

When Innovation Meets Reality

Advancing Adoption of MedTech Devices

Moderator

Shivram Rajagopalan — CEO & Principal Consultant, Shiva Consultants LLP, Singapore. 30+ years in medical technology; former Asia Pacific Business Manager at HP and Philips Medical; Managing Director of Laerdal Medical South Asia; mentor for health-tech startups across India, Asia, and Europe.

Panelists

1. **Prof Yoshiro Okazaki:** Associate Professor, Waseda University, Tokyo; Adjunct Professor, VIT Chennai. Research focuses on affordable healthcare technologies for resource-limited environments (ophthalmology, endoscopy); formerly led R&D at Fujifilm and Olympus; PhD from the University of Tokyo.
2. **Dilpreet Singh:** Founder & CEO, Juvoxa; Partner & JAPAC Head, Consulting Services, Singapore. Digital health innovator with deep expertise in Asia-Pacific healthcare technology markets; specialist in health-tech venture development and regional market strategy for digital health platforms.
3. **Dr Shirshendu Mukherjee:** Managing Director, Wadhvani Foundation. Leads the Wadhvani Innovation Network; former Mission Director of Grand Challenges India; led Mission COVID Suraksha, enabling four indigenous vaccines; PhD in Microbiology and law degree.

1 PANEL OVERVIEW

Panel 4 examined the critical gap between medical technology innovation and real-world adoption, particularly in resource-constrained and operationally complex health systems. The discussion brought together experts from academia, health system implementation, industry, and innovation funding ecosystems to reflect on why many promising technologies fail to achieve sustained use beyond successful pilot phases.

A key highlight of the session was the signing of a Memorandum of Understanding (MoU) between iKure Techsoft and Izawa Co. Limited, Tokyo, for the field validation and deployment of the METORI-X smartphone-compatible ophthalmic diagnostic device. This collaboration marked a shift from theoretical discourse on innovation to a practical partnership focused on real-world validation and scalable deployment.

The panel emphasised the need to reframe innovation success metrics — shifting from a focus on technological invention and clinical validation to real-world integration, usability, and sustained system impact.

2 CONTEXT AND KEY ISSUES

Medical technology innovation has accelerated significantly in recent years, driven by advances in digital health, imaging technologies, portable diagnostics, and preventive healthcare solutions. However, health systems — particularly those in low- and middle-income countries — continue to face significant challenges in integrating these innovations into routine service delivery.

A central issue discussed was the persistent disconnect between innovation environments and real-world healthcare settings. Devices designed in laboratories or tertiary hospitals often fail to account for the realities of frontline care: limited infrastructure, time constraints, workforce shortages, and fragmented referral systems.

The introduction of METORI-X was situated within this broader context. Developed over nearly a decade, the device addresses practical challenges faced by ophthalmologists — particularly when examining elderly patients and children using conventional slit-lamp equipment — and represents an approach to technology design grounded in real clinical need. By attaching a smartphone and using built-in optical lenses and LED illumination, METORI-X enables observation of up to 70% of the anterior segment of the eye, supporting detection of conditions such as cataracts and corneal injuries.

Expanding access to basic eye diagnostics at primary care and community levels remains a significant unmet need. Portable and affordable innovations such as METORI-X can bridge this gap — provided they are supported by appropriate deployment strategies and system integration mechanisms.

3 INSIGHTS FROM THE DISCUSSION

Real-World Validation and Living Lab Approaches

Panelists emphasised that controlled trials and pilot projects often demonstrate that a device functions technically, but do not adequately test how the innovation interacts with real healthcare systems. To address this gap, the panel underscored the importance of establishing Living Labs — real-world implementation platforms where innovations can be tested, refined, and scaled within functioning healthcare environments.

The planned deployment of METORI-X through such real-world settings reflects this approach. By enabling frontline providers to capture high-quality eye images using mobile phones, the device supports early screening in both clinical and community contexts. This creates opportunities to generate evidence on operational feasibility, effectiveness, and scalability.

Workflow Integration and Human-Centred Design

A critical insight from the panel was that healthcare professionals are among the most overburdened workers globally. Technologies that introduce additional steps, require extensive training, or demand significant behavioural change frequently encounter resistance — even when clinically beneficial.

METORI-X illustrates the value of incremental, human-centred innovation: it builds on the widespread availability of smartphones and minimises the need for specialised training. Such design principles improve acceptance among frontline workers and support integration into routine screening workflows.

Incentive Alignment and Procurement Dynamics

The panel highlighted structural challenges in health technology adoption, including the misalignment between device purchasers and end users. Hospitals or health programmes may procure technologies that clinicians find difficult to use or of limited practical value. Sustainable adoption therefore requires early engagement with multiple stakeholders — including providers, administrators, funders, and patients — to ensure that innovations address real needs and offer clear advantages over existing solutions.

Preventive Diagnostics and Decentralised Care

Preventive healthcare was identified as a critical domain in which MedTech innovation can generate long-term value. By enabling early detection and timely referral, portable diagnostic devices can reduce disease burden and lower healthcare costs. Smartphone-enabled tools such as METORI-X illustrate how decentralised diagnostic models can strengthen primary healthcare systems and expand access to specialist services in underserved regions.

4 CHALLENGES IDENTIFIED

Despite strong technological potential, the panel identified several structural barriers that impede the adoption and scaling of MedTech devices.

- **Workflow and system integration:** Innovations often struggle to integrate with existing clinical workflows and health information systems, resulting in inefficiencies or duplication of effort.
- **Training and operational complexity:** High training demands can limit sustained use, particularly in settings with significant workforce turnover or constrained technical capacity.

- **Procurement misalignment:** Procurement processes frequently prioritise regulatory approval and technical specifications over usability and contextual fit, leading to device underutilisation after purchase.
- **Logistics and maintenance:** Challenges around maintenance support, spare parts availability, and data management can undermine long-term device functionality.

For even promising solutions such as METORI-X, successful deployment will depend on demonstrating value across diverse healthcare settings — including public and private systems, urban and rural environments, and different levels of care. Establishing robust referral pathways and supervision mechanisms will also be essential to ensure quality and continuity of care following screening.

5 OPPORTUNITIES AND PROPOSED SOLUTIONS

The panel identified several opportunities to strengthen MedTech adoption pathways and maximise real-world impact.

Living Lab models: Establishing real-world validation platforms was identified as a key strategy for generating implementation evidence and supporting iterative refinement. Such platforms enable testing across multiple contexts, allowing innovators to understand system constraints and adapt their technologies accordingly.

Multidisciplinary collaboration: Effective innovation teams must integrate expertise spanning clinical medicine, engineering, regulatory affairs, public health, and business strategy. Mentorship networks and innovation ecosystems can guide developers through complex processes such as regulatory approval, commercialisation, and procurement.

Digital health infrastructure: High smartphone penetration across many regions creates a foundation for mobile-enabled diagnostic solutions, supporting decentralised care delivery and improved health data integration. METORI-X exemplifies how leveraging existing digital tools can enhance accessibility and reduce costs.

Policy and financing frameworks: Strengthening policy environments to prioritise scalable, user-friendly technologies can accelerate adoption. Public-private partnerships and milestone-based funding mechanisms can sustain innovation pathways and reduce the risks associated with early deployment.

6 KEY TAKEAWAYS

- Technological effectiveness alone does not guarantee adoption; system compatibility and usability are equally decisive.
- Real-world validation through Living Labs is essential for understanding scalability and system fit.
- Portable diagnostic technologies such as METORI-X can significantly expand access to essential health services, particularly at community level.
- Stakeholder alignment — spanning clinicians, funders, administrators, and patients — is critical for sustained adoption.
- Preventive diagnostics and early screening offer substantial potential to reduce long-term disease burden and healthcare costs.
- Innovation success metrics must evolve from proof-of-concept achievements to integration into routine healthcare delivery.

7 IMPLICATIONS FOR FUTURE HEALTH SYSTEMS

The insights from Panel 4 underscore the need for health systems to become active partners in innovation development and deployment. Future health systems must prioritise infrastructure that supports the testing, learning, and scaling of new technologies in real service environments.

Mobile-enabled diagnostic devices such as METORI-X demonstrate how decentralisation of healthcare services can be achieved by empowering frontline providers with accessible tools. This strengthens referral networks, improves early disease detection, and enhances continuity of care.

Policy frameworks should prioritise the institutionalisation of real-world validation platforms, the reform of procurement pathways, and the promotion of cross-sector collaboration. Sustained investment in preventive healthcare technologies and community-based service delivery models will be essential to achieving equitable health outcomes and advancing universal health coverage.

“By shifting the narrative from innovation as invention to innovation as integration, health systems can ensure that emerging technologies translate into meaningful improvements in population health and healthcare accessibility.”

— Panel 4 Closing Statement — Workshop Proceedings