Catalysing the Future: Healthcare and *Real* Innovation

Lessons from Cisco's Exploration of Healthcare Innovation in the Eastern United States

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There are few in healthcare who would deny that we stand amid a maelstrom of change.

Our healthcare systems are confronted by increasing demand; challenging across a range of dimensions – from volume to composition to burden of disease to complexity.

Our supply institutions – no longer enjoying the funding growth rates of the 80s, 90s and 2000s – face a new and structurally more constrained funding environment as public budgets feel the squeeze of challenged public revenues and governmental efforts to balance fiscal policy. The constant demand to do more – in terms of volume, in terms of quality, in terms of outcomes – is matched only by the concurrent call to do it with less in terms of resources.

And moreover, the world in which healthcare is delivered is rapidly changing. The proliferation and dispersion of information – enabled by and further spurred by new and interesting technologies – is changing the face of our economy and core dynamics within society. Traditional hierarchies are being troubled. Traditional processes are being rewired. Driven by experiences from other sectors and domains of life, patients are demanding more from our system – better experiences, more choice, more responsiveness, more empowerment.

This is our world.

A world in which little is as it once was.

A world in which healthcare on the horizon looks radically different.

A world in which the pressures faced by providers, by policy-makers, by systems – mean staying still risks being overborne by an oncoming maelstrom.

This is the context of innovation.

But, apart from being the world's most overused buzzword, what is innovation? What are we talking about?

There are many theories. But innovation is not just about theories. It's about action.

And so Cisco led an exploratory tour of leading healthcare innovation organisations in the eastern United States to discover the *practice* of these innovators and to bring insights back to Australia.

In this report, we survey and interpret some of these insights. Specifically, there are six key lessons we draw out in this report:

Lesson 1: It's about healthcare first... understanding the objective

Lesson 2: The importance of motivation... creating healthcare's innovation model from within

Lesson 3: (Actual) necessity is the mother of invention...finding the problem

Lesson 4: Systems, perspectives and the picture of the whole...leveraging multiple perspectives and disciplines

Lesson 5: Starting from where we are... but with vision and process

Lesson 6: Smoothing the stilted marriage of technology and process innovation

But as we shall see in our journey together to the healthcare's innovation frontier – the underlying lesson that sits behind each of the others is this: if we wish to innovate in healthcare we need to unremittingly act. And so this report will not seek to conclude with dry and abstract analysis – but rather to catalyse action and to call into being a community of innovation.

Lesson 1: It's about healthcare first...understanding the objective

There is a risk – at times – that in our thinking about *healthcare* innovation, we underemphasise the 'healthcare' element.

Some of this is understandable – innovation as a domain has its own language, institutions, practices and cultures. And much of that domain is linked to a world of startups, of exits and spin outs. Of unicorns, angels, hispters, and hackers. Of super-profits, finance and massive-hoped-for-returns.

It is certainly the case that all of the above are extremely important in certain chapters of the healthcare innovation story. The MedTech innovation market represents, for example, one of the single greatest potential sources of dynamism and change for our healthcare systems.

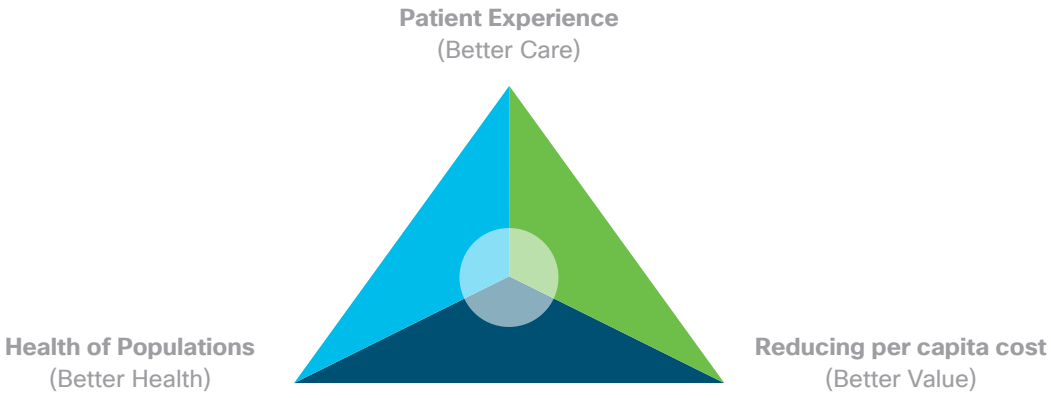
But in recognising the importance of broader innovation and entrepreneurship markets for healthcare, we must never lose sight of our innovation *purpose*. We must constantly ask: Why are we innovating? What are we trying to achieve?

The first task of healthcare innovation is to improve *healthcare*: it can't be solely about exits and spin outs, or just about financial returns. Business model innovation is an important part of improving healthcare outcomes, but as a means, not as an end. In healthcare innovation, improved healthcare outcomes are the *sine qua non* – the single, indispensable goal.

And we see this acknowledgement from leading healthcare innovators in the United States.

- The Institute for Healthcare Improvement has formulated its Triple Aim against which to measure initiatives (see below).
- In its innovation IP development work, Mass General Hospital – an organisation with numerous innovation laboratories nested within it – expressly watches goals of care improvement, patient experience and cost reduction, rather than measuring spin outs or commercialisation returns.
- There has also been a proliferation of 'no-equity' models for providers and even for entrepreneurial accelerators in the healthcare space – from the Pulse@Mass Challenge initiative to the approach of Johns Hopkins University or even the University of North Carolina. A critical element of these models – especially when based in hospitals – is a recognition that the return on investment generated by supporting innovation is far broader than mere financial returns. Staff engagement, quality improvement, gains in clinical process and health outcomes become the tangible, valuable – though sometimes non-financial – returns that progressive healthcare innovation institutions seek.

The Institute for Healthcare Improvement's Triple Aim Approach



Lesson 2: The importance of motivation…creating healthcare's innovation model from within

Very tightly related to this question of purpose is the issue of motivation – one that is central to both innovation and to healthcare.

Innovation is about action, and action is about behaviour. And if we want people to behave differently, we have to understand what motivates them.

Motivation and purpose dance an intimate tango in healthcare. Across our sector – from nurses to policy-makers, from administrators to specialists, from GPs to informaticians – the overriding desire of our system players is to help and to care. A good day in our system – no matter how hard and gruelling – is when someone else's life is saved, when suffering is avoided, when comfort is given. Joy comes not just from increasing pay or additional benefits but rather from watching those we serve spending time with loved ones, or walking away from our services, or indeed sharing moments of connection with us.

This motivation is intrinsic. It relies less on external factors and more on the inner motivation of the person. It is – perhaps – our system's greatest asset. Indeed, when this is frustrated, for example – through administrative burden, technology burden, the fast and relentless pace of change – churn, burnout and despondency become very real, and dangerous, possibilities.

Most critically, the lesson of motivation teaches us that when healthcare changes – it changes in very important ways *from within*.

What is interesting is that innovators also are often powerfully intrinsically motivated. Time and again, when asking founders and innovators in healthcare about *why* they pursued their innovative, often uncertain, often risky projects, the answer given is simply: "I had to – that's just who I am".

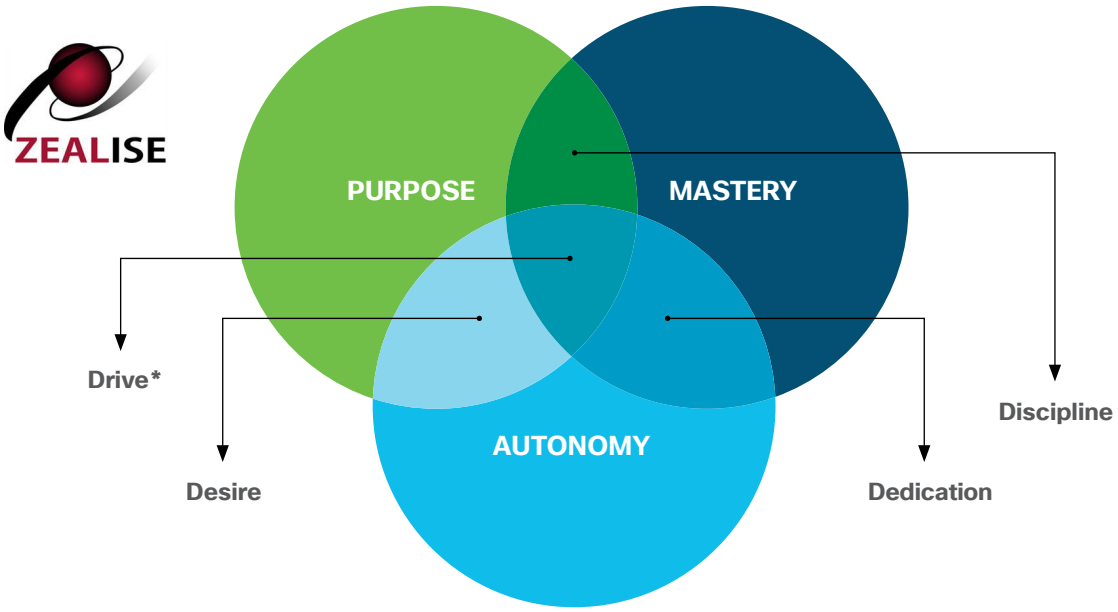
And so healthcare innovation involves finding ways to harness and connect these intrinsic motivations of care and improvement with the internal dynamics of healthcare to power positive movement in the system. This is not only the pathway to actually spurring action, but also to ensuring that this action achieves traction.

Purpose – Mastery – Autonomy

Mass General Hospital's innovation teams – understanding the importance of intrinsic motivation in generating large scale change with traction – have self-consciously adopted Daniel Pink's purpose – mastery – autonomy approach in design of their major initiatives.

- Purpose – The desire to do something that has meaning and is important
- Mastery – The urge to get better in one's domain of work
- Autonomy – The desire to be self-directed

By designing these elements into the structure of their innovation efforts, Mass General has found its change efforts to be significantly more effective and impactful.



*As identified by Dan Pink in his book "Drive" © 2009

Lesson 3: (Actual) necessity is the mother of invention…finding the problem

Innovation is about finding a problem that really matters to someone, and then solving it.

But while innovation should be about seeking a solution to a problem, too often it can become a solution *looking for* a problem. Think, for example, of the – well-intentioned – early use of large mobile tablets in hospitals: heavy, cumbersome and ultimately not used by the staff. Or think of mobile devices – quickly introduced – but that did not operate well with the clinical record.

But innovation is not just something we do in shiny co-working spaces and with bright innovation PowerPoint models. Innovation is about the gritty, complicated, murky world of action and of healthcare necessity. It is the urgent, action-based response to *need*.

And this is why adversity – crisis – can be such a potent impetus for change. The sharpness of need, highlighted in moments of crisis, makes 'what we are solving for' stark and undeniable. Boston's 1942 Cocoanut Grove fire led to remarkable advances in burn care. The tragic human mental and emotional ravages of modern warfare have spurred and accelerated advances in the treatment of PTSD and traumatic brain injury.

But, if we are to de-link the dependence of innovation on crisis, we need to find novel ways to seek out problems that need solution before they become acute.

And this is what leading health innovators are seeking to do through new models of engagement – asking where the troubles are in healthcare and finding new ways to address them:

- MIT's Hacking Medicine initiative – a multidisciplinary and entrepreneurially-focused organisation with a mission to bring innovators together to solve healthcare's most pressing challenges - utilises the model of 'pitching a pain point' somewhere in the healthcare system. Whether at the patient, clinician, carer, provider or payer level, this initiative aims to focus innovative attention on problems that need fixing.
- Meanwhile, the Institute for Healthcare Improvement fosters the organisation's patient-centric model of innovation by asking the simple question 'what matters to you?' in each and every healthcare improvement encounter.

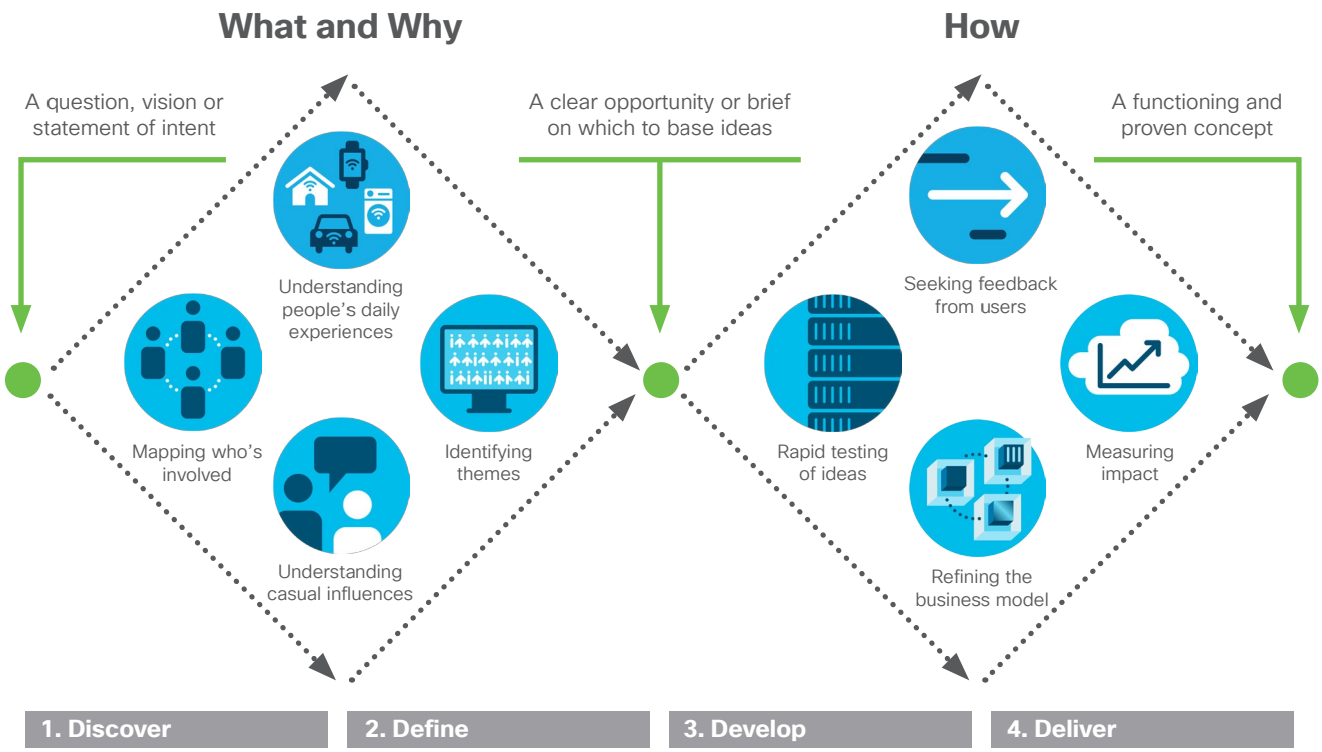
Innovators are effective when they are problem-solvers, not solution-sellers. It is their focus on the real world of need that makes them effective.

What is Design Thinking?

In understanding actual need, we must be careful to distinguish between *felt* and *actual* need. What at first appears to be the need – or the problem that sits behind it – can turn out to be deceptive. New technology systems deployed in hospitals are a good example. The knee-jerk reaction to a difficult to navigate system or innovation can be to get rid of it. But there may be a better solution to the problem – to change it, or to improve it. In getting behind problems, new methods have found their way into the healthcare lexicon and tool kit. One of these is design thinking.

Of the many approaches that seek to find the problem, design thinking tools and methods (inc sprints, incubation, hackathons etc.) are amongst innovation theory's most potent – and for the health system, most counterintuitive – weapons. By both making space for creative ideation, but then linking that to rapid prototyping, testing and learning, design thinking approaches can quickly discover – through fast experimentation – the real drivers behind needs (see further the following diagram for illustration).

Design thinking framework from the Design Council (UK)



Lesson 4: Systems, perspectives and the picture of the whole... leveraging multiple perspectives and disciplines

We all tend to view the world from a particular perspective – engineers see engineering problems; the technologist sees everywhere technology; the hammer thinks the whole world is a nail.

But of course the world is multi-faceted – and no less so in health.

Healthcare is a complex system with a myriad of actors, players, viewpoints and perspectives. Moreover, the challenges that we face in healthcare are often so broad and complex that they defy one, single perspective.

The dispersion of decision-making power across the diverse environment that is health is lumpy – power concentrates in some places rather than others – and optimality can be hard to come by when relying on part of the system to make decisions for a complex whole.

As a matter of both necessity and of prudence, finding a way of bringing together diverse – often radically so – perspectives is the only pathway to address and spur change in our healthcare systems.

But this pathway is by no means easy. The complexity of the competing perspectives and priorities for care improvement complicates the health innovation space. Various factions struggle to overcome inherent biases, which can create a strong inhibitor to innovation.

Moreover, even in leading innovation organisations we find a low level of sharing between innovation-directed functions. The problem becomes even more pronounced *between* organisations. Over three years of Cisco study tours we have heard the same story trip after trip – in spite of pioneering insight and practice, sharing remains low and initiatives, even those a matter of a couple of city blocks away, remain relatively weakly connected.

And this is why – so often – innovation comes from outside our own fields. The demands of the everyday, a bias towards the status quo, the ossification of common-sense and 'how we do things around here' can make innovation in our own spheres difficult. Nor is this a new or contemporary problem: the use of ether in anaesthesia which in 1846 revolutionised the practice and advancement of surgery and surgical methods was pioneered in Boston through the efforts of a dentist, often against the resistance of the medical fraternity, and at a time that dentists were not regarded as part of that fraternity.

Seeking to collaborate across organisations and across systems implies some strategies that the very best of healthcare innovators make use of:

- Look for fellow travellers, likely sponsors and use excitement and results to call communities of interest and action into being. Attracted by purpose and agitated by possibility, inter-disciplinary and cross-professional communities mobilised for change can be created. And the coalition can be built from far afield – academic researchers, developers, designers, corporates, vendors and advisers *both* from within and from outside the industry.
- Deliver outcomes through partnerships and specialisation. When collaboration occurs, not everyone needs to do everything. By partnering with accelerators, hospitals can become innovation hubs; by working with front-line innovators think-tanks can have impact; by teaming up with ideation specialists, accelerators can focus on pathway to market.
- Privilege sharing – of information, tools, results, experiences – as a way to grow capacity and capability across a broader network of innovation than any single organisation could alone.

The power of learning from others

The most compelling prompts for innovation can often come from elsewhere.

The Sibley Memorial Hospital in Washington DC – recognising the often challenging time that hospitalisation of a loved one can be for families – borrowed from the hospitality industry, creating a concierge centre, modelled on a hotel lounge. Set up with couches, TVs, desks and magazines, family members, carers and patients can access the facilities, seek information, use wifi and have snacks in a comfortable setting quite different from that of a usual hospital environment. Testing and feedback in respect of the initiative has indicated remarkable positive results.

Born of the Sibley's innovation lab, this initiative reminds us that not getting caught in the predominate model, and learning from adjacent industries, turns out to be a fruitful source of real, impactful innovation.

Lesson 5: Starting from where we are...but with vision and process

Strategising and innovating for an uncertain future is hard. So much remains unclear and unknown. Complexity can cause massive shifts at short notice and decision-making can find little solid ground upon which to stand.

But, innovation is immensely inefficient if it relies on random acts of interaction to develop new ideas. Innovation is creativity - new ideas - put into action; neither random-impulse-brainstorming nor haphazard activity.

Recognising the twin poles of freedom and structure, of uncertainty and the need for direction, underscores an approach of 'starting from where you are' and innovating to the 'next adjacent possibility' – asking 'where next' rather than 'where to', thereby remaining open to revising direction in light of new information.

Curation becomes key. Tools become key. Structured environments – actual and virtual – become key. Communication becomes key. Work practices that allow innovation without stifling it become key.

- Vision is important to give direction, shape and form to strategies of "letting 1000 flowers bloom".
- The vision should be built bit-by-bit, which simultaneously demonstrates the art of the possible and allows for course corrections.

And of course – this is not easy. The deserted carcases of many a good idea can be seen littering the pathway of innovation – good ideas killed by either too much structure, or not enough. Successfully navigating this terrain involves an evolving balance, a pathway of refinement and constant attention. But it is – at the end – the only way that effective innovation happens.

Vision, structure and revisability

Mass General Hospital in 2012 initiated what it calls its 'Kitty Hawk' project – an attempt to imagine a vision of the future of patient-centric, technology-enabled, clinician-fulfilling healthcare. That vision involved a holographic, artificial intelligence interface that could interact with both clinician and patient, allowing genuine clinician-to-patient engagement, and utilising a range of data interface, natural language processing and machine-learning technologies that simply did not exist at the time. The project then attempted to build the various elements necessary to bring that vision to life – guiding the innovation process through a clear idea of vision, but revising it as technology changed, adapted and became available.

The result? One of the most impressively cohesive innovation initiatives that we encountered.

Lesson 6: Smoothing the stilted marriage of technology and process innovation

Improving healthcare occurs through evolving the processes that deliver care, yet the communities that drive those process changes are often unaware of the technologies that can be used to improve existing processes and models of care.

Nor has the technology community always provided the structures whereby process change communities can model change. But technology can be:

- a tool for diagnosis;
- a platform for – and accelerator of – innovation; and/or
- a solution.

But, by the same token, technology sometimes overplays its role. Contrary to some of the hype, technology alone is seldom an immediate fix to an entire innovation dilemma – behaviour matters and doesn't automatically change when technology does. At the end of the day – there is no such thing as a purely technical solution: every solution is socio-technical in nature - part technical, part human. Failing to recognise this risks making technology into a *barrier* to real innovation.

Even where technology *is* part of the solution, large-scale technology implementation need not always the first move. Low-tech (even cardboard) precursors and prototypes can help people to accept – and become excited by – change. Humans can do the work of technology until the technology is ready. The story can shift from one about technology to one about ingenuity.

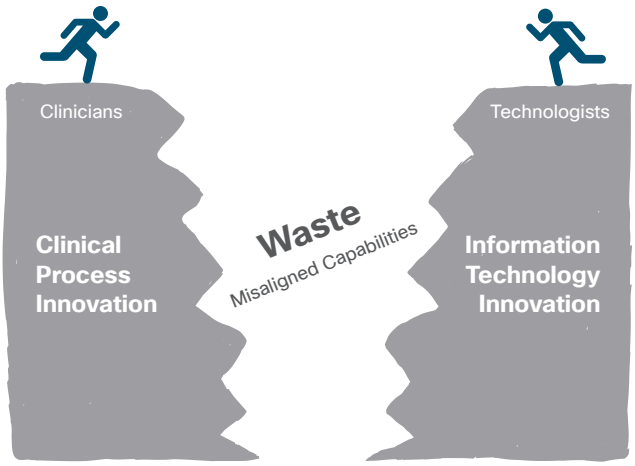
Most importantly of all, both technology and process innovation has tended to miss a beat: it is not about one *or* the other – it is about marshalling both of these towards the goal of healthcare improvement. Technology and process are both merely tools for innovation – the goal is healthcare improvement. We must all – technologists and process innovators alike – let it be our guiding polestar.

The case of the embedded technologist

The Sibley Memorial Hospital in Washington DC is home to one of the most visible and successful design innovation units in the United States – having been profiled by former-President Obama and invited to innovation events at the White House.

To accelerate this success in process innovation, it became clear to the unit that it needed to boost its interfaces with the world of technology. So they innovated themselves – and embedded a technologist in their team.

Doing so radically changed the unit's outlook – which now sought and could address the moments when process and technology could be forced into productive conversation. All in the aid of better healthcare.



We need to create a vision that will enable clinicians and technologists to bridge the innovation gap.

A conclusion? Or a commencement? Innovation and the real world

For all of the different buzzwords, definitions and approaches to innovation, the one thing we know for sure is that *real* innovation is about *action*.

It is about *new ideas* translated into *new action*; neither just ideas, nor just action. Too often the debate about innovation focuses myopically on one or another element. But at its heart it is about both.

Innovation – too – is often about technology. But not always. Sometimes, technology is the *medium* for innovation. Sometimes it is an *enabler* of innovation. And sometimes, technology can be the *problem* that innovation is trying to solve.

But innovation is *always* about action – about doing something – and therefore, always about *people*. Innovation is not about ideas in thin air, or about ingenious artefacts appearing from nowhere and sitting there to be admired. Innovation is about impact. About change. About people doing different things, sometimes *with* different things. But at its heart – beyond ideas and technology – innovation is about people.

In healthcare, we have always known (perhaps forgetfully) that we are in the people business. People taking care of people. People experiencing outcomes in terms of years lived, suffering avoided, moments shared with loved ones. This mission – the mission of people – is what drives so many of those who are attracted to healthcare: be they clinicians or carers, technology experts or policymakers.

But more and more, to meet that mission we can no longer easily rely upon the traditional strengths of our healthcare systems. Change weighs heavily upon us. Beyond mere slogan, innovation has become *the* imperative if we are to deliver on our collective healthcare mission.

To do this – those of us in healthcare will need to find new ways to work and to play together in our collective endeavour. We will need new tools and forums of collaboration. We must learn from friends and colleagues around the world who are also on this path.

We will need to come together to design new technologies and new processes, to bridge the gap between process/care innovation and tech innovation. We need to open up our dialogue to insights and expertise from outside the healthcare industry. Together with patients and carers, we need to reinvent healthcare, and to integrate and catalyse our activity for maximum impact.

But there is no fun – and no success to be had – in trying to do that alone.

And so, at the end, we are again forced to recognise that reinventing our healthcare is – at base – a collective task: one we will either achieve together, or not at all.

A Next Step

With recognition of the collective nature of healthcare innovation, the challenge is how to bring together what are often poorly linked communities, how do we inspire the conversations and the interactions that drive our future innovations?

The challenge is an intensely practical one. We need to create spaces, both real and virtual that will bring care provider communities together. We need those spaces to be better at describing and sharing ideas in ways that translate across the barriers of specialist domain knowledge, organisational hierarchy and culture. There are many ways to approach this, and Cisco is taking a practical approach of setting up a virtual domain for these discussions, as well as stewarding the creation of events that will get people together around key innovation topics in healthcare.

Go to www.agilehospital.org to become part of the discussion around driving innovation. The agile hospital site will also be the centre of conversation around webinars and study tours, all aimed at addressing the critical issue of creating productive discussion around healthcare innovation.