will be a need to master a changed set of competencies and engage with different partners.
4. **Uncertain revenue streams:** when Digital Health elements become an integrated part of product offerings, new financial models will be needed.

1. Organizational prioritization

The Pharmaceutical industry is aware of the importance of successful execution of Digital Health strategies in the near future. Nevertheless, this is barely reflected in today's organizations. Digital Health solutions are still mostly driven by the marketing department: 57% of respondents indicated that Digital Health is a topic of high importance for their marketing and sales business, while only 33% of participants saw a high importance for the entire organization (Figure 7).

In an additional round of in-depth-personal interviews with leading digital experts in the industry, we found that only 38% of Pharmaceutical companies in the sample have management in the driver's seat when it comes to Digital Health and related projects (Figure 7).

Figure 7. Which of the following best describes the priority of Digital Health for your company?



Source: Joint Arthur D. Little, KIT survey

Source: Joint Arthur D. Little, KIT survey

Figure 8. How important are the different stakeholders in the traditional and the future Digital Health business model?

Importance of stakeholders

Traditional business model

	Importance			
	1	2	3	4
Primary HCP			●	
Secondary HCP			●	
Patients		●		
Consumer	●			
Wholesalers			●	
Retailers	●			
Pharmacies			●	
Payers			●	
ICT provider	●			

Digital-Health business model

	Importance			
	1	2	3	4
Primary HCP			●	
Secondary HCP			●	
Patients			➡ ●	
Consumer		➡ ●		
Wholesalers		● ⬅		
Retailers	●			
Pharmacies			●	
Payers				➡ ●
ICT provider	●			

● 1 = not important at all, 2 = slightly important, 3 = important, 4 = very important

Source: Joint Arthur D. Little, KIT survey; Bassett et al. (2012) From Science 2.0 to Pharma 3.0; Srai, J.S., Alinaghian, L.S. (2010) Mapping Emerging Value Chains in Pharmaceutical Industry

2. Shift in customer base

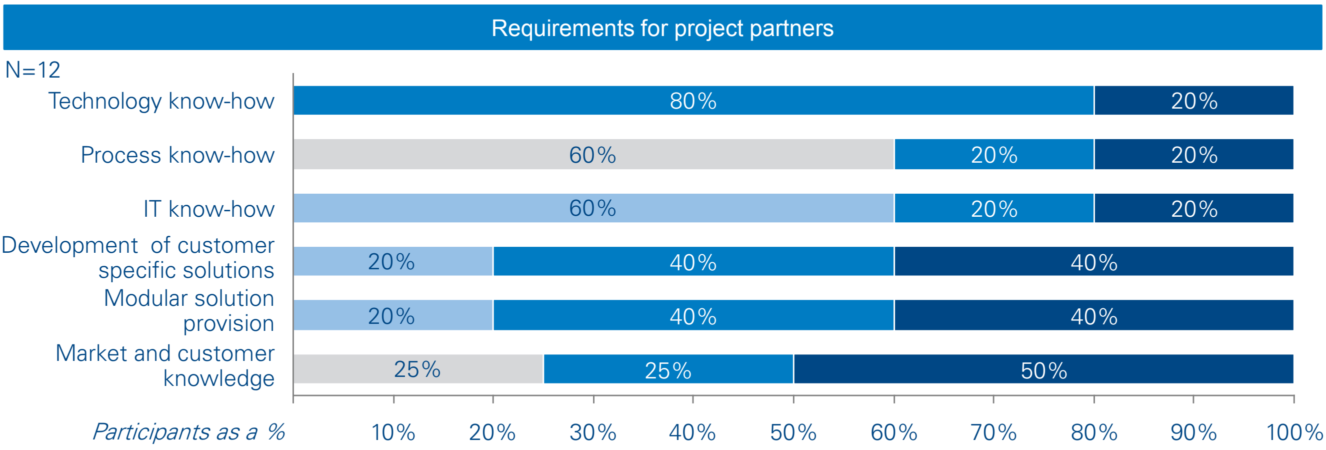
The traditional business model of the Pharmaceutical industry is expected to change as the importance of patients and consumers will increase. Payers are seen to become the leading stakeholder. Wholesalers are likely to have a decreasingly important role, whereas the roles of other stakeholders, such as providers and pharmacists, have been estimated not to change (Figure 8).

3. New competencies and partnerships

Successful execution of Digital Health strategies requires new competencies. All survey participants consider partnerships an essential part of successful design, implementation and operation of Digital Health solutions. There is demand for technological know-how, development of customer-specific solutions and provision of modular solutions. Also, Pharmaceutical companies consider market and customer knowledge as highly relevant (Figure 9 overleaf).

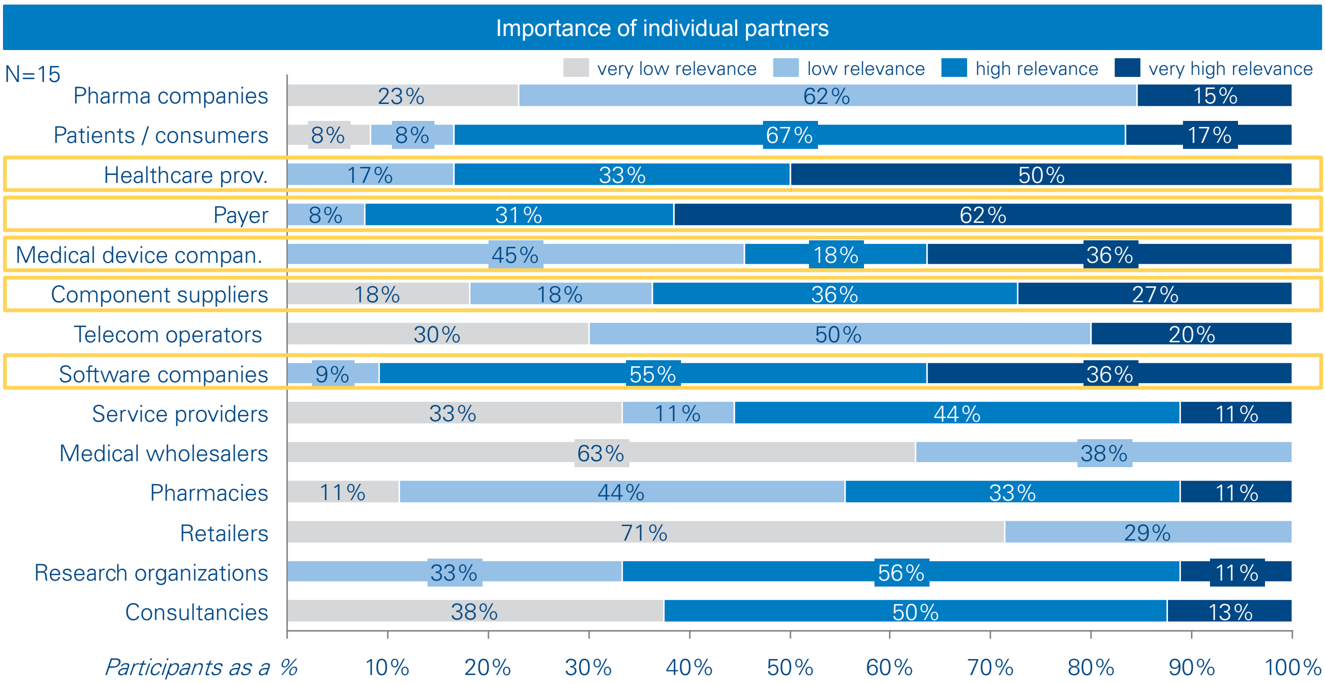
Respondents also indicated which partners they consider mostly relevant to succeed in the Digital Health environment. Payers, healthcare providers, software companies and component and medical device companies are considered the most important partners for the Pharmaceutical industry (Figure 10 overleaf).

Figure 9. Which capabilities do you require from your project partners when it comes to digital health strategies and projects?



Source: Joint Arthur D. Little, KIT survey

Figure 10. How important are the following partners for your Digital Health strategies?

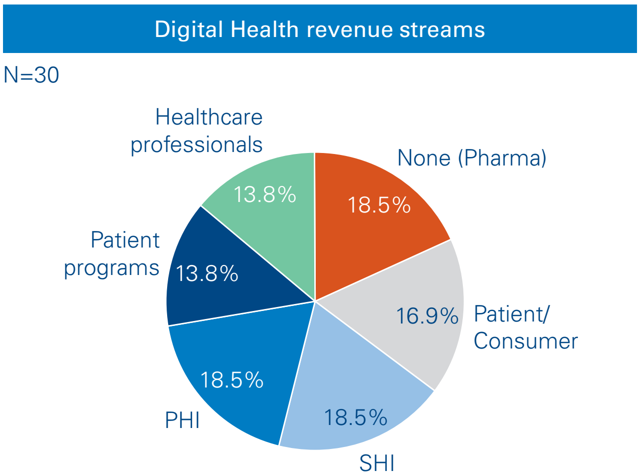


Source: Joint Arthur D. Little, KIT survey; Bassett et al. (2012) From Science 2.0 to Pharma 3.0; Chase (2011) Healthcare disruption, TechCrunch.

4. Uncertain revenue streams

Digital Health solutions are expected to become an integral part of the offering of Pharmaceutical companies. Furthermore, as shown in the survey results above, digital is seen as a generator of new business. As such, Pharmaceutical companies will have to find ways to not only price their Digital Health solutions, but also to overcome the uncertainty of who will pay. When asked who will compensate their organizations for the offered digital solutions, the survey participants indicated several sources, ranging from patients and consumers (16.9%), statutory health insurance (SHI) and private health insurance (PHI) (18.5% each), and patient programs and healthcare professionals (13.8% each). In addition 18.5% of participants expect that Pharmaceutical companies will not be compensated for their Digital Health offerings at all (Figure 11).

Figure 11. Which parties are/ will be paying for the Digital Health solution?



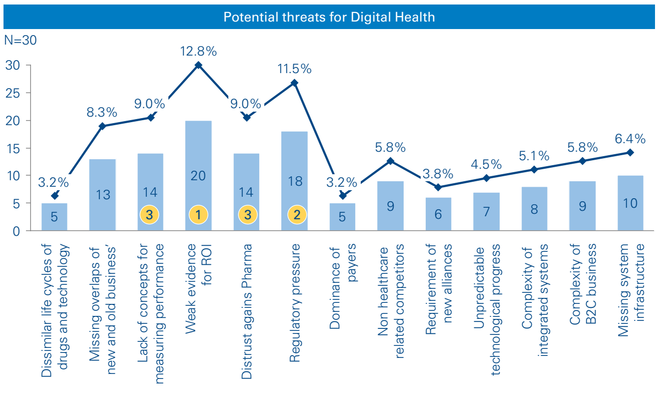
Source: Joint Arthur D. Little, KIT survey; Bassett et al. (2012) From Science 2.0 to Pharma 3.0. Porter (2006) Redefining Health Care

Drivers and potential threats for Digital Health

Digital Health in the Pharmaceutical industry is driven by market pull and not by a push initiated by the industry. This is both different from Pharma's traditional business model and other examples of successful technological transformations the world has seen in other industries. The executives and senior managers in the survey have identified increasing health awareness, technological progress, reduction of healthcare costs, the desire for integrated systems, increasing cooperative competition, and open innovation as the main drivers of Digital Health (Figure 12).

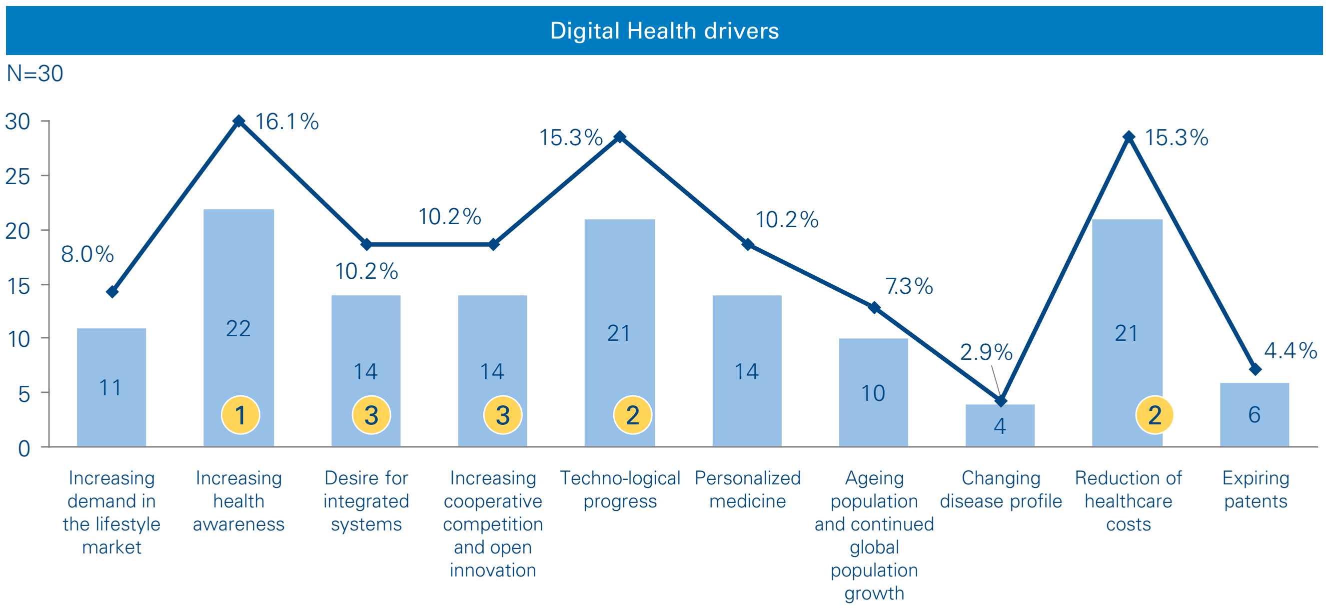
Despite the positive picture executive and senior managers paint when speaking about Digital Health and their optimism, survey respondents also identified the potential threats. Weak evidence for return on investment (ROI), regulatory pressure, lack of concepts for performance measurement, and the suspicion of the Pharmaceutical industry in the marketplace are mentioned as leading potential threats (Figure 13).

Figure 13. Which of the following potential threats are you most concerned about, when it comes to Digital Health growth prospects?



Source: Joint Arthur D. Little, KIT survey

Figure 12. Which of the following environmental, societal and economic mega-trend(s) do you think best drives your company's Digital Health business?



Source: Joint Arthur D. Little, KIT survey

Looking ahead

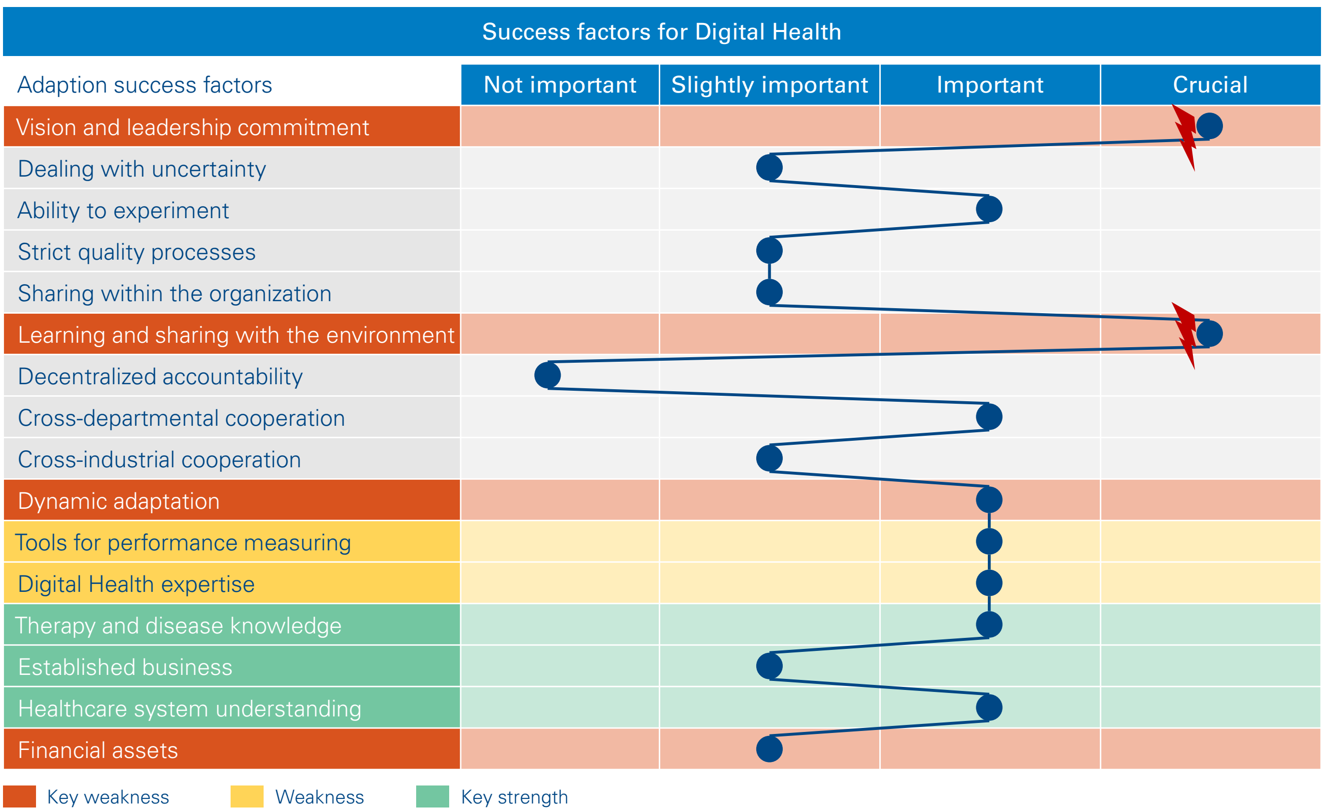
To successfully develop and execute Digital Health strategies, Pharmaceutical companies have to change the way that they look at Digital Health today. Shorter product lifecycles and the increasing role of technology will require different sets of competencies.

Research and development will have to consider Digital Health components that future health technology assessments will require. In the future, Pharmaceutical companies will have to be more dynamic and able to bring in new aspects of how to innovate, learn and share with the environment in order to cope with the accelerated speed that comes alongside digital health solutions.

All of this needs to be driven by top management and will be accompanied with investments. Digital Health is ripe to leave the marketing and sales department, where it was challenged with the wrong criteria, and become a top priority of executives.

The executives and senior managers have highlighted the above aspects (see Figure 14) when being asked about the key success factors and where they would consider the strengths and weaknesses of their organizations.

Figure 14. What organizational capabilities demonstrate success factors with respect to successful design, implementation and operation of Digital Health initiatives?



Source: Joint Arthur D. Little, KIT survey

How Arthur D. Little supports companies to develop Digital Health strategies

Arthur D. Little has established a Digital Health competence center with team members from its Pharmaceutical and Healthcare, TIME (Telecoms, Information, Media und 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.

Literature

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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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