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Guest speaker, round-up:

A New Paradigm for Digital Transformation

Martin Curley, Professor of Innovation, Maynooth University & Chair

of UN Digital Health Symposium

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Featured Speakers:

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Good afternoon. It is brilliant to be here. What a fantastic day and a half we've had congratulations to Mark Fox and the NetEvents team, I would describe this as an intellectual supercollider. The theme of the event is around digital transformation. I'm going to do a deep dive on probably the most intractable industry for digitally transforming, which is healthcare. So the title of my talk is how do you transform healthcare using digital in 20 minutes. Now, we're not going to transform the entire industry in 20 minutes, but I'm going to tell you how to do it. And in 20 minutes, I'm going to talk about something called stay left shift left 10x healthcare is incredibly complex, we want to make it really, really simple. What we're recommending is that all of the players cross government cross ecosystem, take this idea of stay left shift left 10x acts as a lens for fixing healthcare. I'll explain what that is. And it is aligned very much with the UN Sustainable Development. Goal number three, good health and well-being, let's start with the health paradox. So if this was 200 years ago, all of us probably actually wouldn't be here, because our life expectancy was about (inaudible) children and 20 years ago, so we will be long dead. And there's been amazing advances, like penicillin, like stents, like X ray MRI, and our life expectancy is almost two and a half times what it was 200 years ago. However, then to reflect if air travel worked like healthcare, most of us probably wouldn't be in here, either, because we wouldn't have made it. A really nice video you can look for that describes what if airline travel worked like the healthcare system, and it doesn't work. So we

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have this paradox. Something that affects us all despite amazing advances. And yet from a systems standpoint is very basic, healthcare is about a decade behind other industries and digitalizing. But in terms of adoption of your manufacturing science techniques from (inaudible), we're probably 20 or 30 years behind, I want to give a shout out to one of my colleagues, Dr. John Sheehan, I'm going to talk about hospital at home. And actually how we're going to add a lot more capacity in the home and using devices like this. This is from a Scottish company where technology and AI, by wearing this on my arm, I can have better vital signs in my home than I can have in a modern day hospital. So we're going to need less hospitals, while we're still going to need them. So John fell off his bike on Valentine's Day. He's a radiologist, he's the vice chair of the digital health leadership steering group. He's a digital entrepreneur, but just showing how technology affected he was wearing his Apple Watch, and immediately he fell, you know, it sent a warning to his wife and several others emerged in context, John has had a hard fall, here are his GPS coordinates. His hand was pretty messed up. You know, the hand surgeon said he'd never seen anything quite so bad. But it's now being patched up. And John sent me a live video of the surgery. I was going to show it but I think several of you would have passed out. And this is how John looks now but he's gone home today. And we all end up needing services. So even though I expect we're going to need less hospitals, we're still going to need them, people get sick, people have accidents and just a shout out to John to wish him well.

I was with an Intel for a long time I wanted to show this video at a an Intel extended ESM forever and I could never find the right opportunity. So I'm going to show it - pay attention to it. It's 40 seconds with the main characters a guy called Martin I also happened to be called Martin so hopefully this plays.

So the video anyway, it's our like do you know the way to San Jose. But it's about a guy who visits a pub in Valencia in Kerry, which is very remote. And it is the most remote pub in Ireland. Next pub was in New York, and the guy is called to fix the Guinness taps and as he's leaving, he turns to the owner and says Martin do you know the way to San Jose? Martin the owner says to San Jose. Sure. That's in the back of beyond and it's all about perspective. And if we could just get my slides open, I'll keep moving. Tom, you shared yesterday you know perspective is really important. And in Ireland we tell a lot of jokes about Kerry people. There's a joke you that asks you a Kerry person, oh, can you show me the way to transform healthcare? And his response would be Well, I wouldn't start from where you are currently are.

So, this is Tom talking about perspective. So what is our perspective, you know, a ticking time bomb healthcare on the track across Western Europe, health care and crisis 500 people a week dying in the UK because of delays in emergency care. New York Times last week, doctors aren't burned out from overwork were demoralized by our health system. We have so many fantastic, dedicated people working as clinicians in our healthcare systems both are being failed by the system. It's not just the NHS Europe's health care crisis, the coming collapse of the US healthcare system and in time a couple of days ago. So, we have a real crisis. And then we have the demographic time bomb in 2018. We pass the threshold where there's more people over 65 than are under five. Some of the top countries that are the poorest have the highest demand for health services are also the fastest growing. Some hospitals are averaging 100% staff turnover every Five years. Can you imagine if our businesses were having 100% turnover every five years? It's really not sustainable. Look what is happening in terms of, you know, health sustainability in the US over

the last 20 years. hospital costs up 250%. While labor costs are, you know, average hourly have gone up about 75%. It's not sustainable, slightly longer look over 40 year period, but what McKinsey saw was an 818% increase in US healthcare costs, GDP only grew a quarter of that, and wages grew a lot less. So this is an unsustainable problem. Currently, you know, this year we're hitting in the US, about 20% of GDP spending is on healthcare. Healthcare is incredibly unproductive we're a laggard in digitalization, it's the highest source of employment. And yet it has experienced negative productivity is a digital laggard. So this is a problem, but also is a massive opportunity. So let's look to Thomas Kuhn. He wrote about the Structure of Scientific Revolutions, you have periods of normal science or normal health, then you get model drift. And we're now actually in stage three, model crisis. So the model we have is breaking down. And this creates an opportunity for revolutionary science or revolutionary healthcare. And that's what we've just entered into. And we're about to hopefully, enter a period where we have a completely new paradigm on our healthcare systems, then we'll then go into normal operation.

So I just want to mention briefly, last September, we tried to model something on the Solvay Conference, which, you know, took place in 1913, in the Metropole hotel in Brussels, and had a chance to speak there a couple of times. But you know, Einstein and Bohr, and, you know, Marie Curie, all of the best scientists in the world were brought to Brussels, and they worked on the top scientific problems of the day, we tried to emulate that, although we wouldn't pretend that any of us would be at that level, when we brought 50 digital health leaders from around the world to New York as part of the United Nations General Assembly. And out of that came something called the Manhattan manifesto. I'm going to share that with you. And we're going to launch that today for the tech press.

So today, 70% of deaths come from preventable chronic diseases. And Mary Lou Jepsen talked about a lot of us are going to die from heart failure from stroke or from diabetes, offering cancer 90% of healthcare costs are from chronic diseases. Now, you can't cure chronic diseases. But if you get them early enough, you could reverse them. So what I'm advocating and what we're advocating through stay left shift left clinics, is a completely new paradigm around healthcare, one that is very digitally enabled. So the OECD say healthcare has at least a decade behind other industries and digitalizing, Ireland is one of the absolute laggards. We're at a unique point of time, we have all these amazing technologies coming together, all these disruptive technologies, and we're getting a chain reaction. And the opportunity is to leverage this to transform healthcare. And what I'm suggesting, and colleagues are suggesting is that we leap ahead to a whole new digital health model, where everything is actually based around the patient, as based around your phone. And so on my phone, I have a personal electronic health record. It's got my recent MRI, it's got my colonoscopy. It's taking live data from my Fitbit. And I should be able to walk to a hospital or to my GP, and give them immediate access. And I think we need to totally reimagine the way that we do healthcare, and it's entirely possible. And I think we can build out a capability maturity framework. And similarly to the work that Software Engineering Institute did on transforming the maturity of software industries, we can transform the healthcare industry by using this capability, maturity framework approach.

So we're witnessing the birth of a new discipline. It's an Uber discipline, it's digital health. It's about digital, it's about health. It's about genomics, about economics, it's about demographics. And this new discipline has the opportunity to transform health as we know it. And this is an important point, Copernicus. He was the first person to say yes, actually, the Earth revolves around the sun and there was a lot of people

thought he was a heretic, and Galileo actually got a lot more flack for it because Copernicus was quite clever in the way he introduced this. But I think we need three Copernican shifts to think about the way our new healthcare system should be built. It should be about wellness rather than illness, it should be centered on the patient, the patient knows best. And lastly, the shift should be from the hospital to the home. And I'll show you how that could be possible health care, we spend most of our funding on that we're only contributing that 10% of health outcomes. Behavioral stuff like exercise, like nutrition, contributes 40% of our outcomes. Genomics genetics is 30%, environment is 15%, etc., healthcare sales 10%. But that's exactly where we're spending all the funding. This is a picture of forming across the EU, the EU, US you're spending on average 3%, of health spending on wellness, prevention, proactive 97% on illness, but these are the area of lowest returns can you imagine and finance, if you were putting all of your money into the portfolio's that have the lowest return, it just doesn't make sense. And then we have the opportunity in Ireland, our hospitals are full. In the UK, they're full, we can use the home, patients when stay at home, you can have better vital signs in your home than you can have in a hospital. So this is the future. Some of the answers are in a book I wrote with Bror Salmelin from the Commission, how do you drive structural change in an industry using digital technology that's called Open Innovation 2.0 as quite a complex methodology with at the top level, it's very simple. You have high trust, high capability relationships, kind of relationships that we've been building here, today and yesterday, intense networking, you create a shared vision, you deploy digital technology. And ultimately, this leads to shared value, a new kind of value, which is about welfare, well-being, and actually wealth. So this is about helping people, with this can also be highly profitable as well. So, the idea is we have an open collaborative ecosystem, where we have everybody working together: government, industry, academia, and citizens and patients. And we have an instance of this in Ireland. So my Italian professors (inaudible) from Milan, they've been talking about this as a fundamental disruption in the business competitive landscape. This new configuration and some really interesting simulation work coming out of Indonesia, showing that companies that operate in such a milieu, you know, have exponential revenue growth, not just linear revenue growth. So in Ireland, we built an open collaborative ecosystem, large companies, small companies, universities, patients, lots of people that have problems with health system have founded companies and are being very successful. And we use Quadruple Aim. So stay left, shift left, 10X, what is that stay left is about using technology to keep well, people well, or if you happen to have a chronic condition or need rehab, we can do that best of all, at home. shift lefts about moving patients as quickly as possible, from an acute to community to a home setting.

And 10X is what we've observed is when we apply digital technology to this, we're seeing 10x, better 10x, faster, 10x cheaper, 10x higher volume. So, we've worked with companies, everybody from Tronic, to Rush to smaller companies like sinker phi and PMD. What we've observed is not only do we get better care, but it comes at lower cost, we get better quality of life. And we get better patient and condition experience. By providing 21st century tools to physicians, they make better decisions, they burn out less, less quickly, patients have a much better experience. So we built a network of living labs across the country. And living lab is described in the open innovation 2.0 book and it's simply where we deploy digital technology in a clinical setting could be in the home could be in the hospital, and we work with the doctors and the nurses and the patients to rapidly iterate it and I'll share some of the results.

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COVID was only here in Ireland two days was two days old and we already had a remote monitoring solution for COVID-19 using one of these pulse oximeters that you know sent my oxygen saturation levels via Bluetooth to an app. And this kept 1000s, maybe 10s of 1000s of Irish patients at home and out of hospital. Because of the cloud because of (inaudible), his was available within two days. We were prescribing this in our major hospitals in Dublin within five days of COVID being here, and it's an example of innovation would look at the ROI greater than 1,000%. That's validated by the University of Bath. I wrote a book on IT business cases. 15 years ago, a lot of business cases were negative. The best one I saw was 255%. I've never seen an ROI of that level. And this is the whole platform that was put in place by this company called PM. Patient empower. Here's another solution. We put it into Beaumont Hospital. The first weekend COVID was in Ireland with Professor Richard Costello and Myles Murray. And this was a technology that wirelessly transmitted your respiration rate. We quickly found we could get up to 12 hours notice of a patient, the saturating, this was life saving. So we deployed it into 23 hospitals in 4 months. Normally, it might have taken five or 10 years. We did it very quickly. We've now put it into the community in the most, you know, remote part of Ireland. And we've been monitoring 10 patients with severe COPD that are hospitalized on average, once a month, we haven't had a single hospitalization in five months. Again, look at the ROI. It's greater than 900%. Heart failure is the number one cause of death. 15.5% of that in the western world comes from heart failure. We've deployed technology with (inaudible) and Rush, and our rate of hospitalizations gone down by a factor of 10. So this is phenomenal. Here's some of the data. We're freeing up lots of outpatient appointments, patients are feeling better. The ROI on this is 800%. This is vital signs automation. This is technology that we put into Intel factories. 30 years ago, when I came to the health service here, why aren't we doing this? In the health service we put this technology in, the internal rate of return is 11 100%. It frees up nursing time, it actually saves lives. Sepsis is a very common cause of death, this detects you know sepsis very early, or in terms of deteriorating patients, so you can respond quickly. And every hour that you wait in your late in detecting sepsis, the chances of the patients surviving, decreases seven or 8% per hour. So this is a really important technology. But we can put this we're putting this into Irish hospitals. But because it reduces average length of stay, it's a very cheap way of adding new capacity. So we can add new hospital capacity at one 100 Of the percent of the cost of actually building a new hospital. So this comes to something called Curley's law, and I have said it was really uncomfortable when insights care suggested this to me. But I checked with, one of my colleagues, he said, Oh, one of your bosses has a habit of stealing stuff, so you better put your name on it before they put their name on it. So that's why it's actually called Curleys law. took Gordon Moore 20 years to be comfortable with the name, Moore's law, but it's really simple. It's the idea where you have an information intensive industry, which is healthcare, I have never seen a more information intensive industry than healthcare or learning semiconductor manufacturing, you apply digital technology, and you apply an exponential innovation methodology. And what we've been observing is we're seeing yield outcomes that are 10 times faster, 10 times cheaper, 10 times better 10 times earlier. 10 times more capacity, 10 times higher volume. And this is real. When Gordon Moore published that paper, cramming more transistors onto integrated circuits. He had about four or five data points. We actually have quite a bit more empirical data and I'll be working with Charlie Larkin, Dr. Charlie Larkin, The New Yorker, at the University of Bath, and here are some of the portfolio of solutions that we're looking at. And on average, we're seeing 10x returns across multiple dimensions. So this is a really exciting opportunity if we could just deploy, deploy and scale the solutions.

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We will fix a lot of problems. Peter Diamandis, the inventor or the creator of the XPRIZE he said, When you digitize something, it starts to behave exponentially. And that is the only way we're going to fix our current healthcare crisis is by deploying these digital technologies. So Curleys Law, as Newton said, If I can see more clearly, I stand on the shoulder of giants. Humphreys, founder of the Software Engineering Institute, he said, every business is a software business. Healthcare is very much a software business. Bob Metcalf, who's spoken in this forum three or four times the value of the network, Gillers law, bandwidth is tripling every 12 months or so. And then finally, Gordon Moore and I had the great privilege of having lunch with Gordon Moore, at Intel once, when we put these together, there is an opportunity to do something completely different. So what are some outcomes? You know, let's look at what we can do faster? What can we do lower what could be, you know, higher volume. So, on average, it takes 10 years to diagnose a rare disease in Ireland, we have 300,000 people with rare diseases. with whole genome sequencing, we could diagnose it 10 times, maybe 100 times faster, we can identify in a pharmacy, the start of a chronic disease, rather than somebody showing up in ad with stage 2 cancer, or you no hypertensive crisis, we have been cleaning some of our hospitals with ultraviolet robots that do it 10 times faster than the cleaners that do it three times better and two and a half times cheaper, but is done in collaboration with the cleaners. We can operate virtual wards 10 times cheaper. So it's at least 10 times cheaper to have a person monitored from home than in an acute hospital, we can have 10 times lower admission rates for heart failure. What we've seen is we're on track to reduce the number of deaths in Ireland from skin cancer from 1500, a year to 150. In terms of higher volume, we could increase the capacity of the Irish healthcare system by tenfold by monitoring people in their homes, we could have 10x Higher screening rates, using digital assistant technology in our pharmacies, we can have a 10x increase in monitoring rates of our patients, our heart failure patients and Ireland's are monitored eight times a year, using remote monitoring technology they're monitored continuously. So what is the Manhattan manifesto, and this came out of our meeting in New York, last September, it's about championing a new era of digital health through collaboration, cooperation and change. And we have a press release associated with this. And Julian Patterson has done some fantastic work on this and will be making that available and the manifesto. I don't have time to go through this. But I just want to highlight a couple of key points. So we think policy needs to happen at an all of government level and a whole across ecosystem. We think everybody should have universal access to integrated global shared health records, we think that should be on the phone, on the cloud very secure, we want to move to an outcome based healthcare model. Because people like Michael Porter's and others have said, Too many people get paid more to do the wrong thing. So healthcare business model is broken, we need to shift it to outcomes. And then lastly, we need to allocate the appropriate financial and regulatory resources towards achieving digital transformation.

So here is the schema of the Manhattan manifesto. And this was inspired by the work that was done in Canterbury in New Zealand. And Carolyn Guillory, the architect of the Canterbury model is a key player with us. But it starts with people at the center, and we need to move from activity to an institution's to fragmented to passive recipients of health care, to where we have active participation. It's integrated with virtual services. It's about prevention. So this shift from illness to wellness, and I'll finish in the next couple of minutes. There are 12 guidelines in the manifesto, and you'll see that when you get a copy of it, the first

one, it's all about people, people at the center. So we're moving from where a doctor knows best. And there's a joke in Ireland, you know, what's the difference between God and a hospital consultant? And the answer is, Well, God doesn't think he's a consultant. We need to move how we think about health as well. If you invest in health, it grows your economy. In Ireland, we're thinking that we can grow our digital health exports also by a factor of 10. So health investing, we need to move from thinking about health as an expense to it's an investment. We need to talk about empowering people for wellness. One of my colleagues, one of the authors of this paper, he was diagnosed with Parkinson's. 8, 9,10 years ago, he's just completed a marathon. And he says, I'm not cured, but I'm better way better, because he has used digital tools. He's educated himself and he's doing absolutely fantastic. We think that digital health should get sick, at least 6% of funding, in terms of national budgets for health care. In Ireland, today, it's less than 1%. In the UK, it's between three and 4%. And where that comes from, actually quite a few sources. What the average spend by industry, you're in services about 6.7%. on healthcare, it says here that healthcare is about 5%. But that's probably a little bit high. So we're just saying, take the percent of revenue, our total budget that's spent on digital and move it to the industry norm for the services industry, and healthcare is very much a services industry. And then finally, focus on outcomes and organizations, countries, probably the national digital health bodies. Why is health care Or why is the airline industry doing so well. The FAA? You know, it sets the rules, you know, how do you fly? Where are the landing slots, etc. We don't have the equivalent, I think, for healthcare.

So I want to finish by saying where we might go. This is a slide from Prashant Pereda, who is one of the authors as well, we think we can build a mobile health ecosystem based on the patient, centered on the mobile phone. We currently believe we could offer in Ireland a personal electronic health record, to everybody in the country for the price of a cup of coffee per year, that's 10 times more secured and actually having your data in a hospital ecosystem. I want to finish with one example here. And this is about wellness. We call this the ocean's 11 project. And we have 11 companies come together on the idea that you could go to a local pharmacy, and you can get tested, you can get an AFib test, you can get an HB one Ac test, you can get blood tests, you get a peak flow test, we even have a three second tests that will tell you whether you are in the early stages of having a neurological disease. And we can do all of this in 15 minutes for about the same cost of a PCR test. And you can leave with a Fitbit or Huawei, or an Apple device annually with a personal electronic health record. This would completely transform how we do health care, finding disease really early, empowering patients, it will be great for us take a lot of stress off the doctors and nurses and costs would go down dramatically. So the message is stay left shift left key people well get them out of hospital as quick as possible. And then what we've observed, and this isn't just hyperbole and hype, we have real clinical evidence. When you deploy, you know, digital technology, to healthcare situations, you get 10x, better 10x Faster, 10x cheaper. And this is really the only answer. This is the only way we're going to get out of that. I take great hope from Ilya Prigogine. He was a Nobel Prize winner, he said in an unstable complex system, which was healthcare, small islands of coherence have the potential to change the whole system. So I think there's a lot of hope. We clearly are in a crisis.

And I just want to sum up by making a couple of comments on what I think we've learned over the last day and a half. I really like Tom's opening, was fantastic and the idea of you know, moving compute to the point of view so in in healthcare, we want to get the computer to the point of care we want to be able to diagnose in the pharmacy. There's a problem. You mentioned Tom, the idea of being able to use,

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you know, American footballers, they all have an RFID tag, we need to have that in healthcare, my own team and Intel and (inaudible) in Ireland. 15 years ago, we put a solution into St. Vincent's Hospital in Birmingham, Alabama. And the usage model was just tracking where the patients, where the doctors or the nurses, what rooms are occupied. We saw a 40% increase in throughput through that hospital. That was 15 years ago, but healthcare has such huge adoption problems. It's very, very resistant to change. So you know, maybe there's an opportunity Tom to do something systematically with Zebra and other partners to do that. I think with Jason, I think the AHA there was the attack surfaces dramatically expanded. And in Healthcare, now the patient is the endpoint. Actually, the IoT device is the endpoint. So massive, massive, you know, more exposure. You know, what John talked about, you know that the year of IoT was actually last year, I think we finally, you know, made that breakthrough and IoT is here, those huge usage, it's only going to grow. And I think in healthcare, we're going to be generating about 100 times more data than we currently do today. One of my colleagues in Ireland, John Shaw, he's the CEO of Carolan, he'll say, he says, you know, people will look back in the future, what were people thinking in 2023, that our cars are better instrumented and better maintained than individuals. And I think that will happen, I think, we're going to see a big shift over the next 2,3,4 years with the instrumentation of ourselves and the quantified self. And we're going to get those early warnings, you have a brake fluid problem, got your brake pads are worn, you need to go and visit your GP. Paul talked about resilience, business continuity, and I'm certainly really concerned what happened to the world with COVID. Similar could happen with our global infrastructure. And maybe it's an accident, waiting to happen, and we just have to do the best we can architect our systems for resilience and scalability. You know, just imagine if MasterCard or Visa went hard down for a week, that's going to create a very serious problem globally in terms of how the world works. Really enjoyed the presentation from Mary Lou Jepsen. Stroke is the number two cause of death. She talked about how they can measure large vessel occlusion, in the back of an ambulance, and this is back to Tom's point, moving compute to the point of care. In Ireland, we've worked with a company called Brainomics, we have it in four or five hospitals. And if you have a stroke, you get scanned almost immediately when you come to the hospital. And you get an answer using AI to say you're eligible for thrombectomy if we can get you to the thrombectomy centers 90% you'll walk out the same day, fully perfect. If we don't get you there in time, probably your life is going to be dramatically different. So being able to diagnosis in the back of an ambulance would be absolutely amazing. And I really enjoyed you know Harry's questioning of Mary Lou. So then thinking about, I was part of the CXO Summit. I know people were in the press sessions and the briefings with Steve, we talked about the amazing flexibility that is there from Cloud with the complexity that it brings. John again talked about, you know, IoT and AI, we're going to have so much more data the opportunity to apply AI based on all this new data are brutally honest, on us as human beings there's going to be a real opportunity. Security, cybersecurity, it's a massive issue. I was responsible for corporate information security at Intel when there was the big denial of service attack in 2000 and my boss Doug Bush got thrown into the White House. I had sleepless nights then what the challenge was probably 100x worse than it was and I wouldn't want to be a CISO anymore so you guys do it or are brave and then we talked about you know finally with Tom, use cases that we need to really demonstrate the power of data you know, AI and big Data. Congratulations to the two award winners last night Pavan and Kate the talk this morning with Ramesh, Tata, very much are a strategic supplier globally to worldwide infrastructure. I'm so impressed with Tatas mission. They're so

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purpose driven, you know, the amount of money they give to charity from corporate revenue. So I think it's been great to have to have Tata here, Roy talked about the cyber threats going up 10x 100x, I was part of the panel with Steve on data center. And again, we touched on flexibility versus complexity. But sustainability came very much to the fore. And then lastly, we had, feels like 5G and 6G is where IoT was five or six years ago. And that's coming. So it's been a real privilege to be with you. It's been an intellectual supercollider. It's so nice to be with really smart people, but really, really nice people. And I want to thank Mark and the team for the invitation to address here now. I'll hand you back to the conference here and hopefully that was useful.

Hans Steeman, Dutch IT Channel
Hans from the Netherlands, and very interesting presentation. But at the end, it's up to the customer to the user. I know that eating or drinking soft drinks, that smoking cigars, drinking alcohol is (inaudible) I can do for my body. And even when I have an Apple watch, and it suddenly messages, hey, you stopped drinking alcohol, or stopped smoking? I continue because I'd like to do it. How do you solve that problem?

Martin Curley, Professor of Innovation, Maynooth University & Chair of UN Digital Health Symposium
That's why they pay you the big bucks, no, but the informed patient, we build a capability maturity framework, you know, which moves from enabling and educating and empowering and excelling. And the more you educate patients, the more they learn. The Canadian government has just produced a really nice video, which shows you how the last 10 years of your life will be, depending on your behavioral habits, smoking, exercise, and they show two videos side by side, one woman is sprightly 83 year old is playing in the park with her granddaughter, and the other one is a person that is you know, on oxygen and is walking around, when you see that it's so compelling. So, I like a glass of wine too. But I think it's all about moderation. providing tools and providing incentives and making it easier and making it fun. And so there is a journey and it is about patient empowerment, or a lot more educated, it took about 30 years, for actually, the Nazis knew about smoking and the cancer effects and in the late 30s, but it took till 1963 for the US Surgeon General to come out and say hey, smoking is a problem. But with digital technology, you know, the communication of this knowledge, the bad effects, you know, the influencing behavior change, there's a lot more we can do. So I know I should walk 10,000 steps a day. I tried to do it. You can't always do it. But it's better than doing it being a couch potato. But even so, I think using the digital tools to influence and educate we can all do better.

Kishore Jethanandani, Private LTE & 5G Magazine
I have a question about patient centric healthcare. At the end of the day, it is going to be patient centric, the patient's have the paying power, right? Right now, much of the payments are made by insurance, whether it's employer paid insurance, or his government paid insurance, the patient really doesn't have any control, doesn't have much control over how to pay for it. I mean, there's some limited range of options in the US like HSA. But in the larger scheme of things, 90% of the payments are made by insurance. So unless that is either deregulated or alternative options, like subscription based payments that exist in the US now.

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It's a great comment. And if you look at Larry Keeley, he published the 10 types of innovation. And the two most impactful areas of where you can drive highest level return are in the network and the business model, I think we have to acknowledge the business model is broken. So we're going to need a revolution. There are some insurance companies like elevance, here in the US and your Irish Life held in Ireland, and they're changing their business model from health, insurance to health assurance. And so some of the payers are actually making the shift because they want their patients to be held and what they're seeing actually, it actually makes business sense. But I do agree and people like Michael Porter and Elizabeth (inaudible) have argued this for a decade, that the whole business model needs to change. And you're in Singapore, for example, the Singapore government is paying people to stay well. And that's really interesting. I've been talking to the Irish Prime Minister, who is a Doctor, Leo Varadkar. And I asked him, you know, would you consider, you know, could we pay people to stay? Well, he said, that sounds very interesting. I'd be very open to that discussion. So I think mostly we need an innovation in the business model. And I think the digital technology is shifting the power to the patients because you can go into your consultant and you can be actually much as better educated or more educated because of the data you're getting the instrumentation and the AI so I think power is going to shift to the patients and that's going to be driven by digital technology, but it does need government leadership to say, we need to actually completely reimagine this new business model for healthcare. But it's a great point.

Jason Bloombery, Intellyx

I wouldn't want to riff on that. I mean, it's great to say we need new business models, but I just don't see that happening in the US with our for-profit health insurance system. I mean, when I get emails from my health insurer, insurance company talking about wellness, they're not talking about better patient outcomes. They're not talking about lowering costs, what they're really talking about is increasing their margins. That's what they're focused on their for-profit companies, you can't really blame them, if as long as it's for profit. So, I don't see anything changing as long as we have a for profit health insurance system in the US. I don't know, changing business models. That sounds good. But unless we can apply that, to governmental.

Martin Curley, Professor of Innovation, Maynooth University & Chair of UN Digital Health Symposium

I think there's such an opportunity for distribute for (inaudible). So let's see, look at what happened in retail between 2006 and 2016. Sears market cap went from a drop by 98%. Similarly, so many other companies Sears, or Target probably held their own and Walmart would, Amazon grew by 1800%. The opportunity is ripe for a big player to come in, and offer biz, you know, health services direct to the consumer, I know Apple and Intel and Amazon have been trying that. But somebody is going to crack that. if we look at what's happening and whole genome sequencing 40 million consumers have actually had their whole genome sequence and now calls for $500. Almost all of it is direct business consumer, they bypassed the healthcare systems. And this is going to be an incredibly valuable tool. So I think new players are going to emerge and will be a platform play. The guys that are for profit today and are really focused on their margins, they're going to get killed with disruption. This is so, so ripe for disruption. And the solutions are so

compelling. So either those guys get there, get into a new space, or they're going to be I think, under serious threat.

Hector Pizarro, Diario TI
why do you think nutrition is not a significant part of the schema you described? When I understood it, when nutrition is such an important part in preventing?

Martin Curley, Professor of Innovation, Maynooth University & Chair of UN Digital Health Symposium
Oh, no, nutrition is actually probably the number one thing, it's actually even more important than exercise. So

Hector Pizarro, Diario TI
it is indeed and my question is really, why do you think that it's not a chapter educating people that a plant based nutrition would be a solution really, not only for humans, but also for the planet, when it's proven that reducing animal consumption and going plant based, can even reverse illnesses?

Martin Curley, Professor of Innovation, Maynooth University & Chair of UN Digital Health Symposium
No, it's absolutely hugely important. You're probably familiar with Campbell's book, I think the China's study, which was probably set that whole movement up, so coming back to education, when we educate people around nutrition and the amount of you for example, people that are pre diabetic, once are informed about their nutrition and their fruit intake, you know, the success rate in terms of reversing is very high. So, I couldn't agree with you more, it's probably the number, if there was one thing, you know, I would say, we should prioritize right now, It is nutrition. And if we can inform people, and they can make much more intelligent choices, they're going to live longer, and it is more sustainable. And I think in life moderation is good. So, we're not going to cut out all meat or more plant based food is good for everybody. It's good for us. It's good for the environment. And it's good for animals as well.