No-collar workforce: Technology's role in the future of work

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00:12–00:59 **Heidi:** You've likely seen the headlines. Robots are coming for your job. Robots to replace doctors. Robots to replace scientists. As the nature of work in life sciences and health care is disrupted by automation, artificial intelligence, and cognitive technologies giving way to a no-collar workforce, it's tough to distinguish what's real and what's hype. This is Tales of Transformation.

Today I have Elaine Loo, Allison Roy, and Jen Raden from the Deloitte Consulting LLP Life Sciences and Health Care Practice with me to cut through the hype and to discuss how a no-collar workforce is poised to transform the future of work in life sciences and health care. Welcome to the show.

01:00–01:01 **Elaine:** Thank you, Heidi. It's great to be here.

01:01–01:03 **Alison:** Thank you, Heidi

01:03–01:06 **Jen:** Thanks, Heidi. Glad to join my colleagues to have the discussion today.

01:07–01:13 **Heidi:** Jen, let's start by talking about what's driving this shift in the nature of work and what we mean by a no-collar workforce.

01:14–03:31 **Jen:** What we're calling a shift in the nature of work is really occurring across all industries. We're living in times of unprecedented change across industry. We have 2.6 billion smartphones across the globe, and more than half the workforce in the US are now Millennials, 77 million strong. And they expect a mobile work environment, and they'll change jobs about every 16 months, fueling

what we call the freelance economy. Robotics and cognitive technologies are becoming more advanced and are posed to automate approximately 35 percent of our work in the US.

There's been an explosion in contingent work and a movement away from the traditional employment model of full-time or even part-time as we move more to a continuum of workers and work arrangements. And so the term no-collar workforce is really a reference to this wave of disruption and innovation, and it's how we'll get work done going forward.
If we think about it in a next simplified format and framework, it's really the what, the who, and the where of work. The first dimension is the automation of tasks and determining the balance between the proportion of tasks that can be automated and the need for human, value-added skill to perform them.

For example, in health care, if we think about using bots to mine EHR data and pre-populate intake forms with existing information, that could empower nurses to transition from filing and completing administrative information to actually using more of their clinical judgment to review patient data and even by the bedside.

The second dimension is what we call open talent models that move beyond the permanent employee to what we call off-balance sheet and on-balance sheet that really span a continuum of talent sources, including contingent workers, crowdsourcing, even robots, physical robots, or off-balance sheet. And the third dimension is the proximity of where work is performed to include virtual, mobile, and home-based settings, access to care can be expanded by providing off-premises and in-home diagnosis, patient prep, and follow-up.

In the world of health care, we really have to examine these three dimensions through a trifocal lens of safety and quality outcomes, enhancing the patient and family connectivity and experience, and improving the clinician experience.

03:31–03:35 **Heidi:** Allison, what's unique about this shift to the life sciences and health care industry?

03:35–05:35 **Allison:** There's a few major trends going on in the life science health care industry that are impacting all of the sectors across the industry. The traditional approaches to bending the cost curve, both the medical and administrative cost curve, have not panned out. Many approaches have been tried by both organizations and the government to bend the cost curve really to not much success. So there need to be new and very different and more innovative ways to attacking the problem of our complex health care system and trying to get costs under control. There is significant convergence across the industry. So you see it in the headlines every day that there is a new tie-up going on, whether it's a joint venture and an actual merger or acquisition. So much more than ever before organizations need to become that much more efficient and think about, as they scale, especially with another organization, how to do that very efficiently and effectively. And last, there's a big shift of payment models to value-based care moving away from quantity to quality, from volume to value, which is making all the organizations in the health care ecosystem rethink how they actually do work.

Health plans, I think, have a real opportunity to improve the way they work both internal facing as well as external facing with customers. When we think about customers, their customers are health insurance members and that they need to continue to find better ways to both engage members and make them sticky, as well as guide members through our very complex health care system, such as making information more easily available, more real-time, and more thorough. And so areas within a health plan such as customer service, enrollment of a member, billing to a member, and medical care and all of the touchpoints that health plans have with members are really great ways to take advantage of digital technologies. And certainly back office areas as well, such as finance, HR, IT, supply chain, and many others.

05:35–05:39 **Heidi:** Elaine, what are areas that are right for automation and disruption from technology?

05:39–07:53 **Elaine:** Certainly cost is top of mind; being able to drive across efficiencies through the organization and using technology to do that. I think it's also about using technology to drive more insight. So the most advancement we've seen in the use of automation and disruptive technology has really been in operational areas in finance and commercial across the supply chain, manufacturing components, as well as R&D. Where we've seen this advancement is really in the use of robotics, profit automation, and even in some cases, natural language processing and really used to drive large amounts of analytics for large amounts of data and driving insights and reducing manual work. So, you'll see automation in parts of protocol writing and R&D, where large sources of information, whether it resides on the protocol library or real-world data, can be used to create quickly protocol documents and documentation that's used for the clinical trial process. This creates, really, capacity for R&D personnel to focus on the science. And supply chain and manufacturing, we see a level of automation as well that's driving increased controls and quality, that just all leads to a better product.

We're also seeing great strides in the use of technology in the patient interaction level, so a great example that we've seen in call centers in an organization that we work with right now, their hotline to call about drug interactions, you would call them and say, can I take drug A with orange juice and it may take someone in the call center maybe 30 minutes to answer the call, look for the information, they may not be

able to get that information. They may need to transfer you to someone else to dig a little deeper and they're only open from 9 to 5. So if you want to have your drug with your orange juice at 11 p.m. at night, you're not going to be able to do that because you're not going to be able an answer, but with automation that's going to be able to give you an answer, 24/7, using robotics and cognitive processing, they're going to be able to get you that answer quickly and that is really going to improve the patient experience with that products.

07:53–08:10 **Heidi:** I think this is a really exciting area, knowing that these questions come up after hours, or on a weekend, or on a holiday. Thinking about patient interaction and drug interaction, Jen, where do these two start to intersect in the future of provider organization professions?

08:10–11:07 **Jen:** I think it's important to stay, particularly in health care, in talking about how we will augment the work that's being done because so much of the work does still need to be done by humans.

Nursing is an interesting space I think because it's the majority of about the balance sheet for any healthcare system, but also because the supply-demand curve around nursing tend to be out of sync in most geographies in the US. There is a shortage of nursing overall, but certainly certain specialized in critical care and that's just going to increase as we look at predictive models into the hundreds of thousands over the next few years.

So one example is the use of natural language processing and voice-activated devices in the home to monitor medication administration. So if we take the example of the increasing use of oral chemo as a self-dosed in the home, it's a very, very different experience because it used to be that someone was in an ambulatory setting, generally in a chair, and observed on a regular basis. And so any changes in symptomatology, any toxicity that was occurring could be observed directly. As chemo is moved now into the home and not observed in the same way, there are a lot of potential challenges. One is around dosage compliance and is the patient taking the right amount, and as we know sometimes you feel terrible when you take chemo and so patients can tend to under dose because it's making them feel bad. And of course the efficacy then is just really eroded.

Another one is around symptomatology and the importance of collecting that data because oral chemo is so precision-based and interacts with different DNAs and different genotypes differently. The importance of being able to collect the symptomatology on a regular basis becomes critical. Well, as you can imagine, this can be incredibly labor-intensive from a nursing perspective and can be burdensome to the patient because you have to be on the phone to do it. So when you think about natural language processing and voice activation, it makes this really, really easy. And the ability to collect that on a regular basis and then create an alert or an alarm when you do need to have a voice-to-voice or some form of digital interaction with your caregiver or your nurse, or you may need an additional medication that could be then prescribed very, very easily.

And so you can imagine a whole other world in which the nurses that are utilized and doing more caregiving rather than pure monitoring, the patient and the patient's family feels like they're in a better position from an experience perspective because they can interact at a time that works for them. And the technology is in most people's homes already across the US. And so these kinds of pilots are actually happening right now as we speak in some of the major cancer centers.

11:07–11:18 **Heidi:** Just to follow up on that ,Jen, as far as this potential of AI and robotics, cognitive technologies, what else do you see in nursing and that's additionally applicable to health care providers?

11:18–13:11 **Jen:** Let me also take another medical example, actually radiologist, because that's another area where AI has been in place and is increasingly so for quite a few years now. So as we think about diagnostic radiology, a specialty that is particularly plagued by burnout and by turnover and involves a high volume of repetitive activities, but it doesn't necessarily require the radiologist to be at the same location as the patient, and machine learning technologies can be used to identify relevant imaging abnormalities, which can do a few things. One, increase accuracy. Now, of course, there's always the need for the second review and the second read, but it also frees up time for radiologists to do more face-to-face interaction with patients, those that actually want to sit and explain what's going on, what did they see. And so the no-collar workforce in this case allows radiologists to both provide crowd-source imaging, interpretations to patients through online platforms, delivering faster and more accessible results is better for the radiologist, and if you think of almost an Uber model, a radiologist could kind of plug into a platform when they have hours available, then you can bring the second reading, the specialist in as needed, and the patient and family experience becomes enhanced and increased because the acceleration of the timing-to-results, which of course in this particular space it's usually a very anxious time. And so what we know from the research is in moments of anxiety like this, the faster the information comes back and the more accurate and the more personalized the information is presented, is incredibly alleviating to both the patient and the family.

13:11–13:16 **Heidi:** Elaine, from the life sciences point of view, can you talk to us about the new talent models that may be required?

13:16–14:36 **Elaine:** When we think about that question of who is doing the work, the truth of the matter is by 2020 over 40 percent of the US workforce will be contingent workers. There is a open economy of talent and a lot of what the workforce that you're using in your organization is going to be a mix of full-time employees, contingent workers, as well as robots or some use of automation. And that mix of talent really calls for a different view on talent management. So, how do you think about career development? And how do you think about reporting structures when you have that mix of talent?

How do you think about training and performance management? All of what you have to do to build a culture in your organization, as well as develop people, really becomes an interesting question and an interesting challenge to address. What is the role of the human then, and how do we how do we really capitalize on the work that humans truly can do and what are those capabilities? What we see as the essential human skills include things like complex problem solving, creativity, handling ambiguity, critical thinking, oral and written comprehension, these skills are really going to be where organizations need to focus.

14:38–14:55 **Heidi:** With all of these applicable technologies, the human still has a place that we can facilitate a patient experience and better clinical outcomes. Allison, I know you came from provider space; you now concentrate on health plans. How does this all intersect and interact?

14:55–16:56 **Allison:** The technologies that are coming out fast and furiously into the marketplace can be daunting and scary to think about, the power of these new technologies and are robots really taking jobs away. As we think about it at Deloitte, it's really about taking the robot out of the worker. It's thinking about how can we take advantage of new technologies to improve quality, productivity, compliance, as well as employee morale, allowing both staff, whether you're in a life science organization, a health plan, a provider organization, as they converge, how do we allow people to operate at the top of their license when it comes to clinicians and really do the work that they want to do? For example, you know, RPA can really decrease time spent on manual things like data entry, allowing the focus to shift more toward patient care. And when you think about moving up that cognitive automation spectrum to more advanced technologies, such as machine learning, natural language generation, and even artificial intelligence, those technologies could not only take administrative work away but really augment what healthcare workers do today, to provide insights and information at their fingertips to deliver the best care to patients. And so when you think about the whole ecosystem of healthcare and how the organizations are working together, being able to take advantage of information like that that cuts across the spectrum so that if I'm a, you know, clinician in a health plan and I'm working with certain provider organizations and I'm working with certain life sciences organizations, can we get information at our fingertips about what patients have been prescribed in terms of their medications? About what the discharge instructions were for a member, and all sorts of other information about members so that we can take care of our members and patients in the best possible way and have that information and those, those data insights at our fingertips to make the best decisions with our members and patients.

16:56–17:04 **Heidi:** As we come to the close of our show, what stands in the way of more rapid progress in the move towards augmenting this technology in our workforce?

17:04–18:27 **Jen:** I'm going to start at the biggest, broadest area and that is policy. If we are going to try to support a health care system to put in Telehealth platform, but only certain uses of that Telehealth platform, whether it be e-ICU or telestroke, are reimbursable, it creates a barrier to change. I think another one is the sociological tendency to fear change and fear difference. I think the more that we try to take the fear and the anxiety out, the better off we can be as we come together as communities around certain purposes. And then there's the individual piece. So there's the patient of family member, there's the plan member, there's the employee, there's the clinician, there's the individual who are actually asking to do something different, and initially change is hard for everyone, where in some cases folks would argue we're dealing with life or death, creating a different way of delivering care, or asking clinicians to do things differently can be very complicated. So the more that we have these conversations and the more that we focus on the goodness that can come out of all of this, change will happen and change needs to happen, from the provider side and the patient family side who are in need of it.

18:27- 18:58 **Heidi:** The future is already here, but in many life sciences and health care organizations, the plan for working in that future is still on the drawing board. The what, who, and where, more time for patient care in an open economy, with no geographic boundaries in a gig economy, to improve both clinical outcomes and ultimately to enhance patient experience.

I want to thank my guests Jen Radin, Elaine Loo, and Allison Roy for joining me today on Tales of Transformation. Thank you.

18:58–19:00 **Jen:** Thanks, Heidi.
19:00–19:01 **Elaine:** Thank you.

19:01–19:02 **Allison:** Thank you.

19:03–19:16 **Heidi:** Next up, we'll extend our conversation to how robotics and automation are also transforming the heart of business. Back office processes that offer opportunities to reinvent how daily work gets done. Stay tuned.