Digital Healthcare: Broader than eHealth, Smart Health and Telehealth

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ISG WHITE PAPER

INTRODUCTION

Healthcare and the Life Sciences industry (including bio-pharma and medical devices) was a late adopter of digital transformation compared to some of its counterparts in Banking and Consumer Goods. This is partly due to the nature of the business and the strict regulatory environment in which they operate. That said, lately, we have seen a significant uptick in the number of digitization initiatives in the Healthcare and Life Sciences sectors. The pandemic further forced the digital transformation agenda to the top of the list.

This whitepaper explores some of the most common digitization questions we see Healthcare and Life Sciences enterprises asking: How do I create a roadmap for this transformation? How do I balance quick wins vs. a long-term vision? What are the first steps I need to take? And, finally, do organizations with a longer digital track record sometimes struggle to move forward?

Digitization may yield more potential for Healthcare than for any other industry.

Healthcare & Life Science Industry Under Pressure

The proliferation of terms in this field can be seen as evidence that digitization of healthcare is a thing everyone is talking about beyond COVID-19. If you search on the topic you come across the following:

- **eHealth**: healthcare practices supported by electronic means like communication and information processing for the goals of increasing access to and quality of care.
- **Smart Health**: Often referring to Internet of Things (IoT) applications in medicine like e.g., connected (smart) dialysis machines or other devices, wearables for everyday use or applications inside manufacturing; other definitions exist as well.
- **Digital Healthcare**: This is a broader term and can include the above two, along with mobile health and telehealth. It refers to the use of digital technologies to provide healthcare to individuals or improve processes in healthcare operations, research and drug production and distribution.

For this paper, I would like to stick with the term digital healthcare and share an overview of the various terms and how they interlink.

The Healthcare industry has always been prone to dynamic change, but it was not until a couple years ago that it felt the strong pressure for adaptation. This is true especially for developed countries that face an aging population with strong demand for healthcare that results in high costs for their societies. Most recently, COVID-19 showed that, for many countries, the dangers to public health have been underestimated and that the Healthcare industry needs to globalize. This is why healthcare companies today are looking to digital technologies to satisfy the growing demand.

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The Potential of Digital Healthcare

Digital healthcare is using **technology to improve diagnosis and treatment**, reach more patients, move toward preventive rather than acute care and increase cost efficiencies of the healthcare system.

Some of the most common technologies in play are AI, data analytics, internet of things, blockchain and wearables. Along with these come rather "traditional" IT capabilities like communication, transmission and storage of data. There is a vast number of ideas in the market about exactly where and how to apply these technologies. We see that not only are big established players making gains with technology, but that small and midsized companies and even healthcare start-ups are as well. Some healthcare companies have realized they cannot necessarily compete with startups in terms of speed or going to market with innovative services and have instead adopted a strategy to support and foster them. Several healthcare incubators are cooperating with established healthcare firms – some incubators have even been **founded by large healthcare firms in the first place**.

Digitization is on the rise, but the reality often looks very different.

Despite the massive potential of digital healthcare, the industry seems to somehow be late with digitization. There are several reasons for this:

- **Regulation**: healthcare is highly regulated by states and **has only recently opened up across the world**, e.g., good manufacturing practices (GxP) applications in cloud environments have only just recently been broadly adapted.
- **Patient concern and reputation of healthcare providers**: drug safety, avoidance of any wrong treatment and data privacy are concerns that are spurring more quality checks and greater maturity of processes.
- **Mild market forces in the past**: cost pressures and heightened market volatility have limited providers' abilities to optimize existing operations and deliver cost-efficient products and services.

The first two of the above factors are slowing down progress and governments and regulatory authorities, and healthcare firms have started to act. Countries around the globe are building connected healthcare infrastructures and some are even betting on **gaining economic growth from digital healthcare business**.

Challenges for Healthcare and Life Science Firms Today

The potential upside of technology in healthcare seems clear, but what we see happening on the

ground in companies today is different. In their attempt to become digital, some companies started to experiment but missed critical foundations. Here are some examples:

- **Cropping up of data analytics teams in different parts of the organization** without an overarching strategy. Such teams typically pop out of account/controlling, R&D and manufacturing. These teams end up re-inventing the wheel several times while working on rather narrow data sets.
- **Outsourcing digitization into a start-up or new department**. While this can be effective in developing new products, it will necessarily limit the company's chances to scale and connect closely to existing patient interactions and products.
- **Failing to modernize the current IT landscape** often results in ongoing maintenance of dozens of applications without a clear understanding of their value or how new developments affect them; this can also inhibit a scalable infrastructure for new digital services and increased IT demand.
- **Proliferating software development teams inside core business departments** that try to add services to existing products without synchronizing them, which can add complexity to the "backbone" of your IT infrastructure and limit scalability.
- **Agile practices that aren't built into company culture** and fail to give it time to grow.

The above practices are not completely wrong – and they have even yielded good results for many companies – but, because the underlying prerequisites are not addressed appropriately, they are not scalable.

Digital healthcare requires thinking clearly about your future digital services, products and innovative processes and thinking clearly about your current IT landscape. Most companies operating in the healthcare industry today have strong assets like patient data, efficient processes, experienced personnel and trust from their patients – and these are real advantages over new healthcare entrants like Google and Apple. Still, you need to develop a vision and ensure you have the prerequisites in place.

Your key to success will be your IT infrastructure – it is your platform for digitization.

How to Prepare Your IT Infrastructure for Digital Healthcare

It comes down to streamlining your existing IT landscape by standardizing IT infrastructure, including your data center/cloud, workplace and network. Even if your IT infrastructure is outdated, it is the backbone of your current and future operations.

As in most industries, the Healthcare industry is experiencing a shift toward cloud-first, and most new applications are cloud native. However, many companies struggle with shifting their legacy

applications (especially ERP) to new platforms. The investment and risk are both high, making it a challenge on top of compliance implications like GxP and data privacy.

Companies should be aware of the danger of creating a culture that requires every single project to yield cost savings without looking at the bigger implications. If every project is required to bring cost savings, it proves very difficult to drive investments in platforms. Interestingly, companies are more willing to invest in startups with uncertain outcomes than in strengthening their own core capabilities.

Thinking clearly about IT infrastructure also requires thinking about cybersecurity. More and more frequently, healthcare companies are being attacked. Take the scenarios around COVID-19 vaccines as example. Companies must protect their assets and intellectual property. Besides specific cybersecurity initiatives, cleaning up your application portfolio and standardizing your IT infrastructure will help you substantially increase your cyber resilience.

How to Build a Platform for Digital Healthcare

What to do and where to start?

1. **Evaluate your IT infrastructure**. Identify which applications are really needed. With a careful look at your application portfolio, you will most certainly find some that are not needed anymore (quick wins) and many duplicates or even triplicates. Reducing the number of applications to support will immediately reduce the workload for your infrastructure and reduce complexity in operations (e.g., fewer database versions to support).

2. **Take a look at your IT organization**. Carefully assessing who is doing what will help you see through the jungle and make decisions more quickly. For example, you could centralize operations of your IT infrastructure and shared applications while moving specific applications closer to the respective business departments. Once you have smaller and more focused departments, it makes sense to look into agile practices. At this stage you also want to consider what to keep in house and what to outsource. (Ask the question "What are my key differentiators?" to help rationalize your application portfolio).

3. **Reduce the number of IT services and variants**. Do you really need so many different databases services, or can you operate with fewer? Do you really need so many different compute services and workstations? It requires some thought to reduce the variety on one end without sacrificing business outcome on the other – but it is worth it. A good judge is to look at the business value. Why is a special IT service needed? Would it bring difficulties or downsides to leverage existing IT services instead?

4. **Explore scalable platforms like cloud and SD-WAN** and use them to the highest extent possible. This way you focus your teams on your differentiators and ensure you can scale up and down quickly. Furthermore, it allows you to leverage most modern technology.

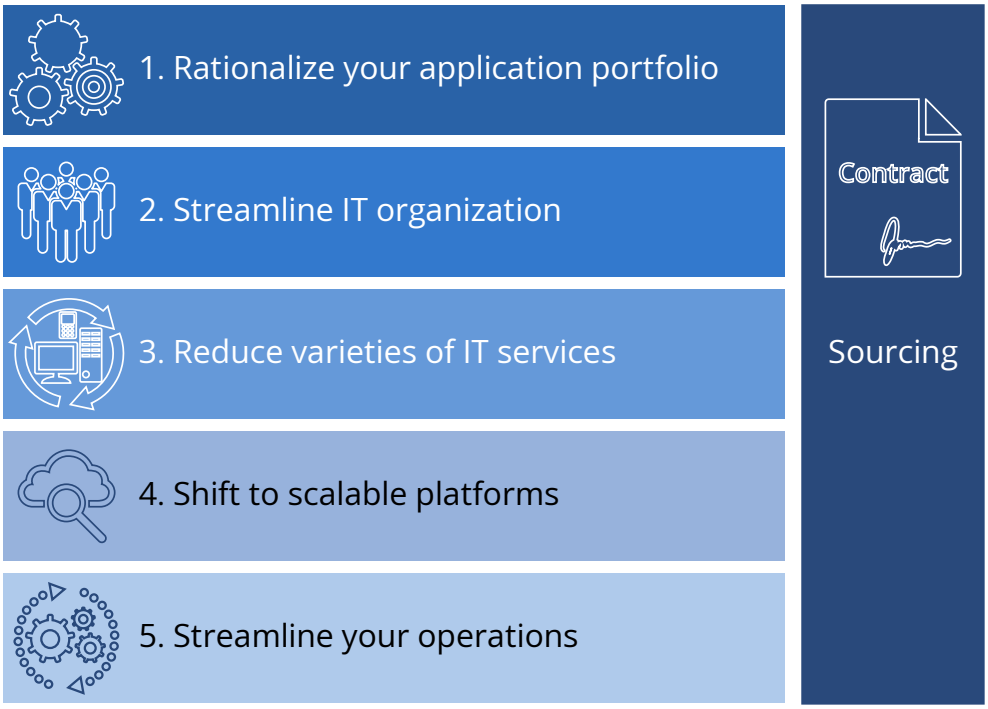
5. **Reduce the number of providers and vendors and bundle certain operations** in teams. Reduce the number of software versions, databases, operating systems, etc. to further reduce costs of potential support extensions of vendors and increase your cyber resilience. This step is about gaining the last piece of efficiency. The previous steps should have yielded great results already.

Consider sourcing but not necessarily as a first step.

Sourcing should be looked at in parallel to all the preceding steps; it is interlinked with them. Cleaning up the application landscape prevents you from contracting services that are not actually needed. An essential underlying question when deciding how to optimize your IT organization is whether to make or or buy what you need. Reducing number of IT services will help you contract the right things and make it easier to steer your provider(s). Once you know what remains internally and which department is on the hook, moving to a platform outsources many tasks and streamlines operations.

Here are the five key steps to build a digitization platform.

Figure 1: Sorting out Infrastructure



Source: ISG

A word of caution: A consistent strategy that takes into account your overall project portfolio will greatly increase efficiency and reduce costs. While the above should yield a lot of cost savings in operations, do not expect savings to come immediately. Be ready to invest for some years before your ROI fully kicks in. Plenty of programs have started with the goal of building an efficient infrastructure before changing to become pure cost savings initiatives. What results is typically half-baked IT landscapes waiting for their next cost cutting.

Healthcare and Life Science Firms of the Future

Buzzwords won't help you, but your platform for digitization will.

Sorting out the challenges to infrastructure is not specific to the Healthcare industry. However, we find that often healthcare and life science companies are a bit behind in this field. Reasons like lack of cost pressure and risk aversion have been outlined above. M&A activities over recent decades and the privatization of hospitals add to the complexity of IT landscapes.

Healthcare and life science companies often have many different locations of various types and scale, such as production plants, R&D facilities, offices for technical support, etc. All this creates a challenging mix of IT requirements. At the same time, expectations from patients and the public have risen significantly among the last years, and healthcare startups are posing serious challenges to existing companies.

The potential applications of digital technology in the Healthcare and Life Sciences industries are largely being explored and developed in separate departments or spin-offs, and this approach is completely fine. But scaling a product or service developed in this way can present a real challenge. If you find that the new service works only inside your spin-off, you must either make radical shifts in your parent company or scale the spin-off with high investments. Scalability does not only depend on the actual application or service – it depends on the underlying infrastructure it needs to scale. You can build many individualized applications and scale them – but only on a standardized infrastructure. This is a platform for digitization.

Once you have started to build a platform, you will quickly find yourself in a position to:

- Build new products and services (with additional revenue streams) based on your existing portfolio at a faster pace than your competition.
- Scale proven and valuable services.
- Leverage all the data you have in your company.
- Enable an existing and experienced team with clear focus.

If you don't build your platform for digitization, all the fancy buzzwords of digitization will remain just that – buzzwords.

ABOUT THE AUTHOR

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Kevin Spiekermann brings several years of experience in the healthcare and life science industry and even more years of infrastructure transformation. He has a proven track record of supporting clients in large projects transforming their IT from technological, organizational, process and sourcing point of view. He has worked mostly in Europe but also in the US and Singapore. He became trusted partner of senior management on their digitalization journey.

ABOUT ISG

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