



Episode 6: Healthcare Start-ups Dreaming Big – Dr Kelvin Ross

Automated voice ([00:02](#)):

This is a podcast by Lumina, the perfect space to innovate, collaborate, and grow in health, science, and tech.

Rebecca Griffin (host) ([00:12](#)):

Dr. Kelvin Ross, welcome to Health Tech Talks.

Dr. Kelvin Ross ([00:15](#)):

A pleasure to be here today.

Rebecca Griffin (host) ([00:16](#)):

Kelvin, you have an impressive career in software engineering and IT spending more than 30 years. Currently, you are the Director of the Queensland Artificial Intelligence Hub, the Chief Technology Officer with Datarwe, a Gold Coast company producing real world data for AI enabled medical innovation.

Rebecca Griffin (host) ([00:34](#)):

And you're an adjunct associate professor at the Institute for Intelligent and Integrated Systems at Griffith University. And this is just naming a couple of your current roles and interests.

Rebecca Griffin (host) ([00:45](#)):

Let's start, Kelvin, by getting a bit of an understanding of you and your interest in this sector. Where did your interest in software AI and IT come from?

Dr. Kelvin Ross ([00:55](#)):

I started out as a kid in high school getting interested in computing and got a Vic 20 and a 7K of memory, not gigabytes or anything like that, and self-taught to program. But then I started a job in the water resources measuring rivers and collecting data.

Dr. Kelvin Ross ([01:09](#)):

And that was sort of what interested me in getting more involved in data and computing, and then took up a computer science degree. Moved back to Brisbane, got a cadetship with defense, got into avionics combat systems and then ultimately did a PhD in software engineering in that space.

Rebecca Griffin (host) ([01:24](#)):

And you spent some time in Torres and Cape?

Dr. Kelvin Ross ([01:27](#)):

Yeah. Yeah. So that time when I left the high school, I yeah, moved up as a 17-year-old to Mariba to work as a cadet hydro in Cape York and the Gulf traveling around by four-wheel drives and helicopters and pretty remote, amazing countryside.

Dr. Kelvin Ross ([01:41](#)):



And you know, the interesting thing behind that now is the innovation work that I'm doing elsewhere with one of my companies is sort of revisiting that.

Dr. Kelvin Ross ([01:48](#)):

We're working with some indigenous communities up in Cape York around some traditional rock art using drones to help do heritage mapping back in the same area that I used to work. But now up there using more advanced technologies than what we had there I's say 35 years ago.

Rebecca Griffin (host) ([02:02](#)):

Isn't that great how it's come full circle?

Dr. Kelvin Ross ([02:04](#)):

Yeah. Yeah. Everything I find in my career now is back to the future. It's sort of like even coming back to the avionic side and stuff like that. It just keeps recycling itself.

Rebecca Griffin (host) ([02:12](#)):

You're obviously very passionate about what you do in the role of AI and data in healthcare. Why is that?

Dr. Kelvin Ross ([02:18](#)):

I love technology. But it's not just for the sake of technology, but what technology can solve. So I think at the heart of it is that problem solving mentality, but also understanding the context that you need to innovate and raise funding and do it to actually do that problem solving.

Dr. Kelvin Ross ([02:35](#)):

I think I'm mainly driven to solve problems whether that's health problems, defense problems, indigenous heritage. Things I find now my career, almost legacy things that I'm working on. No longer do I work in finance. I'm more driven by health as a purpose or indigenous culture as a purpose or environment as a purpose.

Rebecca Griffin (host) ([02:58](#)):

And you can obviously see where it can lead.

Dr. Kelvin Ross ([03:00](#)):

Oh yeah, yeah. And the thing is you never know where it leads. I almost go, "Oh, that kind of sounds like a good idea at the time." And it's remarkable how things just with a collaborative open mindset and getting together with like-minded people with purpose, how those things evolve and these crazy little ideas you had at the time about flying a drone up in Cape York next minute turns into a funded project with indigenous trainee ships and working with indigenous park rangers to start processing data or even working in the healthcare area in that same area and creating pathways for people.

Rebecca Griffin (host) ([03:37](#)):

What project are you most proud of in terms of the impact it has on patient care?

Dr. Kelvin Ross ([03:43](#)):



Yeah. Look, it's a long journey for patient care. I think you go into this space thinking you want to make this immediate need, but you know that this is a long journey in healthcare.

Dr. Kelvin Ross ([03:54](#)):

It takes a long time to get something from the idea to actually to the bedside. So I think the insights that we're getting now from the data and what possibilities that can create, is really inspiring.

Dr. Kelvin Ross ([04:07](#)):

I don't need to work, but that's what gets me out of bed out in morning to sort of wanting to make that change and innovate. But I also realized that we still got so long to go to actually get this AI technology into the bedside to have a real impact on patients.

Rebecca Griffin (host) ([04:21](#)):

And when you say getting AI at the patient bedside, what's an example of that?

Dr. Kelvin Ross ([04:26](#)):

Yeah. So the classic example would be early detection of a disease. So in our area we work in intensive care. One of the largest causes of death in intensive care is sepsis, like a blood infection.

Dr. Kelvin Ross ([04:38](#)):

So if we could actually detect that earlier so that we could start courses of antibiotics and so on earlier, every hour that we do that earlier increases the rates of survival by about 10%.

Dr. Kelvin Ross ([04:49](#)):

So it's those sort of things about detecting things early so that you can intervene earlier and the outcomes are better. But then there's a lot of medical errors that are made.

Dr. Kelvin Ross ([04:58](#)):

One of the largest causes of death is actually preventable medical errors. So how could we eliminate those sort of simple errors, medication errors and things like that, to have a better-quality check on how things are done?

Dr. Kelvin Ross ([05:10](#)):

Medicine's very complex. There's a lot of data. There's a lot of communication. There's a lot of new diagnostics. But what are these new tools that will help the clinical people with their cognitive load and be able to make sure that things aren't slipping through the cracks?

Rebecca Griffin (host) ([05:22](#)):

You've been involved in some really critical work during the COVID 19 pandemic. Can you share a little about that with us?

Dr. Kelvin Ross ([05:30](#)):

You might recall COVID kicked off early in 2020 and that was also when our funding kicked off. So we spent about two years stacking up our project and getting the approvals from government and our partners.



Dr. Kelvin Ross ([05:42](#)):

And that officially started March 2020, which also was literally two weeks before the whole country shut down. So we were scrambling, but then one of the projects straight away because we were already starting to pull this data together, was how can we sort of look at that data to help understand the impact on ICU and so on for COVID?

Dr. Kelvin Ross ([06:01](#)):

And luckily our ICU units weren't hit tremendously hard like they were in other countries. A lot of things we put in place in Australia and in our health jurisdictions minimized the impact on our health system. I mean, it's still been massive, but we didn't get overwhelmed ICU units like they did in the U.S. and Europe.

Dr. Kelvin Ross ([06:20](#)):

Yeah. Making insights of data. So we pretty much mobilized our team straight away on an aspect there that we were funded to start looking at COVID-related data and how it's used in ICU.

Dr. Kelvin Ross ([06:30](#)):

And yeah, so that was quite mobilizing for our team. It was stressful at the time. We knew that things were changing pretty quick and we were in contact with a lot of ICU units around the world in similar circumstances.

Dr. Kelvin Ross ([06:43](#)):

But it turned out a lot of the data ... using data for COVID has been sort of a bit of a double-edged sword. A lot of data gets sort of misread or misinterpreted and cherry picked. So what it's really raised is the importance of how data is used and processed and how it's shared.

Dr. Kelvin Ross ([07:02](#)):

We've still got a long way to go before our next pandemic, which hopefully is sometime before then. But I think it has opened the world up to the importance of data and the importance of accurate data and interpretation of data to make really good decisions.

Rebecca Griffin (host) ([07:17](#)):

You're one of the principal coaches for LuminaX, which is the health tech accelerator program here at Lumina where we are recording today and cohort. Why is this program so valuable for health tech startups and for the healthcare system?

Dr. Kelvin Ross ([07:30](#)):

Yeah. Look, I think the healthcare system needs innovative startups. I think traditionally if you look at the way healthcare has evolved, it's probably traditionally come from researchers, clinical people, that university research in the pharmaceuticals area.

Dr. Kelvin Ross ([07:45](#)):

It's many years of developing a drug in a lab and so on. But what we're finding now is technology is becoming a cornerstone, particularly software, how that might be used. But a lot of those innovators aren't going to be your traditional researchers.



Dr. Kelvin Ross ([07:58](#)):

Yes, universities need to get better at commercialization translation, but a lot of that innovation's going to come from clinical people. It's going to come from nurses and doctors who are solving problems at the bedside and see a better way of doing that.

Dr. Kelvin Ross ([08:12](#)):

And then start teaming up to develop in this case with med tech, there's going to be a lot of growth of software as a medical device. But then you're looking at driving that problem solving in a different way and then having to go on form teams, bring together clinical technology people, commercial people.

Dr. Kelvin Ross ([08:30](#)):

Go out and find funding in a different way. So I think trying to solve these future health problems that we've got to help our health systems scale, we are going to need this sort of med tech innovation approach to augment how we do that.

Rebecca Griffin (host) ([08:43](#)):

And so the program, I guess, takes someone who may not have a background in business, like you say a clinician who's used to working at the bedside, not used to running a business, and giving them those tools, I guess, to take an idea through to fruition?

Dr. Kelvin Ross ([08:57](#)):

Exactly. So I think a big part of the sort of accelerator programs is giving people a support network. There's a lot of skills that they've got to develop. We always say that med tech innovation requires a healer, a hacker and a hustler.

Dr. Kelvin Ross ([09:14](#)):

And there's no unicorns out there that have all three of those. And even if they did, they won't have enough bandwidth to actually solve all of those three problems to grow the things.

Dr. Kelvin Ross ([09:24](#)):

So part of it is how do we bring those innovators together, those people? And typically, it starts with the clinician or the nurse who knows the problem they're having day-to-day and thinks of this other way of solving it.

Dr. Kelvin Ross ([09:36](#)):

And then you want to team them up with technical people and team them up with commercial people. And the first time you do that they'll probably find that idea when they start to sit down and work out how to solve it and how to fund it and how to raise capital.

Dr. Kelvin Ross ([09:48](#)):

It won't all stick together. But that education process means that probably the second or third time around they're going to be a successful innovator.



Rebecca Griffin (host) ([09:56](#)):

So what are the main challenges Australian entrepreneurs in the health sector face and how can they overcome some of these challenges?

Dr. Kelvin Ross ([10:04](#)):

Yeah, I think the health sector, what it's unique about in terms of like technology innovation, is health has a really long-life cycle. You know, the investment cycles are much longer. The health sector is quite institutionalized. It's slow.

Dr. Kelvin Ross ([10:20](#)):

So for those innovators it's a lot longer path that requires, you know, how is that funded and so on. So I think the biggest challenge for them is how they keep sustainability and then you've got to really have a good return on investment model.

Dr. Kelvin Ross ([10:34](#)):

So it might be a thing that you're really good at solving a health outcome, but if it doesn't actually save the system cost, the system just can't afford to keep making people healthier and healthier if they can't offset the cost of that because other areas of healthcare have to miss out.

Dr. Kelvin Ross ([10:50](#)):

So those people have to be really good at thinking about how they build the business model around what they're trying to create and then how they interact with hospitals and have enough time and ramp time to be able to go through those evidence processes and the regulatory processes and the adoption processes in that really slow-moving environment.

Rebecca Griffin (host) ([11:10](#)):

On the flip side of that, what are the opportunities for healthcare startups?

Dr. Kelvin Ross ([11:14](#)):

I think the opportunity is if you solve something that's quite groundbreaking, it can be a really massive return on investment. But it's just unpicking that what ... There are big returns in healthcare if you can deliver the outcomes.

Rebecca Griffin (host) ([11:30](#)):

So the opportunities are there if you can have the idea and get the right team around you?

Dr. Kelvin Ross ([11:36](#)):

That's right.

Rebecca Griffin (host) ([11:37](#)):

... which is what the accelerator program does, doesn't it?

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Dr. Kelvin Ross ([11:39](#)):

Exactly. And I think back to the individuals, that purpose element that they might be a nurse in a hospital and dealing with tens, sometimes dozens or in the rare case, hundreds of patients. But if they've got very innovative healthcare that leads to great outcomes, not only is there a financial reward but you could be impacting hundreds of thousands or even millions of people's lives as part of that innovation.

Automated voice ([12:03](#)):

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Rebecca Griffin (host) ([12:19](#)):

What kind of startups do we need in the Australian healthcare sector?

Dr. Kelvin Ross ([12:23](#)):

I think we need more people in this space because I think it's a big market internationally. Yes, it is slow, but Australia's well positioned globally to take a leadership position.

Dr. Kelvin Ross ([12:34](#)):

What we find is startups come at all different stages. We almost need to help along those groups at many different stages. There'll be some that have got quite advanced ideas, their prototypes built, perhaps even their first or second customers.

Dr. Kelvin Ross ([12:48](#)):

And what we want to do is help them scale and how to globalize and move into other markets. But that other bit we talked about with LuminaX is about educating that group about this might be their first foray into this area.

Dr. Kelvin Ross ([13:01](#)):

So they might be early stage, but it's really important to grow up that skills and network because let's say their concept doesn't grow. They probably will be a big contributor to other innovators in this space. It's a fairly high demand area for acquiring skills in this space as well.

Rebecca Griffin (host) ([13:18](#)):

And what sort of support is available to startups working in health and wellness?

Dr. Kelvin Ross ([13:22](#)):

Yeah, the interesting thing about the support is probably most startups you talk to want capital, right? But probably what they need also is getting access to experts first in that space.

Dr. Kelvin Ross ([13:34](#)):

So the first thing you want to do is connect them up within the medical space to open some doors for them. Then when it comes time to capital, there's many different ways of doing that.



Dr. Kelvin Ross ([13:43](#)):

There might be grant funding. There's a lot of different grant avenues for medical technologies, whether that's a traditional research pathway maybe connected with the university. Government funding and so on. But then ultimately moving to private capital.

Dr. Kelvin Ross ([13:56](#)):

So it's about educating those different avenues and where they need to be in terms of their proposition to access that.

Rebecca Griffin (host) ([14:02](#)):

What role do you play in the coaching?

Dr. Kelvin Ross ([14:06](#)):

I'm a techo, first of all so I tend to look at more my role as a CTO, but I've sat pretty much across those sorts of three, not so much the healer role, but I've worked with a lot of healers.

Dr. Kelvin Ross ([14:17](#)):

So I understand the medical clinical information systems. I know a bit about the domain and things like that. Enough to have good conversations with clinical people.

Dr. Kelvin Ross ([14:26](#)):

But primarily I said on the technology side, but then I've also had successful businesses. So I understand how to form teams, how to manage people, how to fund things and build a sustainable business.

Dr. Kelvin Ross ([14:39](#)):

Capital raising is still a bit of a sort of an enigma to me. To go and raise ... Sort of familiar with angel funding, seed funding. We're sort of dabbling in that series A, but it's still a mystery to me how do you go and raise \$30 million or \$40 million.

Dr. Kelvin Ross ([14:54](#)):

But again, each stage is about what's the network that you're going to tap into and how do I help a person get across the bridge from where they are now to the next step?

Rebecca Griffin (host) ([15:03](#)):

Do you know what the success rate of health tech startups is?

Dr. Kelvin Ross ([15:07](#)):

It wouldn't be high. I think generally for businesses and innovation it's not as high as what people might think. I don't have any specific stats about health tech.

Dr. Kelvin Ross ([15:15](#)):



But I know if you look at venture capital funding, it's all about a pipeline. So even that sort of angel funded phase, you're still talking about a less than one in 10 success rate.

Dr. Kelvin Ross ([15:25](#)):

I would say for health tech at that early phase it's probably even less than that because it's such a long pathway before you see revenue. So people persisting through that stage.

Dr. Kelvin Ross ([15:35](#)):

And in some ways that early stage it's important for people who are working in that space, perhaps doing a bit of moonlighting. Giving themselves more time. I think time's the critical factor, more so than inside med tech compared to say, consumer technology.

Dr. Kelvin Ross ([15:49](#)):

Consumer technology moves a lot faster, so you need to think about how you give yourself more time to create success.

Rebecca Griffin (host) ([15:55](#)):

So for those who don't succeed, what's the main reason? Is it that it is such a long road before money comes?

Dr. Kelvin Ross ([16:02](#)):

Yeah, money is definitely part of it. And your ability to stand up and demonstrate your investability. And part of it in traditional investment they might look at your revenue, but revenue can take some time to acquire in medical areas because of regulation and adoption.

Dr. Kelvin Ross ([16:17](#)):

So do you have other success measures that can give confidence to investors? But a big cause of failure are other things. I think team factors are a big thing, finding co-founders that can really work together and stick with it through those tough times to get there.

Dr. Kelvin Ross ([16:30](#)):

And I think that's why purpose is so important because if you don't have that purpose in why you're doing it, then you're probably not going to stick through those tough early times before you are funded to basically make it your full time day job.

Rebecca Griffin (host) ([16:42](#)):

Because I think a lot of the time in technology and in business people just see the success of it. They don't see the backstory.

Dr. Kelvin Ross ([16:50](#)):

They see the successes. Yeah. And the good thing about like working with cohort and LuminaX and those is putting you in contact with other people that have been sharing those same experiences.

Dr. Kelvin Ross ([17:00](#)):



And part of it is actually that mental health for entrepreneurs. It is tough at times. And even when you get funded, and I know of companies that have raised tens of millions dollars in funding and they're still stressing about the next capital raise round. And they're worrying about how to make payroll of their staff and things like that.

Dr. Kelvin Ross ([17:18](#)):

So, yeah, it's not for the fainthearted. I think to move into an innovation startup you want to do it driven out of purpose, but you do it because you're excited about the prospect.

Dr. Kelvin Ross ([17:28](#)):

But you need some risk tolerance. You need to be able to be prepared to put in the hard work and you stay up stressing at night, but it's those people that are changing your world effectively, right?

Dr. Kelvin Ross ([17:37](#)):

So you have a big impact on actually making really positive change that you wouldn't have if you just had a day job in the hospital or something like that.

Rebecca Griffin (host) ([17:45](#)):

Yeah, that's right. And I guess a lot of people are still working in their day job in the hospital and then these ideas are what they work on at night.

Dr. Kelvin Ross ([17:53](#)):

It's those ones that are probably making them what they get up in the morning for is that next bit. And yeah, part of it is the other jobs that are paying the rent and giving them time to really develop these other concepts and ideas.

Rebecca Griffin (host) ([18:06](#)):

And I guess not giving up too. Like I think there would be so many hurdles along the way. It'd be so easy to give up. Having that purpose and drive can get you through those hurdles.

Dr. Kelvin Ross ([18:17](#)):

Yeah. Yeah. And it's interesting, like in med tech I come across a lot of doctors and surgeons that have technology innovations on the side. A lot of times with those people they don't give up their day job, which actually puts a really interesting slant on how they're going to create this innovative startup that they need to find co-founders that are going to do the day-to-day hustling and development and things like that.

Dr. Kelvin Ross ([18:38](#)):

But they realize that they're still an integral part of that, but they're still going to show up and do surgery during the day and put in this effort after hours. But it puts a really interesting slant on the way they create those startups compared to non-med tech startups.

Rebecca Griffin (host) ([18:51](#)):

Yeah, absolutely. Because I guess in terms of someone who's a doctor you've studied for so many years to be that surgeon or that doctor. It would be very hard to give up that to focus on something that you don't know what the outcome of that is.



Dr. Kelvin Ross ([19:04](#)):

Yeah, yeah. So one of the big challenges you've got is finding co-founders and motivating a team that we're all focused on solving this particular problem and how were going to grow the sustainability and the funding to be able to roll that out elsewhere. That's the key motivation that you're really trying to create.

Rebecca Griffin (host) ([19:22](#)):

Kelvin, looking five to 10 years ahead, how does the future look for health and wellness entrepreneurs do you think?

Dr. Kelvin Ross ([19:28](#)):

Look, AI is going to have a pretty remarkable impact on just about all sectors. I look at it as having persisted through the adoption of the internet, the personal computer, the worldwide web, the smartphone in your pocket and network technologies.

Dr. Kelvin Ross ([19:43](#)):

These are all pretty remarkable technology innovations that have had a big impact and we're seeing that impact on healthcare now at telehealth and so on.

Dr. Kelvin Ross ([19:51](#)):

But AI's the next wave. It's coming. There's a lot of debate about what impact it's going to have. I think a lot of people over promise and it's taking a lot longer than people expect, but it will have an impact.

Dr. Kelvin Ross ([20:02](#)):

And I think in some of those areas it's going to be quite profound. Again, there's a lot of misinformation like radiologists are going to lose their job because AI can do it. That's not going to happen.

Dr. Kelvin Ross ([20:11](#)):

But probably what you'll find is that radiologists that don't understand how they can leverage AI to make themselves more productive and to identify issues with their patients more efficiently to treat earlier. I think those are going to be the big, remarkable changes that we see get embedded into our processes.

Dr. Kelvin Ross ([20:28](#)):

So it's going to take longer than we thought. There are definitely things coming out now already, particularly in that radiology space and other spaces.

Dr. Kelvin Ross ([20:35](#)):

But I think in 10 years' time when we look back, it'll be a bit like looking back at the internet and seeing how that's impacted now. You didn't really notice that at the time everybody said it was going to be big, but it took longer than what everybody thought. And then its impact has been quite profound.

Rebecca Griffin (host) ([20:48](#)):

And then it just becomes part of our daily life, doesn't it? I mean, I remember thinking I don't need an email address.



Dr. Kelvin Ross ([20:53](#)):

Yeah. Who needs these Apple phones? It's like but now who survives without them?

Rebecca Griffin (host) ([20:58](#)):

Yeah. They're attached to us. What's your experience working here at Lumina development and being part of the community here?

Dr. Kelvin Ross ([21:04](#)):

I think the really good thing about Lumina and the team here, like based out of cohort, is the collaboration and growing that community. Personally, I've been really driven through business and everything about creating collaborations. So finding partnerships and things like that.

Dr. Kelvin Ross ([21:18](#)):

And I think that is the biggest impact we can have as a community. And I think Lumina is starting to look outside of just the Gold Coast, but how do we make us a bit of a hub for creating collaborations both nationally, perhaps internationally over time.

Dr. Kelvin Ross ([21:30](#)):

But the key's really going to be about forming partnerships and coalitions. Creating those collisions, sharing information. Every entrepreneurs got something to share with the next entrepreneur. It's got a real buzz here.

Dr. Kelvin Ross ([21:41](#)):

I spend a lot of time up in Brisbane and elsewhere. And yeah, people here actually interact a lot and help out a lot. And I think that comes down to some of the key people that are here as well that really espouse that sort of collaboration mindset.

Dr. Kelvin Ross ([21:54](#)):

And yeah, I feel that. And even for the groups that we bring together, they've got to come into LuminaX as a cohort thinking about as much as what they can take from the program, what can they give to others in the program? Because it's that collaboration between the participants and LuminaX that will deliver just as much.

Rebecca Griffin (host) ([22:10](#)):

Kelvin, it's been wonderful chatting with you. Thank you very much.

Dr. Kelvin Ross ([22:13](#)):

Excellent. Great. Happy to chat with you.

Automated voice ([22:16](#)):

To learn more about Lumina and how we work with health tech startups, visit: Luminagoldcoast.com.au. And don't forget to sign up to receive your Lumina opportunities pack today.