

Reimagining Healthcare: Siriraj Hospital's Digital Transformation Journey

Co-authored by Fong Wai & Saumya Bajaj; Edited by Shermaine Ong | 08 August 2025.

The Centre for Healthcare Innovation's (CHI's) 20th Masterclass spotlighted Siriraj Hospital's transformation into Thailand's first 5G smart hospital through a human-centered approach to digital innovation. Presented by Assoc Prof Cherdchai Nopmaneejumrulers, Vice President for Information Technology and Digital Transformation, Mahidol University; Assoc Prof Pitipol Choopong, Chairman of R2R Unit, Faculty of Medicine Siriraj Hospital and Dr Sichon Luerithiphong, Director of Centre for Value Driven Care, Faculty of Medicine Siriraj Hospital, the session demonstrated how organisation culture becomes the engine that powers sustainable digital transformation.

Building Innovation from Within

Siriraj Hospital's transformation journey begins with a simple yet powerful philosophy:

“*Viewing Problems as Gifts, rather than obstacles.*”

This shift in mindset forms the foundation of Siriraj's innovation culture, guided by the brief that **"Cleanliness is where the dirt is"** – a metaphor for how wisdom emerges from addressing routine challenges and transforming everyday problems into innovation opportunities.

Contrasting with top-down directives, Siriraj Hospital recognised that massive and lasting change require intrinsic motivation. Inspired by Mother Teresa's reminder that **"We can all do small things with great love"**, the hospital cultivated a culture where every staff member, regardless of role, could contribute to meaningful change. This ethos challenges self-limiting beliefs and empowers staff to see themselves as innovators.

To bring this vision to life, the hospital introduced practical mechanisms that aligns with Peter Senge's learning organisation framework. Staff were encouraged to pursue continuous skill improvement, supported by safe spaces for experimentation.

Platforms like MARVIS provide free AI models to 60,000 staff, creating sandboxes designed around the concept of **'fail fast but fail safe'**.



Siriraj Hospital leaders present Thailand's first 5G smart hospital transformation.

Such environments empower individuals to freely explore creative solutions to daily challenges without fear of failure.

Routine-to-Research: Innovation in Action

These cultural cornerstones paved the way for the Routine-to-Research (R2R) programme, a transformation programme that elevates everyday work into systematic inquiry. At its core,

“*R2R turns complaints, crises and workflow bottlenecks into structured improvement projects, with staff closest to the problem leading the solutioning.*”

Failure, within the programme, is not punished but reframed as a valuable learning opportunity that helps create psychological safety. Successes and setbacks alike are shared widely through learning platforms, ensuring that knowledge spreads across departments and the wider healthcare system.

To further support this process, facilitators from the R2R Unit are embedded within departments to provide coaching, while leadership provides funding for project trials. Assoc Prof Cherdchai highlighted that the R2R Unit bridges between leadership and ground-up teams, facilitating immediate problem solving whilst aligning with strategic priorities.

R2R's success is exemplified by an ophthalmology clinic nurse who discovered a combination drug to replace sequential administration – work that was subsequently published and since spread across Thailand. This demonstrates how frontline innovation can achieve meaningful clinical impact when properly supported.

Value Driven Care and Building Inclusive Innovation through Play

In the spirit of mutual learning and adaptation, Siriraj Hospital drew from CHI's Innovation Cycle to create its value-driven care model. The model combines design thinking to understand customer and staff needs, with LEAN methodologies to eliminate waste using disruptive technologies. The resulting framework prioritises value creation over technology implementation, delivering the "healthcare everywhere service" that particularly benefits Thailand's rural populations – a strategy that earned the hospital the Thailand LEAN Award 2022 – Diamond Level.

Siriraj's innovation culture-building extends to unconventional methods like LEGO® Serious Play®, championed by Dr Sichon Luerithiphong.

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In place of the traditional “20:80” meeting - where one person dominates the conversation, LEGO sessions create a “100:100” participation where everyone contributes meaningfully.

A live demonstration exercise called “What the Duck?” saw three volunteers build different versions of a duck using identical LEGO blocks, illustrating that multiple solutions exist for any given challenge. The message was clear - there is no single solution, and diverse perspective enrich problem-solving. This playful, hands-on method fosters inclusivity, particularly in multidisciplinary healthcare teams, by breaking down hierarchies and allowing ideas to be expressed visually and creatively.

Learning from R2R

R2R Unit's operating model offers valuable insights for CHI. Currently, CHI's Digital Innovation Offices (DIO) supports project owners from scoping to initiation, as demonstrated by projects funded under the Tan Tock Seng Hospital Digital Prototyping Budget where frontliners lead as project owners whilst receiving end-to-end navigation support. DIO also provides resources to enable NHG Health innovators to effect transformative change.

This includes organised learning opportunities such as HEAL Fridays and the Digital Innovation Studio (DIS), a sandbox environment that supports innovation projects through technical advisory services, access to Amazon Web Services (AWS) cloud services as well as structured pathway for deploying and scaling successful prototypes.

Building on these existing strengths, CHI could enhance its approaches by adopting Siriraj's strategy of embedding facilitators directly into NHG institutions and departments, with CHI@Campuses serving as the ideal vehicle for this embedded support model.



CHI collaborates with AWS to enable healthcare professionals across healthcare clusters to prototype and test solutions without extensive technical expertise.



There's no ugly duck - only different ducks

By Dr Sichon Luerithiphong

Successful Digital Transformation enabled by Culture

With a thriving innovation culture, Siriraj Hospital's technological achievements become more impactful. Its 5G smart hospital framework rests on three pillars:

- Clinical excellence and safety
- Operational and supply chain efficiency; and
- Enhanced patient and staff experience.

The hospital also fosters strong internal partnerships and leverages external partners to create a collaborative environment that accelerated technology adoption. A prime example is their mobile CT units, developed by the Siriraj Hospital Stroke Centre, which reduce disability more effectively than routine emergency services. Strategically positioned at petrol stations to overcome urban access limitations, this innovation demonstrates how technology serves human-centred care by enabling emergency CT scans with 5G transmission to doctors for immediate diagnosis. Such innovations succeeded because the hospital fostered a culture ready to embrace and continuously improve new technologies.

Conclusion

Siriraj Hospital's journey underscores a powerful truth: digital transformation in healthcare is not solely about adopting advanced technologies—it is about reimagining care through **culture**, **collaboration**, and **continuous learning**.

Through initiatives like Routine-to-Research (R2R) and LEGO Serious Play, the hospital has cultivated an environment where staff feel empowered to question, experiment, and co-create solutions. This culture of psychological safety ensures that innovation is not confined to leadership but thrives at every level of the organisation.

Central to this transformation lies in the principle of continuous **learning, unlearning and relearning**, illustrated by A/Prof Cherdchai's egg metaphor:

“*staff who continuously adapt from within become new life (a chick), whilst those who remain stagnant risk being shaped by external forces and becoming breakfast (an omelette).*”



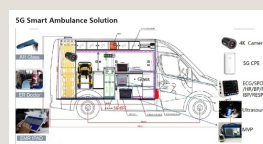
Under the 3 pillars, Siriraj has rolled out initiatives such as:



Blockchain-enabled health data management: allowing secure smartphone access for patients



Advanced telemedicine clinic: operating with minimal staff



Smart Emergency Medical Services featuring AI-equipped paramedics with real-time doctor consultation



Mobile CT scan units that reduce stroke-related disability, even when deployed at unconventional sites like petrol stations.

Other Siriraj's AI applications include: AI-powered staff scheduling systems, predictive AI inventory management as well as other AI applications routinely used in clinical domains such as pathology, radiology, and ophthalmology

For healthcare systems worldwide, Siriraj Hospital's experience has showed us that digital transformation succeeds through four cultural paradigms:

- Problems as opportunities to unlock wisdom;
- Staff own the problem they are solving;
- Fostering creativity through safe spaces for ideation, and even play; as well as
- Reframing failures as learning opportunities.

Ultimately, Siriraj Hospital proves that sophisticated digital transformation initiatives succeeded by investing in people and technology. True progress comes through empowering humans to reimagine possibilities within a supportive ecosystem. When human ingenuity is nurtured this way, healthcare can move beyond incremental improvement to achieve transformation—delivering smarter, safer, and more compassionate care for all.



Email: chi@nhghealth.com.sg