

# FRUGAL INNOVATION:

A wise approach to delivering  
better care at lower cost

**Dr. VISHAL RAO**  
(Oncologist by day.  
MacGyver by night!)

newslaundry.com



**Artificial  
Voice Box**

Photo: newslaundry

**« SPEECH IS A RIGHT, NOT A PRIVILEGE »**

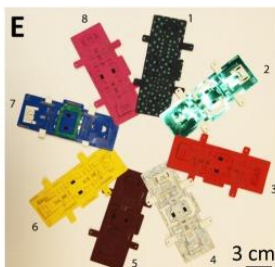
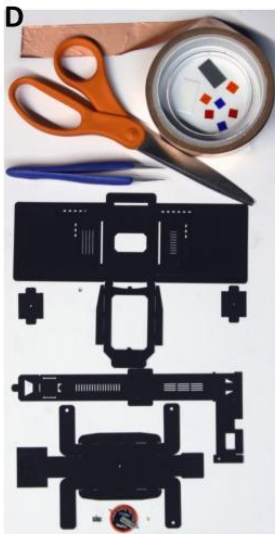
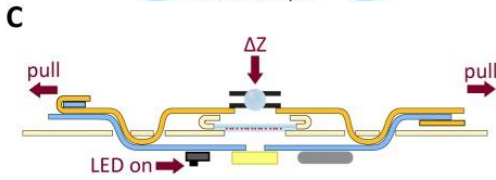
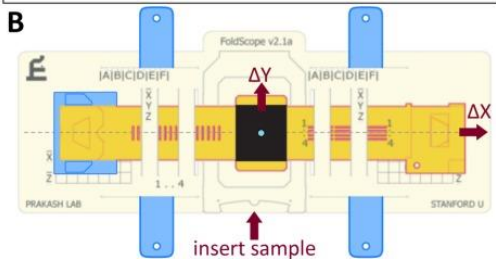
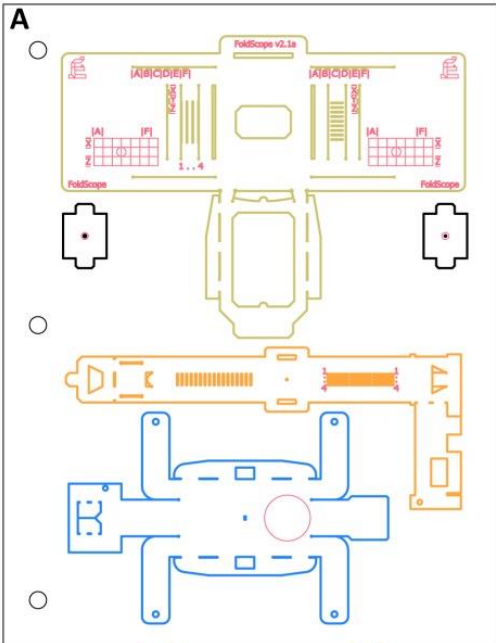


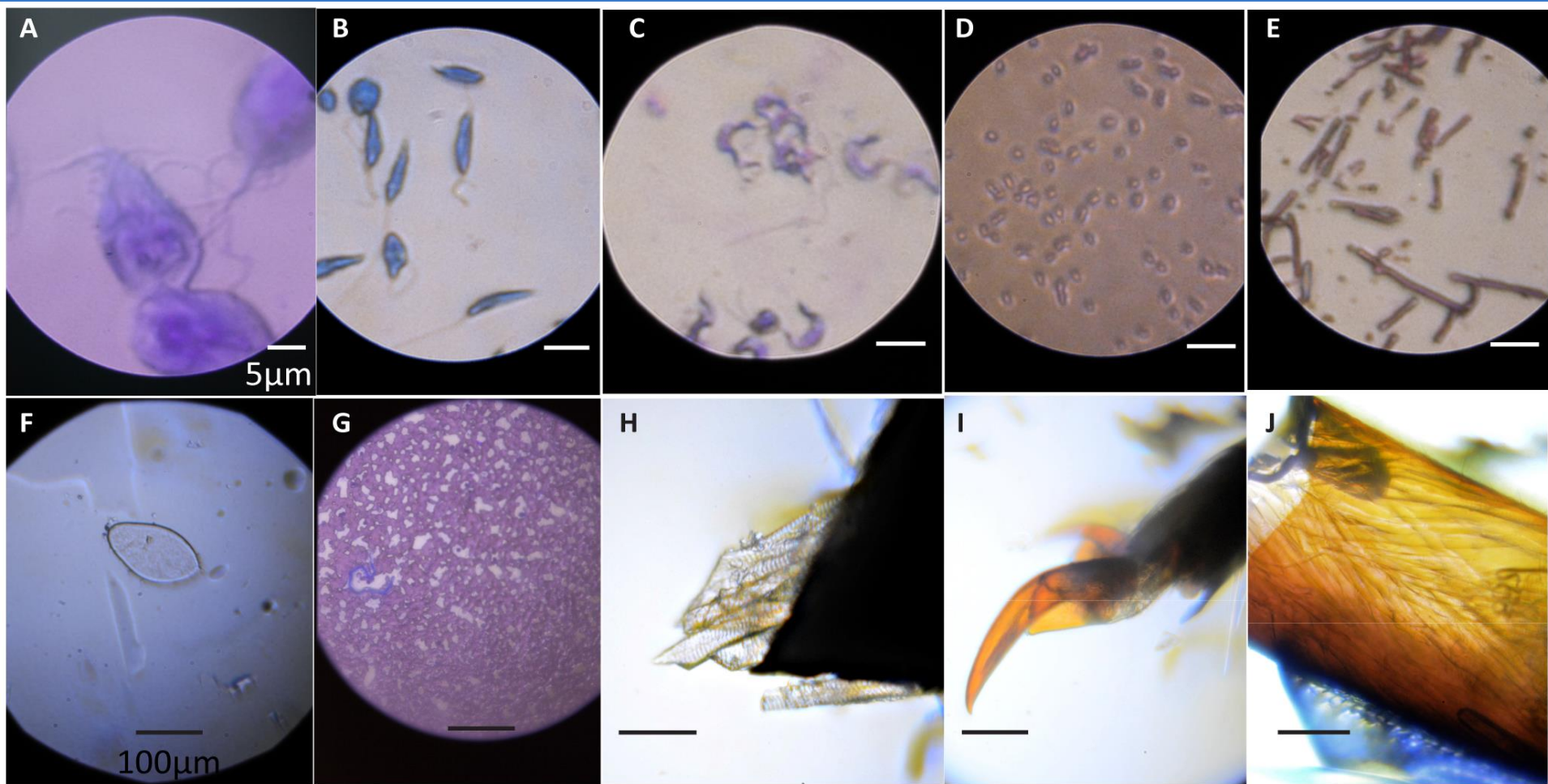
microscope (Foldscope)



Prof Manu Prakash  
(Stanford University)





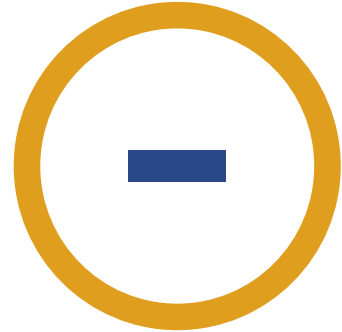


# Frugal innovation

 **VALUE(S)**



 **RESOURCES**



# Frugal innovation

↑ **VALUE(S)**

- Economic
- Social
- Environmental

↓ **RESOURCES**

- Capital
- Energy
- Time



# Frugal innovation in **healthcare**

↑ **CARE**

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↓ **RESOURCES**





# Frugal innovation in **healthcare**

↑ **CARE**

10x

↓ **RESOURCES**

10x



Frugal innovation = **DISRUPTIVE** innovation

↑ **CARE**

100x

↓ **RESOURCES**

100x



**\$20,000**





**Jane Chen**



**\$200**





+ 250,000 babies saved !



Photo: EMBRACE

Frugal innovation = **WISE** innovation

↑ **JOY**

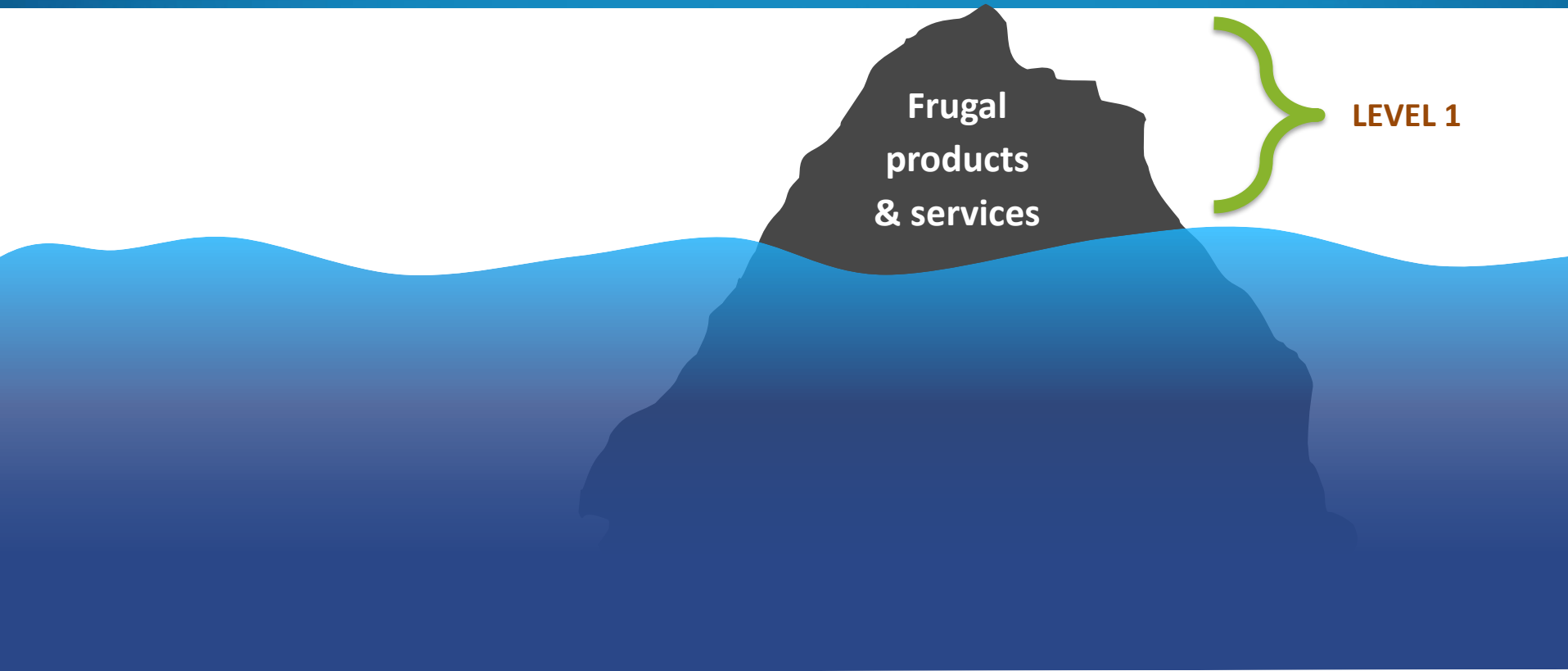
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↓ **SUFFERING**



**HOW CAN YOU ADOPT  
FRUGAL INNOVATION?**

# The 3 levels of frugal innovation



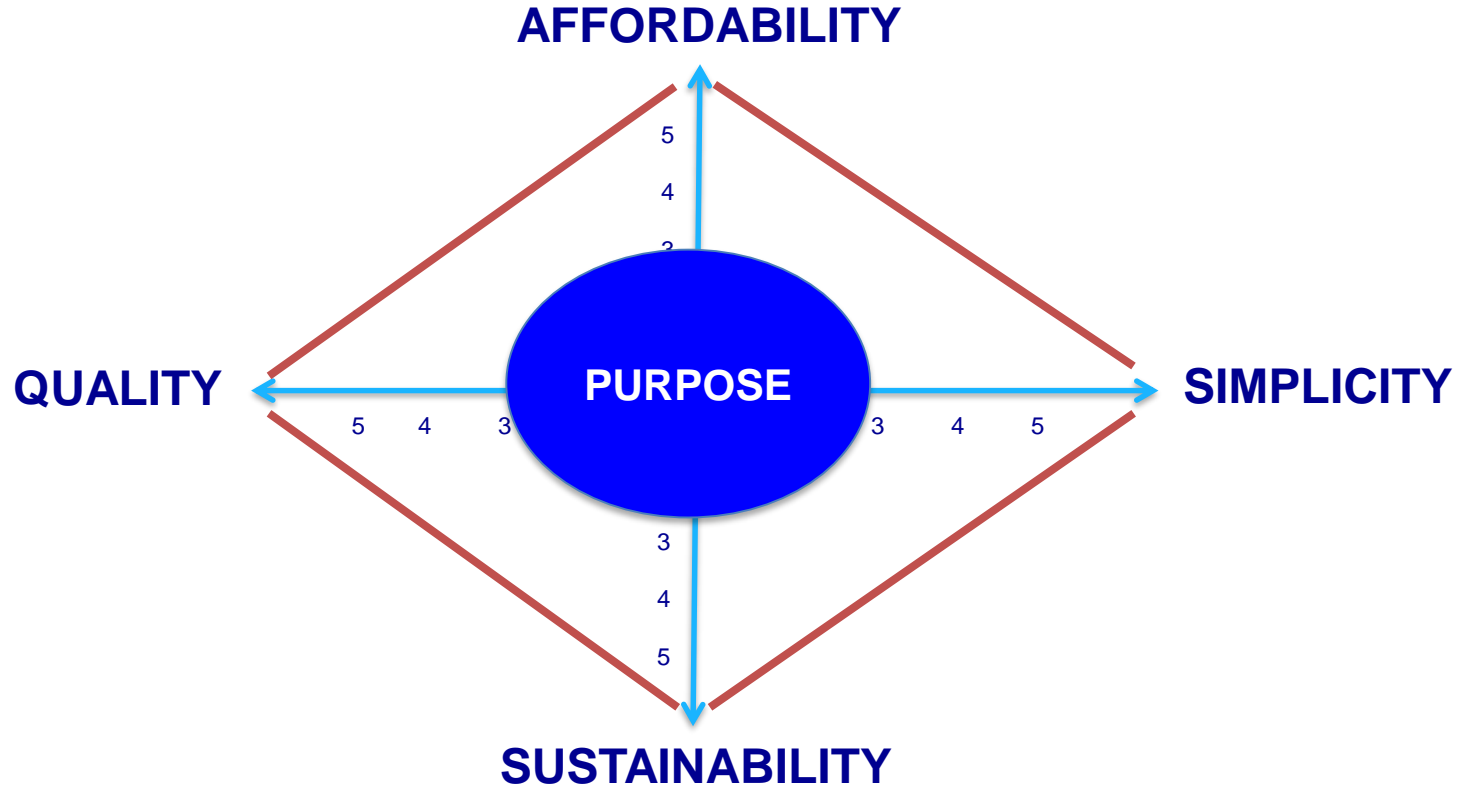


# Frugal products

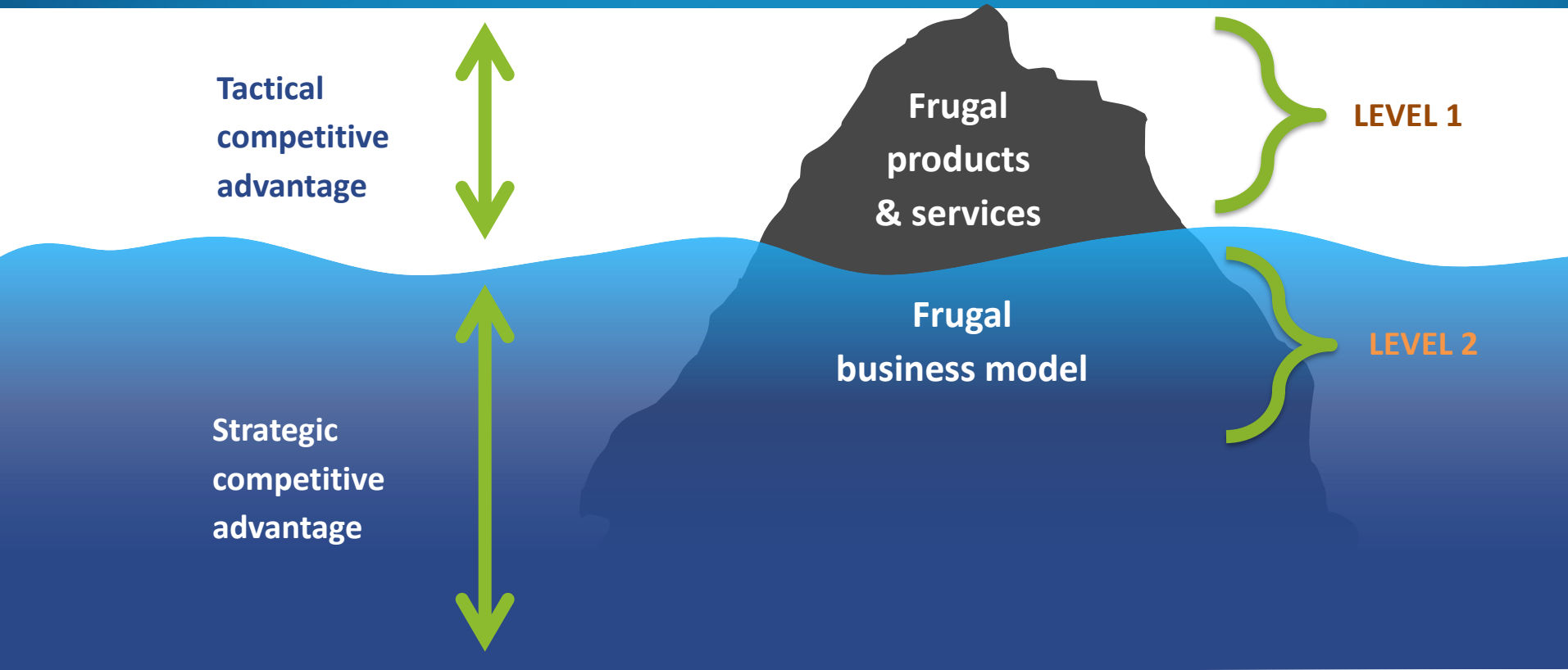




# Frugal products must embody **5 key attributes**



# The 3 levels of frugal innovation



# Frugal business model: **GE Healthcare**



**MAC 400**



**MAC i**



# Frugal business model: **GE Healthcare**



**VSCAN**



Photos: GE Healthcare

# GE Sustainable Healthcare Solutions (SHS)



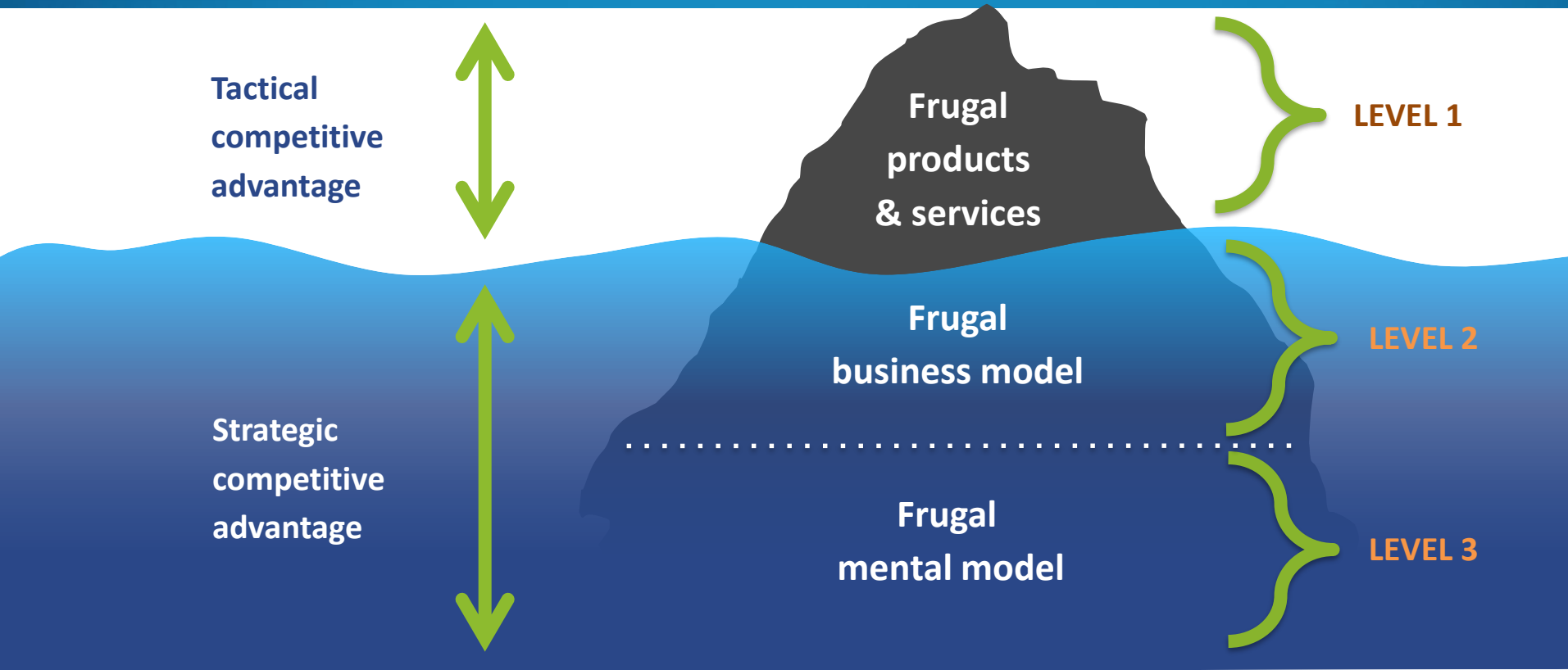
**Terri Bresenham**  
Chief Innovation Officer  
GE Healthcare

- **Mission:** Affordable solutions for 5.8 billion people without healthcare access
- **Strategy:** Build ecosystems with governments, clinicians, startups, NGOs





# The 3 levels of frugal innovation



**£2**

**billion**

**Cost of heart  
failure per year  
(NHS)**

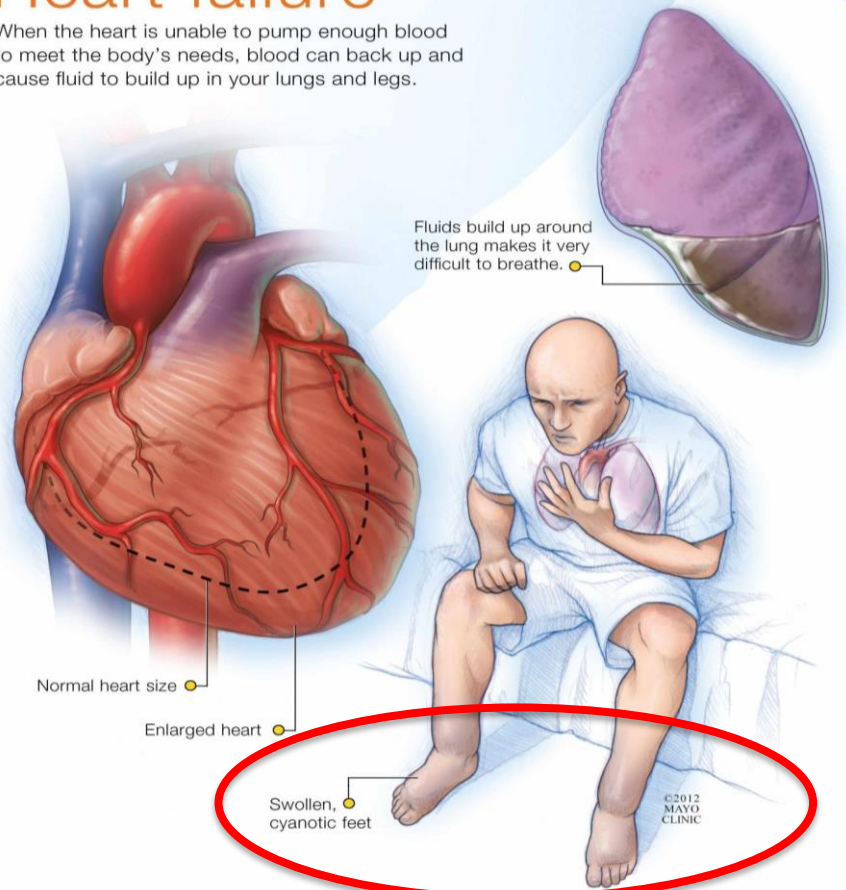
**75%**

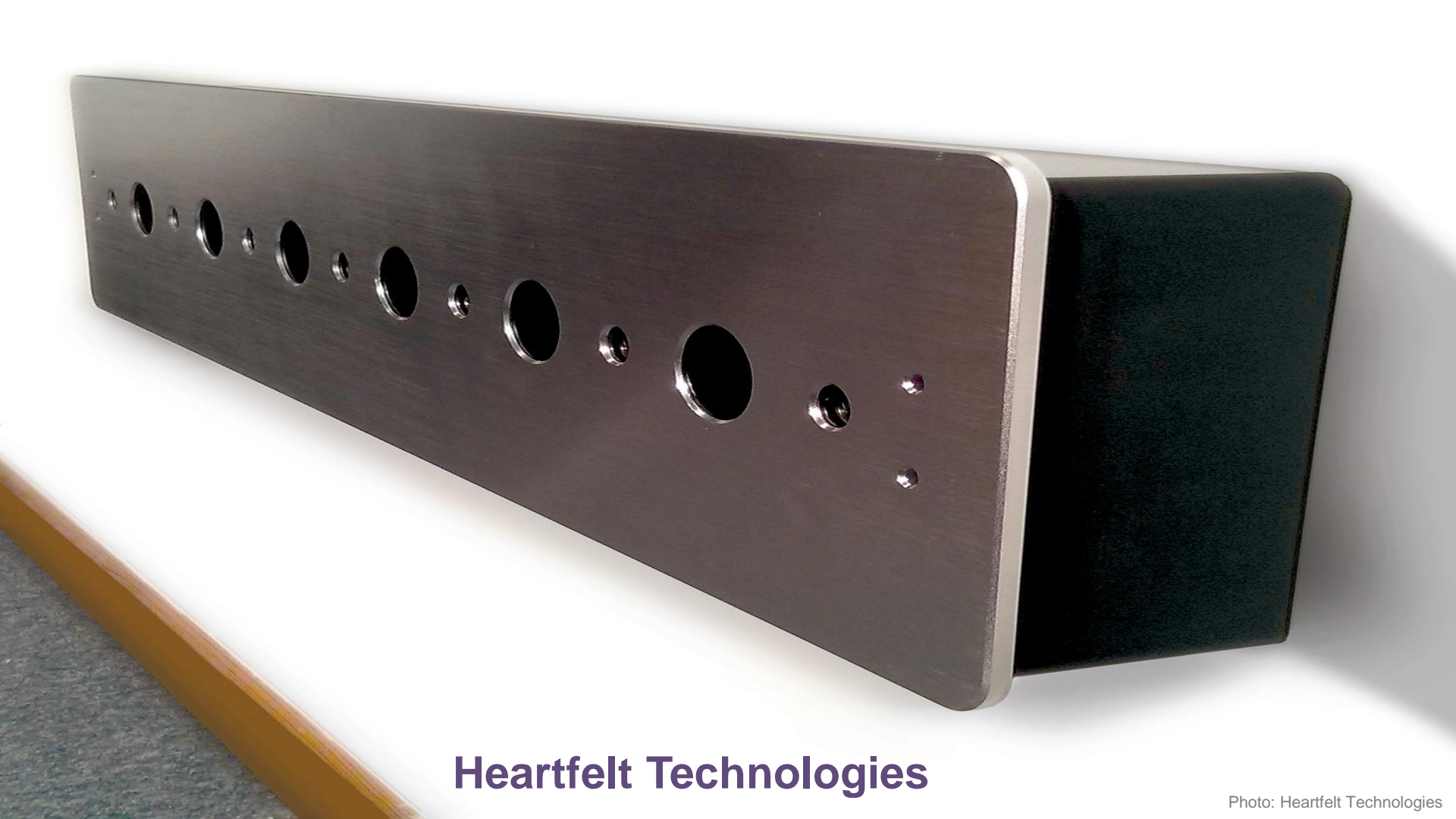
**Avoidable  
repeat  
emergency  
admissions**

# Frugal mindset #1: Prevention is better than cure

## Heart failure

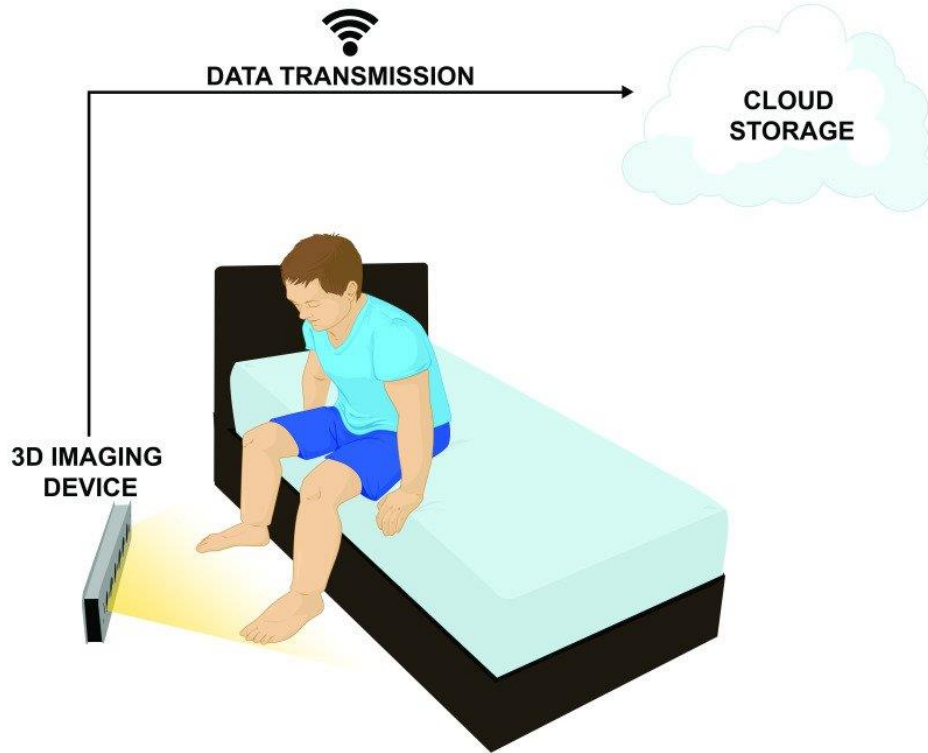
When the heart is unable to pump enough blood to meet the body's needs, blood can back up and cause fluid to build up in your lungs and legs.



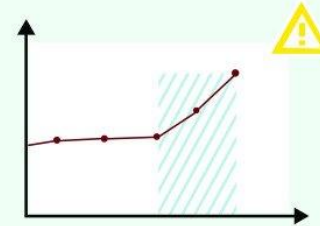


**Heartfelt Technologies**

Photo: Heartfelt Technologies



## DATA ANALYSIS



**Responder  
(nurse or clinician)  
call/visit in order to  
change medication.**

**Edema expected to reduce  
within 48 hours**



## Frugal mindset #2: Do not reinvent the wheel. Reuse existing knowledge & technologies



# Frugal mindset #2: Do not reinvent the wheel. Reuse existing knowledge & technologies

**\$35**



**\$5**



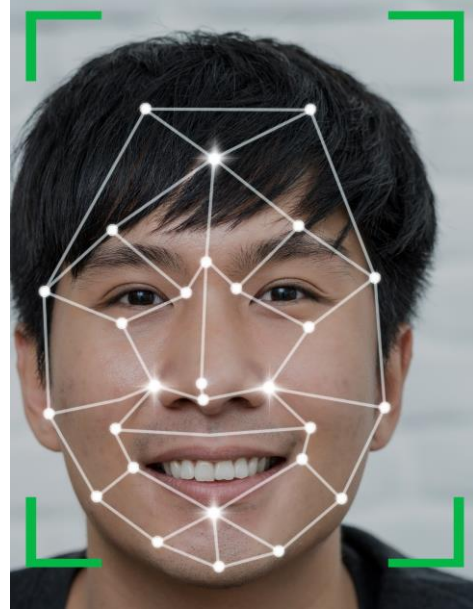
**Raspberry Pi**



# Frugal mindset #2: Do not reinvent the wheel. Reuse existing knowledge & technologies



=



**FEET RECOGNITION**

**FACE RECOGNITION**



# Frugal mindset #2: Do not reinvent the wheel. Reuse existing knowledge & technologies



## **Study on frugal innovation and reengineering of traditional techniques**







**HELIX Studio at St Mary's Hospital, London**

Photo: Helix Centre

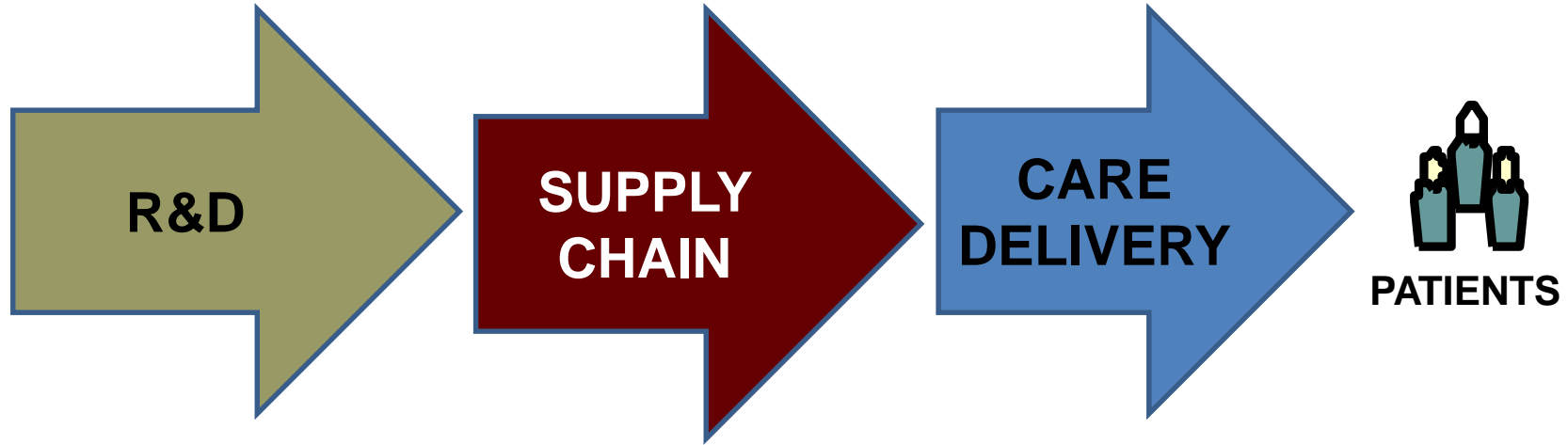




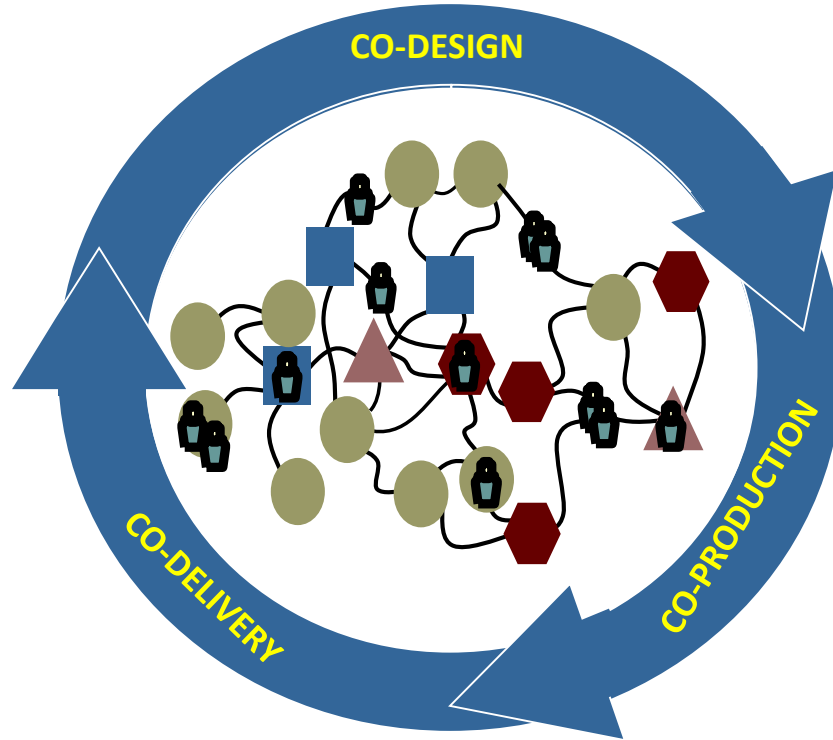
Photo: Helix Centre



# Frugal mindset #3: Don't innovate *alone*. Co-create solutions with all value chain partners



# Frugal mindset #3: Don't innovate *alone*. Co-create solutions with all value chain partners



# SUMMARY

# Frugal Innovation:

Doing (much) better with (much) less

↑ CARE

100x

↓ RESOURCES

100x



# The 3 levels of frugal innovation

