

Standardization through Digitalization

Multinational European diagnostics provider Affidea has set out to become a global leader in the digital transformation of imaging services. CEO Dimitris Moulavasilis explains how Healthcare IoT (Internet of Things) meets with a lean management approach in the company's endeavor.

Text: Martin Lindner | Photo: Gergely Szatmari

Mr. Moulavasilis, from a general point of view, what does digitalization mean for healthcare?

Moulavasilis: In many regards healthcare is still characterized by limited digitalization today. Simultaneously, there is insufficient coordination, as well as insufficient standardization and efficiency. Given the growing demand for healthcare services worldwide, I believe that this will change. For example, the idea that providers should be held responsible for delivering value-based care with a better ratio of price over outcome is increasingly gaining acceptance. The digital transformation of the industry will be an important step to create such stronger efficiencies and to improve the quality of care.

You have proposed that “digital twins” – digital models of physical assets and processes – will be key for future healthcare services.[1] How do you translate that into your business operations?

Moulavasilis: We do not operate with fully fledged digital twins yet, but important elements are already in place. To give you an example: We run over 230 diagnostic centers in 16 European countries, with a total of 145 CT scanners [2] among others. About half of them are equipped to collect imaging and dose data. Currently, we centralize and analyze data from about 70,000 CT examinations per month, enabling us to perform scans at the lowest achievable radiation dose with diagnostic confidence across many different devices, geographies, populations, and indications. This has led to a continuous company-wide dose excellence program.

Have radiation doses actually dropped?

Moulavasilis: In 90% of the cases, yes. E.g., one of our centers in Turkey, which used to provide excellent CT scans, but at relatively high doses compared to other facilities, was able to almost halve the radiation applied in head CTs, without

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losing diagnostic accuracy. This was achieved by looking at what other Affidea centers do and which parameters they use. That is, we have kicked off an iterative benchmarking process based on an industrial Internet cloud. Many of our CT imaging protocols have been optimized, creating a downward shift in the diagnostic reference levels for the whole organization. This example shows how digitalization can drive care standardization and quality. In fact, we aim at standardization through digitalization.

Besides these clinical aspects, how does digitalization impact operational efficiency?

Moulavasilis: One example is magnetic resonance imaging, which is a highly variable and complex examination. As with CT devices, we have connected our MRI scanners through a cross-border digital platform giving access to standardized scanning protocols and allowing us to monitor image quality as well as scan time, idle time, and protocol adherence. Again, this digital infrastructure has supported a process of protocol unification across our group, resulting not only in increasing image quality, but also in reduced scan time and additional imaging capacity. For the future, we are planning to put artificial intelligence in place to analyze MRI data and optimize workflows. Also, we want to integrate teleradiological image reading into our platform to leverage scarce human resources.

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Will demand for IT staff, or even mathematicians, increase in this process?

Moulavasilis: Definitely. The last 12 months we grew our digital human function from 50 to 70 IT specialists. As in healthcare in general, however, requirements will go up dramatically, both in terms of personnel and budget, and also for cybersecurity reasons. At Affidea, we are not the Uber of healthcare – but we aspire to get close. Uber is a mere digital twin; it has no cars. We have real scanners and are in the process of building digital twins for them. Indeed, this will help us to offer breakthrough operational and clinical management, on a large scale, and to grow beyond Europe by transferring standardized operational know-how to diagnostic sites in Asia, for example, where there is a lack of trained radiologists.

Still, Affidea does not solely rely on digitalization, but also has so-called lean teams to streamline processes locally in diverse geographical and cultural contexts.

Moulavasilis: For a multinational player, culture and differences in mentality are important issues in reaching standardization. Indeed, our “lean teams” are international teams with people from different geographies who visit individual centers. We established our lean management concept seven years ago, and “lean” has become part of Affidea’s DNA. We want to eliminate as many non-value-adding activities as possible and improve efficiency. In fact, over time we achieved an extra 2% profit margin on average by making workflows more efficient.

How have doctors reacted to these efforts?

Moulavasilis: One important aspect of the “lean” approach is team-building work. Doctors, technicians and assistants are really all working together to develop the best possible service – reducing patient wait time, for example, but also avoiding medical errors and improving patients’ experience. I think this has led to a general change in attitude. There is a positive perception in lean processes – both from the patients, who provide positive feedback, and also from our doctors.

Affidea – A Pan-European Diagnostics Provider

Affidea is a multinational diagnostics provider, operating 233 facilities across 16 European countries, as of June 2017. In recent years, the group has constantly expanded its footprint. With a fleet of 202 MRI, 145 CT and 22 PET-CT devices, the company offers advanced medical imaging, complemented by other modalities, such as ultrasound, as well as lab services, especially in Southern Europe. Affidea also provides radio- and chemotherapy for cancer patients in some countries such as Poland and Turkey.

Waypoint Capital owns Affidea. The group generates a large share of its revenues from public-private partnerships. Private pay, which currently accounts for about a fourth of the company’s earnings, is gaining increasing importance, however. Through digital integration of its devices in a cross-border IoT-based cloud, Affidea aims to harmonize and optimize its services and operations.

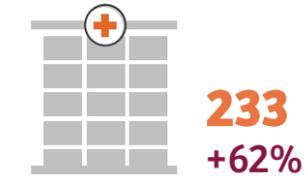
The company has a funding and business development plan running through 2020, encompassing potential greenfield investments and acquisitions in Europe, Asia, the Middle East and Latin America. Currently, Affidea employs 4,000 staff, including 780 medical doctors, who provide services to five million patients per year.

Affidea from 2014 to 2017

18 countries



Diagnostic centers:



Patients:



Medical doctors:



Employees:



What challenges do you see for your business?

Moulavasilis: One big challenge is that public health systems constantly want more for less. A large share of our revenues comes from public-private partnerships. We have very efficient operations, and in many countries, we charge public hospitals about 20% less for a diagnostic service than what they in turn get for it from the state or public health insurance. Still, there is a lot of financial pressure. Private healthcare, which accounts for roughly a fourth of our revenue stream, is gaining more and more importance, with a two-digit annual growth rate. In Hungary, for example, you can buy an MRI examination for 80 euros, and an increasing number of patients choose not to wait, and pay out of pocket. Another challenge, of course, is the transformation of our business itself. We have a funding and business development plan running through 2020. By then, we really want to become a global leader in what we do. So, we are running against time, but this is a very positive challenge.

What are your next big steps?

Moulavasilis: We are looking into opportunities to consolidate further in European countries, such as UK or France, as well as in opportunities beyond Europe, such as in Asia and the Middle

East. However, I cannot disclose any specific project yet.

In the process of digital transformation, what role can a partner such as Siemens Healthineers play?

Moulavasilis: One idea is to co-develop solutions based on our data. We have gathered more than a petabyte of data in our cloud, so we are able to ask many important questions, and we hope that medical engineering can provide answers. For example, it may be possible to optimize imaging capacity, radiation dose or contrast medium use through incremental changes in device functionality. It is also perfectly imaginable that in the future, artificial intelligence will steer CT scans and tablet computers will be able to drive standardized high-quality MRIs. ●

References:

- [1] Dimitris Moulavasilis: Digital twin and beyond – How digital will disrupt the future of diagnostic services. Presentation at the Healthcare Business International 2017 Conference, London, 4-5 April 2017
- [2] From various manufacturers

The statements by Siemens’ customers described herein are based on results that were achieved in the customer’s unique setting. Since there is no “typical” hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption) there can be no guarantee that other customers will achieve the same results.

Martin Lindner is an award-winning science writer based in Berlin, Germany. After completing his medical studies and a doctoral thesis in the history of medicine, he went into journalism. His articles have appeared in many major German and Swiss newspapers and magazines.