unlocking the potential of ultrasound
50 million

medical professionals in the world*

*includes Doctors, GPs, midwives, nurses
but less than 2% the skill to use ultrasound
Ultrasound is a vital medical diagnostic tool

It’s one of the **safest**, **fastest** and **cheapest** diagnostic tools in medicine and is reducing rapidly in both size and cost …
Used across the majority of medical specialities

<table>
<thead>
<tr>
<th>Speciality</th>
<th>Image</th>
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<tbody>
<tr>
<td>Lung</td>
<td>![Lung Image]</td>
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<tr>
<td>Abdomen</td>
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<td>MSK</td>
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<td>Breast</td>
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<td>DVT</td>
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<td>Obstetrics</td>
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<td>Heart</td>
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<td>Zika virus</td>
<td>![Zika virus Image]</td>
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<tr>
<td>Small parts</td>
<td>![Small parts Image]</td>
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<tr>
<td>Breast</td>
<td>![Breast Image]</td>
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</tbody>
</table>
Ultrasound remains difficult to learn

1. Sliding
2. Rocking
3. Tilting
4. Rotation

2D to 3D image awareness
Hand to eye co-ordination
Anatomical knowledge
Pattern recognition of normal/abnormal
Understanding of scanning protocols
This is why ultrasound remains a specialist skill

Our range of products aims to unlock this
Intelligent Ultrasound

Future Clinical training and assessment

First contact support and assessment

On-going quality guidance

100% performance audit

ENABLING

ULTRASOUND SCANNING FOR ALL

with artificial intelligence based automated scanning software for key scanning procedures

Medaphor

Training

Ultrasound specialists

with high-fidelity haptic and manikin-based training simulators

SUPPORTING

Ultrasound specialists

with deep learning image analysis software and augmented reality guidance tools

TRAINING

Clinical Scan NAV

NeedleGuide

Scan NAV

*Conceptualised image. Not actual product

Pre-clinical and Clinical Training and Assessment

Clinical training

Assessment and certification

On-going quality guidance

100% performance audit

scanning by unskilled practitioners

Scan NAV

Scan NAV

Scan NAV

Scan NAV

Scan NAV

Scan NAV

Scan NAV
The gold standard in ultrasound training simulators:

- **SCANTRAINER®**
  - General medical and OBGYN simulator aimed at medical schools and hospitals globally

- **HEARTWORKS®**
  - Echocardiography simulator range aimed at teaching cardiology and anaesthesiology schools

- **BODYWORKS | Eve**
  - New hybrid version of ScanTrainer and HeartWorks aimed at the Emergency market

Launching 2018
SUPPORT, GUIDANCE AND AUDIT WITH AI
Intelligent Ultrasound deep learning based image analysis reviewed and graded 380,000 obstetric images
Automated image analysis – 20 week

ScanNAV

HeadTV
HeadTC
Femur
Face
Spine (4 part)
Abdomen
Four Chamber
Intelligent Ultrasound

Safety
Guidance and safety net in early stages of scanning career

Efficiency
Faster acquisition of key protocol images, correct image every time

Effectiveness
Raises standards of individuals and departments

Cost saving
Identifies poor performers and increases chargeable scanning hours
ScanNAV™
Potential to deliver automated scanning for all medics

*Conceptualised images only. Not actual product
NEEDLE GUIDANCE WITH AUGMENTED REALITY
Augmented reality ultrasound needle guidance

- Augmented Reality based needling assistant
  - Working POC device
  - Patent filed
  - C. £500k Innovate UK grant won
- Expected benefits
  - Reduces procedure time
  - Requires less operator training
  - Reduces failure rates
MedaPhor development pathway

Intelligent Ultrasound Simulation and Training

Pre-clinical training | Clinical training | Assessment and certification

Intelligent Ultrasound Clinical Support

Performance Audit | Diagnostic imaging | Ultrasound guided intervention

Automated Scanning

SIMULATION

SCANTRAINER® | HEARTWORKS® | BODY WORKS®|Eve

DEEP LEARNING

Real-time quality audit software | Automated image analysis and real-time quality guidance

AUGMENTED REALITY

Ultrasound needle guidance

ARTIFICIAL INTELLIGENCE

Automated diagnostic triaging device

*Conceptualised image only. Not actual product
Intelligent Ultrasound

SIMULATION BASED training

ARTIFICIAL INTELLIGENCE image analysis

AUGMENTED REALITY guidance

can unlock the potential of ultrasound for all medical professionals
unlocking the potential of ultrasound