# FutureBridge

# INNOVATIONS and OPPORTUNITIES

**Unleashing The Potential Of** 

## MINIMALLY INVASIVE SURGERY (MIS)

## **MIS Devices Market – Changing Dynamics**



~7.8%

CAGR

Industry majors are adopting digitalization and introducing smart solutions enabling better operational capabilities, post-surgery feedbacks, Al/ML based devices, etc.

## Influx Of Exponential Technologies – The Digital Era

R	Imaging Technologies	Extremely helpful in identifying anomalies, wherein AI assisted identification of the problems at surgical sites simplifies procedures or eliminates the need for surgery in first place
	Pohot assisted	Surgical robots represent the next frontier for optimizing Al; can support
<u>n</u>	Surgeries	new trends, reducing cognitive and physical stress, and refining surgical care
	Surgery	Innovative surgical devices to perform surgery efficiently with enhanced attributes like steerability, better articulability, multifunctional tools, use of
	Devices	3d printing etc.
	Learning Tools	Virtual reality-based training modalities, use of simulators, ML based algorithms and models, etc. are supporting surgeons and practitioners in improving surgical outcomes and accuracy

Exploring Potential Opportunities – How to be a Market Leader?

> "As a practicing surgeon for over 25 years, the goal of improving patient outcomes drives w hat I do in the operating room (OR)" – *CMO*, *Intuitive*

Offer wide range of applications: using minimally invasive surgery (MIS) to treat multi-indications

Research studies are highlighting MIS based thoracic surgery, cardiac surgery, oncology related surgeries, and others Focus on improved patient outcomes and benefits for Healthcare Professionals

Widening horizons for payment-models

Different payment models represent different strategies for identifying and delivering quality care

## Value Proposition – Where to Focus?

#### FOR PATIENTS



- Painless scar-free surgeries
- Reduced post-operative complications
- Shorter hospital stay

#### FOR HOSPITALS



- Compatible and transportable robots
- Quick setup of robotic surgical devices
- Affordable costs

#### FOR SURGEON



- Reduced strain and fatigue
- Better view of surgical sites
- Faster learning curve

#### FOR COMMUNITY



- Reusable devices to reduce surgical waste
- Reduced use of antibiotics

## Future of Minimally Invasive Surgery

**Multi-Sensing Tools** 



#### Self-folding Tools



**Attachment Devices** 



A tastila sensing prob

Tiny preprogrammed

ndividual component

Attachable/detachable devices with the scope helps to perform additional functions simultaneously

A tactile sensing probe for identification and visualization of tissue abnormalities robots injectable into the body to autonomously perform a task integrated with magnets; self assembled into a pre-determined shape

## **Niche Applications Being Explored**

**Shurui's** single hole robots in **gynecology** have helped in minimizing surgical incisions, maximizing organ protection and reducing the w ork-load of doctors.

## SHURUI

**Versius®,** a small, modular surgical robot pow ered by a digitally native ecosystem. Built for precision, dexterity, and versatility

Steerable Punch is steerable, detachable and fully cleanable arthroscopic cutter for use in minimally invasive based knee surgery.



A specialized **catheter device** that can repair **holes** in the **heart**, or tissue defects in other organs, using deployable soft structures.





## Conclusion

- Tech Convergence in MIS: A Transformative Era imminent convergence of computation, storage, and connectivity technologies is revolutionizing the Minimally Invasive Surgery (MIS) by reducing open surgeries and minimizing harm.
- AI and Mixed Realities: Shaping Future Surgical Practices AI and mixed realities are increasingly integrated throughout the surgical value chain by offering multiple benefits in accessibility, accuracy, efficiency, clinical outcomes, etc.

### About FutureBridge

FutureBridge tracks and advises on the future of industries from a 1-to-25 year perspective.

We keep you ahead on the technology curve, propel your growth, identify new opportunities, markets and business models, answer your unknowns, and facilitate best-fit solutions and partnerships using our platforms, programs, and access to global ecosystems and players.

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