

How healthcare's digital revolution will change the doctor's role. Spoiler alert: The future looks pretty bright

In 2020, Stanford Medicine postulated the Rise of the Data-Driven Physicians in a global health trend report. Indeed, they are on the rise and we, authors of this article and medical doctors ourselves, can confirm this first-hand in our collaborations with various physicians. The new reality for doctors very much differs from that of the traditional monolithic role associated with the title, and in these new diverse positions, we are transforming healthcare innovation.

In this article, we introduce four new doctor archetypes that are emerging from the convergence of healthcare and tech and of human and machine. We consider these archetypes the *new gang laying the digital railroad* of tomorrow's healthcare system. This future system is truly patient-centric, based on a digital-first approach, highly automated, and one where digital and

physical care is seamlessly integrated in order to deliver amazing patient journeys.

Overview of the four archetypes

The Builder – creates the core building blocks of the digital railway made up of new solutions, products, and algorithms.

The Innovator – assembles those building blocks in meaningful ways to create tomorrow's patient journeys and clinical workflows.

The Healer – leverages those new digital solutions and smart workflows in order to support people's health and deliver seamless healthcare to patients in new virtual settings, as well as ensure a learning hybrid healthcare system.

The Leader – acts as an ambassador bridging the vastly different cultures, from agile product development all the way to clinical medicine, making sure the railroad of tomorrow's healthcare system is safely built and that the trains run as expected.

The new gang laying the railroad of tomorrow's healthcare system

The foundation for our archetypes is no different from the path of more traditional physicians and researchers. Innovation is not possible without a deep understanding of science and human biology. These new archetypes, however, often take on hybrid roles in order to address the knowledge and tech explosion, new patient expectations, and the rise of a digital-first care delivery model.

Today, tech is inescapable. Even clinicians in the more traditional “healer” role will need to comprehend a certain level of artificial intelligence (AI) solutions and data science to offer personalised recommendations. Further, the COVID-19 pandemic has only accelerated demand for these archetypes roles as technology proves itself a solution for overcoming social inequity and systemic inefficiencies.

A closer look at the four archetypes

What's really needed in all four archetypes are *hybrids*—medical doctors who can combine medical competence with expertise in analytics, in digital innovation, and/or in business acumen. We see these hybrids increasingly in

healthcare startups, labelled as “Chief Medical Officer,” “Medical Innovation Lead,” or “Venture Developer,” or taking on roles such as “Product Manager” or “Medical Content Developer.” There are no standardised role definitions yet, and there are no established paths to attain these positions.

However, these different roles all have one fundamental thing in common: leveraging medical knowledge, beyond the 1:1 interaction between a doctor and patient and supported by technology, and scaling it to improve the health of thousands and potentially millions of people worldwide.

So, are you a doctor interested in expanding your role?

The great news is that startups, businesses, pharmaceutical companies, consultancies, and established care providers all need insiders (medical doctors) to assist in their innovation efforts and technology teams. You’re also not alone. More and more physicians are also looking for rewarding alternative careers outside of the clinic.

Let’s dive further into each of the four archetypes and share *real examples* of exciting roles.

The builder

Who are they? There’s so much to build and *build on* in healthcare. The “builder clinicians” operate at the intersection of evidence-based healthcare and engineering. This can look like developing software, creating machine learning algorithms, or even engaging in the design of new hardware devices. Typically, these individuals are trained clinically and have additional qualifications or are self-taught in a field related to computer and data science.

The builder excels in logic, algorithms, and statistics but also brings a deep understanding of clinical realities together with physiological and biological models. Rather than getting involved in sales, presentations, or leadership, the builder aims to reach patients by developing products and solutions.

What do they do? One less tech-heavy real-life example is the role often named “Medical Content Developer.” This individual sets up medical questionnaires to collect patient-reported data, designs algorithms that, for example, could be used to automatically triage symptomatic patients appropriately, or as another example, builds an app’s logic in order to collect information for hypertension patients connected to remote monitoring devices.

The Innovator

Who are they? While the builder is more likely the person actually writing the algorithms, the innovator connects these to the greater scheme. In other words, they think about how to improve clinical workflows, how to change operations, bringing care closer to home, how to redesign patient journeys, how to integrate digital and physical touchpoints in a meaningful way.

What the innovator lacks in writing code or engineering, they make up for in identifying new tech solutions compatible with evidence-based healthcare. This means that they can translate the latest scientific findings and global guidelines/best practices into product features that add value, and they know how to put digital value propositions through rigorous clinical scrutiny.

As an example, imagine you are a healthcare provider and have just acquired the latest software platform enabling AI-based telemedicine (with great algorithms developed by your colleague “the builder,” of course). You’d like to connect a set of medical hardware devices to that platform for remote patient monitoring services of major chronic condition groups (heart failure and asthma patients). However, to do this, you need to be focused on quality management, operational excellence, and service design, in other words, a true innovator.

What do they do? Innovators hold various roles, the most obvious one being “Product Manager (PM).” We also see them in positions focused on clinical trial management (a whole new field for digital tech), user research, etc. While the role of PM itself is not new, what is changing in the last couple of years is the increase of PMs with medical backgrounds. They bring similar business competency as traditional PMs, but understand the challenges and concerns of fellow medical doctors and can dive into the details that are so critical to healthcare delivery.

The Healer

Who are they? The healer is the archetype closest to what people think of today when they hear the word “physician.” They are in the role closest to the patient. Even with the changing healthcare landscape, the majority of doctors in the future will continue to work with patients in the clinic. However, these healers currently face a pull in two opposite directions: from analogue to virtual or from manual to automated care. This pull fundamentally impacts the patient-clinician relationship and is transitioning or modifying routines and workflows, as well as communication.

For example, soon the majority of a clinician's workday will be spent engaging and communicating with patients, not in physical settings but using digital platforms. That shift is a major transformation that demands many new skill sets for the healer. Additionally, patients will bring increasingly richer sources of continuous and longitudinal data from wearables, ambient technologies, electronic health records, and genetic tests; and the healer will have to triage and make sense of this data. This essential role acts as a frontline for patients, not only must they meet patients' rising expectations in respect to the quality and accessibility of care, but as digital therapeutics, including virtual reality solutions, become part of standard care, clinicians must integrate experience *with* evidence- and software-based recommendations.

What do they do? Think about a good physician you know, one who's always speeding around the hospital corridor, conferences or their practice, the one who listens and who is open to innovation. This is the healer, a clinician who provides the best care possible and is a continuous learner, especially with respect to the toolbox that was *not* taught in medical school.

The shifts in innovation and new solutions will create new kinds of and interdependencies of data in order to drive truly personalised medicine and preventive care. However, the data might not be usable with traditional methods. What does this mean? Digital literacy is a skill we not only have to teach patients, but providers as well. Healers must face this additional responsibility of learning in order to help patients interpret continuous data at home, and to navigate data/AI solutions, triage, and take action.

The Leader

Who are they? The leader is the doctor archetype who succeeds in galvanising a variety of key stakeholders around a transformative idea. Their deep literacy in evidence-based healthcare enables them to communicate innovative visions in a way that is palatable even to conservative senior healer physicians or other leaders within the payor or governmental systems.

Typically, the leader engenders trust in various disjunct groups and helps bring people together. Like ambassadors, they can bridge the vastly different cultures of agile product development and clinical medicine. They help innovators with no medical background navigate through this complex market because they have clear knowledge of the written and unwritten rules (and laws) of healthcare and because they possess the ability to communicate their insights effectively.

What do they do? The leader is often engaged in thought leadership, is in high demand for C-level roles within startups and scale-ups, and is the go-to for

business development and sales. Leaders may also hold additional degrees in management, business, or public policy, have previously worked as strategy consultants, and/or be well-published authors (both scientific and popular interest).

The obvious place to look for these individuals is in the management and leadership of established firms and startups alike, the ones that often have diverse CVs and experience outside of traditional medicine. After completing successful exits themselves, many also become investors to continue helping entrepreneurs in shaping the future of healthcare.

The future is still in the making

Of course, our archetypes are an oversimplification, and we are happy with that, because archetypes serve as starting points. They help us make sense of concepts that are hard to grasp. Many doctors that take on a hybrid definition are hard to narrow down to just one archetype. Perhaps one might be 70% innovator, 30% builder, while others are 50% leader and 50% healer. Quite a few digitally savvy doctors also have side jobs serving on advisory boards of healthcare tech companies (where they serve many roles).

Further, additional archetypes continue to emerge. *The investor* is just one example that will likely be discussed more and more in the future, and is a doctor with a finance background who helps Venture Capital (VC) and Private Equity (PE) make the right decisions about health tech investments.

One thing is clear: The traditional, fixed-role definitions are capsized, and with markets constantly shifting, those who adapt best will succeed. For young doctors and medical students, this raises important questions.

How do I develop the right skills for the future?
What archetype should I aim for?

These questions are not easy to answer. However, there's no rush and no deadline, and you likely can—and probably will—move easily between roles. If you're looking for a starting point, consider leaving the bedside for a short while and working in a digital environment. Experience first-hand the shift from a patient-facing traditional role to a hybrid role serving on a product or tech

team (for example), and you just might develop the urge to dive deeper into a particular role. Regardless of whether you stay there or not, this diversification emphasises an important theme for all types of doctors to adopt: trial and error with a willingness to continually unlearn and learn.

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