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Digital Pharma – Responding to Challenges and Opportunities from Outside

How digital is reshaping the Pharma arena

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The pharmaceutical industry in the 20th and early 21st century has been in constant change, driven by both incremental and breakthrough innovations. These range from the discovery of penicillin and effective, targeted cancer drugs to personalized medicine. Recently, the European Medicines Agency (EMA) approved a gene therapy for LPLD (Lipoprotein Lipase Deficiency), the first-ever gene therapy to be approved in the Western world, marking another innovation milestone.

However, what the industry has not seen before is disruptive innovation driven by inventions outside the healthcare sector. With the introduction of smartphones and big data analysis, along with progress in robotics, new players in the media, electronics and IT industries have substantially changed the way we live and do business. By merging these technologies with the latest developments in medicine, including genomics, stem cells and stratified approaches, the speed of innovation can be accelerated significantly.

In its report “Impact of Digital Health on the Pharmaceutical Industry – Will Business Models be Reshaped by Digital Health?” Arthur D. Little provided an industry snapshot of the goals of the pharmaceutical industry for 2020, and their progress so far in achieving them. The study indicated that by 2020, the business model of the pharmaceutical industry will be transformed by digital health. It revealed

Innovation has always been one of the foundations for success in the pharmaceutical industry. While the sector has been very good at developing innovation from scratch or incremental innovation of existing products, it now faces an ultimately different challenge – dealing with disruptive innovation that is driven by inventions outside the healthcare sector. New players from the digital arena are currently redefining the way the industry works. In this article the authors outline the nature and origins of the disruptive pressure on the pharma sector and how companies should transform to respond to the challenges and opportunities arising from this new era of digitalization.

that managers expect digital health to significantly extend current business models, or even to create completely new ones for their industry.

Today we are already seeing pharma companies such as Merck (through its patient engagement platform, Merckengage) and AbbVie (with a video solution for the management of Parkinson's Disease with Karolinska University Hospital), making initial steps towards offering a range of basic services that support important areas such as patient compliance, adherence or interdisciplinary collaboration. But the world can expect many more innovations to be applied to healthcare by pharma companies. Big data will enable them to measure the real-life effects of their medicines, while fully integrated services will improve the quality and efficiency of care. In order to implement such integrated solutions ahead of new entrants such as Calico (established by Google and with a R&D partnership with AbbVie), pharma companies will need to undergo major transformation programs and convert three completely different value chains: pharma, medical devices for measuring health parameters, and IT solutions to process and connect data.

This article outlines the nature and origins of the disruptive pressure on the pharmaceutical industry and how companies should transform themselves to respond to the challenges and opportunities arising from this new era of digitalization.

Inventions outside healthcare driving change in the pharma industry

Many of the innovative solutions that digital health offers are being developed by non-traditional entrants into the healthcare arena. They are now providing new offerings that are very quickly changing the dynamics of how the ecosystem works, and, in particular, how the individual patient is engaged.

One telling measure is the amount of venture capital that is continuing to flow into the digital health market. According to digital health startup accelerator Rock Health, USD2.1 billion was invested in digital health startups during the first half of 2015 – up 25% compared to the previous 12 months. The biggest portion, USD387

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million, went to wearables and biosensing companies, but analytics and big data, as well as electronic health records, are other categories that are seeing significant investment activity and a vibrant innovation environment. Take Health Catalyst, a Salt Lake City-based startup, for example. The company, which recently secured USD70 million in additional funding, helps healthcare organizations perform the advanced clinical and operational data analysis needed for population health and accountable care according to the Three-Part Aim of the US Affordable Care Act (ACA). It is now pioneering innovative health analytics capabilities in which an application layer uses the company's data warehouse to provide new insight, helping physicians and hospitals make better clinical and operational decisions.

The innovations coming from outside the traditional healthcare industry span a wide spectrum of products and services, but all take advantage of advances in digital technologies and the ability to analyze and present large amounts of data in new ways. From new biosensor technologies and smart devices to portals and physician guidance tools, there are numerous exciting breakthroughs that allow enhanced self-monitoring capabilities and patient adherence – and ultimately superior clinical decision-making and treatment success. Add on the data analytics capabilities that are now being put to use by purchasing bodies (payers) and hospital systems, and it is clear that healthcare is in the middle of a profound transformational shift.

How should a pharma company act in the midst of this rapid change if it is to remain relevant going forward? In our work, we have found that many companies are struggling to fully understand the new landscape. This is particularly due to the constraints of being vertically integrated organizations with business models that are essentially built around independence and self-reliance, meaning they have promoted internal solutions over broader ecosystem collaborations.

A common theme among the new solution providers and the digital health innovations they are creating, is that they tend to have a much stronger consumer mindset as a natural part of their organizational “DNA” and thinking relative to pharma companies. This is evident in digital health solutions such as new continuous blood glucose meters which, connected to a smartphone application, directly empower the patient to take control of his or her own diabetes by guiding insulin therapy through access to real-time glucose levels.

Digital health solutions could therefore solve the major long-term issues of pharma’s most important client groups – patients, providers and payers – all at the same time.

It is becoming clear that in order to stay relevant in the future health-care ecosystem, pharma companies must look to business models that foster much more direct patient engagement than previously. New methods offer significant potential in increasing the quality and efficiency of care. Digital health solutions could therefore solve the major long-term issues of Pharma’s most important client groups – patients, providers and payers – all at the same time.

Success factors for pharma companies

In order to understand the disruptive power of digital health and its impact on pharma, one has to take a closer look at the relationships within this well-connected ecosystem. Traditionally, healthcare providers, payers and pharma companies have had a conventional supplier-consumer relationship. However, there are now increasing demands from payers and providers around the delivery of better health outcomes and greater cost-effectiveness. These provide a strong driving force for pharma companies to more actively engage in the opportunities arising from the digital revolution and patient-centred care. More than ever, regulatory bodies now insist on pharma companies demonstrating benefits

and cost-effectiveness, with many countries introducing reforms that aim to restrain overall spending. Ensuring responsiveness to treatment and patient compliance, while minimizing side effects, are therefore key success factors if pharma companies are to meet society's demands.

The disruptive pressure from healthcare systems and industries outside the sector changes the key success factors of pharma companies. In particular, they need to:

- Respond even faster than before with more comprehensive approaches to change,
- Embrace new strategies with enhanced flexibility and the willingness to work through new ways in pilots,
- Speed up development programs that foster new skill sets; new mindsets; and new behaviors,
- Open up to greater collaboration with new partners. This includes connecting and sharing information with players that were previously seen as competitors, as individual patients will increasingly require a combined approach to treatment,
- Ensure that they take advantage of cheap and efficient devices that collect health data, such as the Apple Watch, continuous glucose monitors and portable electroencephalogram (EEG) monitors, as they become available,
- Increase transparency to earn the trust of regulatory bodies and patients.

Generally these success factors apply to any pharma company. However, the visions of where specific companies want to be might be very different. Overall, it is about what core competences a player has, and what business model will provide the best leverage. Pharma organizations can be broadly divided into two groups: research-driven and disease management-driven companies. Roche is an example par excellence of a research-driven company

with a core competence in developing leading edge, stratified medicines. Subsequently, it is investing in collaborations with digital empowered genetic diagnostic companies. In contrast, companies such as Novartis and Sanofi have started to explore digital disease management solutions. Hence, they collaborate with medical devices and media companies such as Google.

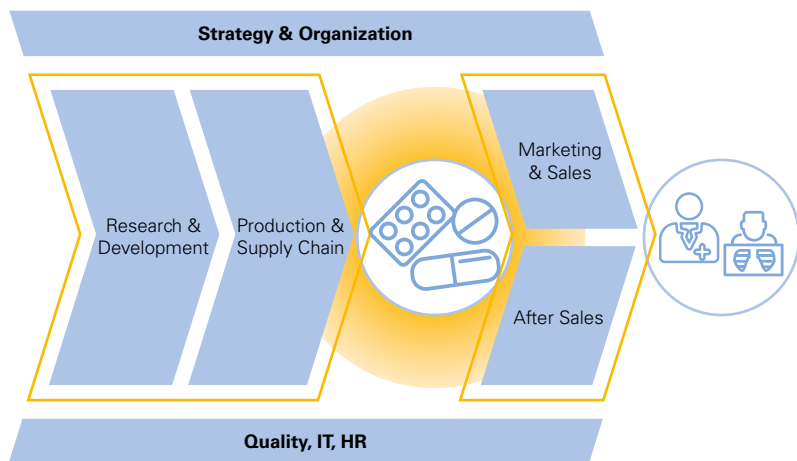
What to consider when preparing for transformation

In order to achieve these new success factors, pharma companies need to begin a process of transformation. The proven, classical, product-centric approach with an indirect value chain (as shown in Table 1) will not be able to embrace the required speed, new collaboration needs, flexibility and ability to learn quickly.

A pharma value chain in a digitalized environment needs to incorporate new characteristics. Therefore, as a first step, the company needs to develop a vision of how it will earn money in the new digitalized world. Will the revenue model stay? Will the business model instead be built around new manufactured products or services? What will the portfolio and customer experience look like? A vision how a transformed organization can be structured is shown in Table 2.

Table 1 **Times are changing: The classic, product-centric pharma world will no longer hold up**

Source: Arthur D. Little



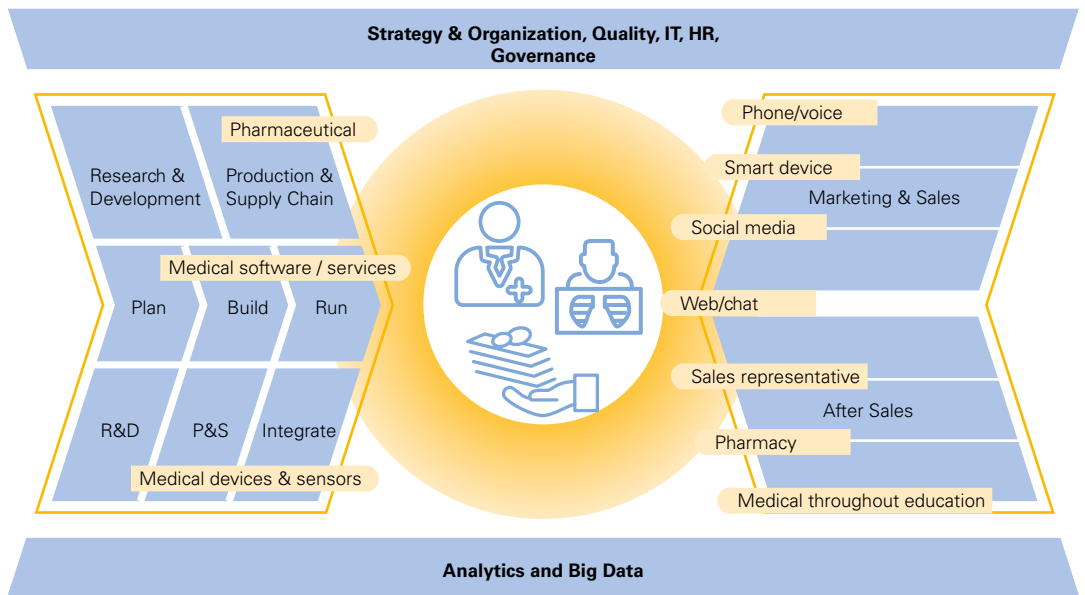


Table 2 **The future pharma value chain needs to be customer-centric, integrated and multichannel**

Source: Arthur D. Little

In such a vision, pharmaceutical product offerings can be strengthened through complementary digital software/ digital services offerings. These help patients with their treatment, help practitioners with their work, and give them insights on the success of their treatments, while helping payers and legal entities to receive proof of efficacy. Depending on the pharmaceutical product, medical devices and sensors will measure the consistency of product usage and its success. The combination of all three product groups result in an integrated digital health offering that is able to give a new competitive advantage.

The “customer” is at the center of this vision. This includes not just the patient/ consumer, but also the practitioner and the payer. All products and services, as well as all administrative processes, focus on long-term customer value through customer group-specific journeys.

Sales, marketing and after-sales processes are channeled through clear physical and digital touch points and contain the correct information to meet specific customer needs. Touch points are coordi-

nated and contain consistent and compliant information, based on customer status and requirements.

To coordinate product offerings, the customer-centric view, and the multiple touch points, strong strategy and governance are required. Furthermore, big data analytics capabilities will integrate information from R&D, existing products, and customers, as well as other touch points, to generate additional value and improve products, services, processes and touch points.

We see that large pharmaceutical companies are already defining their visions, strategies and initiatives. Corinne Le Goof, VP CNS Marketing, Sanofi Aventis, stated that a “lack of customer understanding is a threat to our revenues and to our health. We need to understand customer value and do it better than our competition”. Pfizer has implemented customer journey mapping for customer-centric decision-making, Johnson & Johnson has established a cross-franchise digital center of excellence, and GSK is pushing multi-channel marketing campaigns.

To create action plans and concrete initiatives, the transformational need has to be cascaded down to processes, data and technology requirements, and management capabilities. The major challenge to success is the need to integrate organizations, concepts, processes and technology. A successful transformation program typically incorporates the major pillars of the new vision within four fields of action, as shown in Table 3:

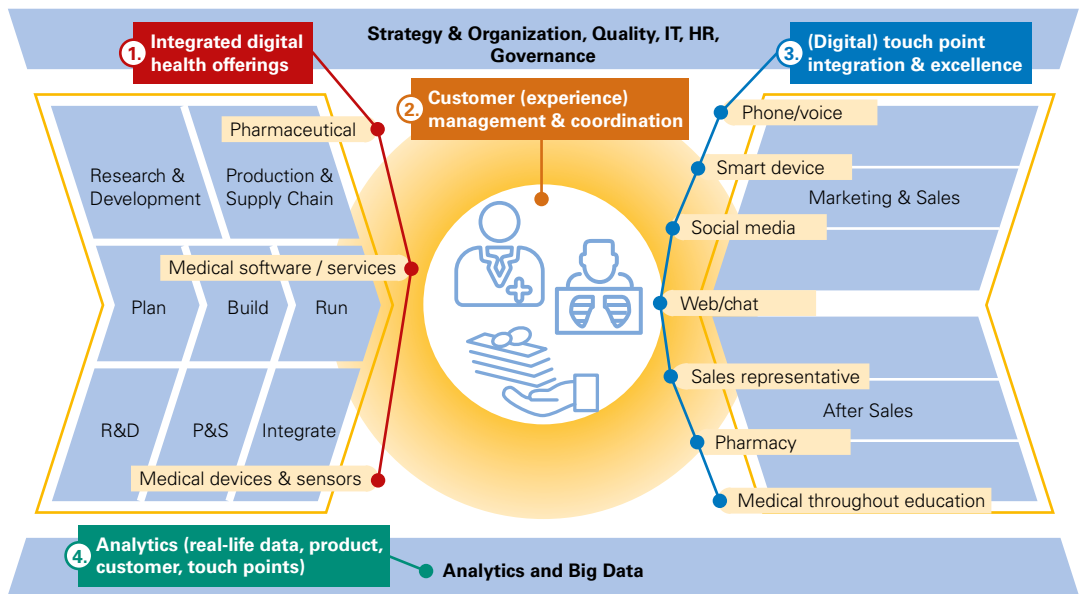


Table 3 Four key factors will determine the future success in healthcare

Source: Arthur D. Little

1. Integrated digital health offerings

To define integrated digital health offerings we have to set the overall future business model and its components, incorporating existing products and business units. By analyzing the existing product portfolio and comparing it to the new business model components, gaps become apparent. We can define and decide where to build up skills and capabilities internally, and where to use new partnering models and external interfaces. The overall product strategy is communicated and a product development excellence project is set up, such as enabling an approach to personalized medicine.

2. Customer (experience) management and coordination

Customer management is the core of the transformation program. Here we define the strategic components as well as the governance structures for a customer-centric and digitalized pharma company. The different customers (patient, practitioner and payer) are analyzed and high-level customer journeys are defined. These journeys are the basis for more detailed use cases – experienc-

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es with the brand from the customer point of view – such as a treatment process or information gathering across different touch points. Especially for big pharma, it is not possible to drive this transformation through a deep-dive, top-down approach. Therefore we favor a “highly aligned, but loosely coupled” approach in the execution of the program, in which the detailed use cases will be run by dedicated owners who have end-to-end responsibility for both budgets and success. The company will run a lean customer integration office where the use cases are consolidated. Existing company committees for budgeting and prioritization will be extended so that top management is able to make decisions based on customer and business value.

3. (Digital) touch-point integration and excellence

As a major enabler for customer-focused use cases, touch points and their back-end capabilities need to be built and integrated. Based on the use cases and their requirements, we define and prioritize touch-point projects, such as online consumer chat or a new digital sales representative application. Overarching capabilities for an integrated journey are defined as well, covering customer data and customer relationship management, as well as knowledge management. Projects to implement these basic enablers are the highest priority as they span multiple use cases and touch points.

4. Analytics (real-life data, product, customer, touch points)

A digitalized and customer-focused value chain offers new opportunities for gaining insight, measuring success and driving improvements. As a basis, we recommend creating a lean, cross-business-unit, technology-focused, big data analytics team that has the technical and consulting capabilities (covering data scientists, the provision of a big data cluster, etc.) to help business units with

the implementation of new analytics methodologies. Within the business units capabilities need to be created for each purpose, such as using the technology in R&D for personalized and precision medicine based on field data. Clear data analytics responsibilities are set for each business unit to enable fast learning, such as touch point analytics to assess how well particular touch points are accepted, and how they can be improved.

Insights for the executive

The pharma industry today is facing a complex and difficult situation. Digitizing industries are entering the healthcare market with innovations that have the potential to change the way healthcare is provided to people. Customer groups demand the same level of digital services they experience in other sectors. Beyond that, practitioners and payers expect solutions that use digital innovation to drive efficiency and increase the quality of healthcare service provision. Pharma companies face a situation in which parts of their business may be disrupted by new market entrants, whereas other areas will be suited to a traditional business model for many more years. They therefore need to avoid introducing immature services too fast in areas where there is no urgency, and need to correctly set priorities. For example, in many cancer and orphan treatments, efficacy rules over comfort and compliance is not an issue since medication is given under medical supervision in a controlled environment. In other areas, such as diabetes and many cardiovascular diseases, digital services can significantly increase the success of a therapy through increased compliance/adherence, and systems that support lifestyle changes. Pharma companies need to deal with this ambiguity in the market place. They should thoroughly assess the need for change along their value chain and start a systematic transformation process to become digital players at the right speed and time in the right areas.

To accomplish this, we recommend pharma companies initiate a transformation program built around the four fields of action described above. All four streams of the program can be driven in parallel and need to be tailored to company needs, cultural specifics and the business/product situation. Depending on the baseline,



Picture by Kheng Ho Toh / 123RF

some streams can be prioritized, but all aspects are important in order to build up the capabilities required to succeed in the new global healthcare and life sciences ecosystem.

It should be emphasized that implementing these changes will lead to new business models and value chains for the pharma industry, which combine the traditional drug business, IT and medical technology. The change is significant, and pharma companies need to acquire new competencies through acquisitions or partnerships in order to cope with each aspect of the combined value chain.

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