Medical Technologies Innovation Facility
MTIF

D2N2
Derby
Derbyshire
Nottingham
Nottinghamshire

MIDLANDS ENGINE
HM Government

MTIF
The Purpose

MTIF's MISSION is to improve the quality of patient care by helping organizations to accelerate the development and commercial availability of innovative medical technologies and devices.

STRATEGIC PARTNERSHIP of stakeholders delivering complementary elements to help take your innovative Medical Technology from "***bench to bedside***"

NTU

MEDILINK

CHEATA

Derby Teaching Hospitals NHS
NHS Foundation Trust

BIOCITY
GROUP

East Midlands
Academic Health
Science Network
Igniting Innovation

Nottingham
University Hospital
NHS Trust

MTIF
Objectives

To help organisations grow and accelerate product development activities in medical technologies and medical devices

Key Drivers	Key Assets
Collaboration & Community	Workshops & Laboratories
Transparency & Showcasing	Offices
Professional image & environment	Collaboration Space
Flexibility	Expert Research Staff

MTIF
Concept

R&D Centre TRL 1-2	Construction and equipping of a multi-disciplinary research and innovation facility at the NTU Clifton Campus
Translation Centre TRL 3-6	Construction and equipping of a technology translation centre with clean rooms and Medical Technologies development laboratories on the Nottingham Boots Enterprise Zone
Strategic partners for commercialisation	Collaborating with NHS teaching hospitals trusts; MediLink, Cheata, Boots, Biocity Group Ltd, EMAHSN as strategic partners to deliver complete product development and commercializAtion support

MTIF
What do we offer?

A multi-partner integrated dual site medical devices research and development facility

NTU Clifton

Fundamental Research (TRL 1-2)

Laboratories and equipment available to industry

Business support team office

Communal hot desk working space and open innovation area

Single and double offices

Enterprise Zone

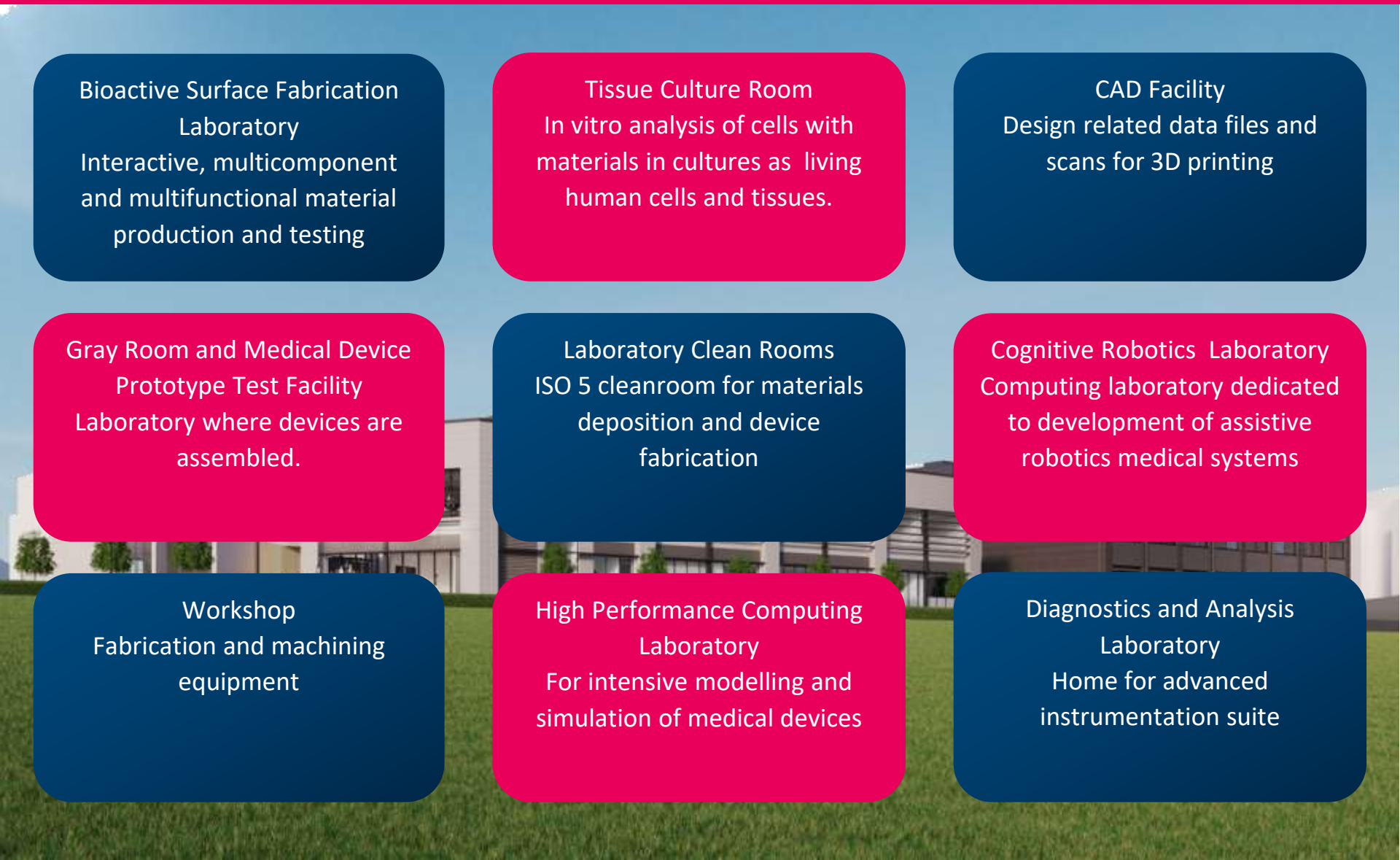
Commercialisation (TRL 3-6)

Laboratories and clean rooms (Class 10,000) available for rent

Communal hot desk working space and open innovation area

MTIF

What's inside - Clifton



Bioactive Surface Fabrication Laboratory
Interactive, multicomponent and multifunctional material production and testing

Tissue Culture Room
In vitro analysis of cells with materials in cultures as living human cells and tissues.

CAD Facility
Design related data files and scans for 3D printing

Gray Room and Medical Device Prototype Test Facility
Laboratory where devices are assembled.

Laboratory Clean Rooms
ISO 5 cleanroom for materials deposition and device fabrication

Cognitive Robotics Laboratory
Computing laboratory dedicated to development of assistive robotics medical systems

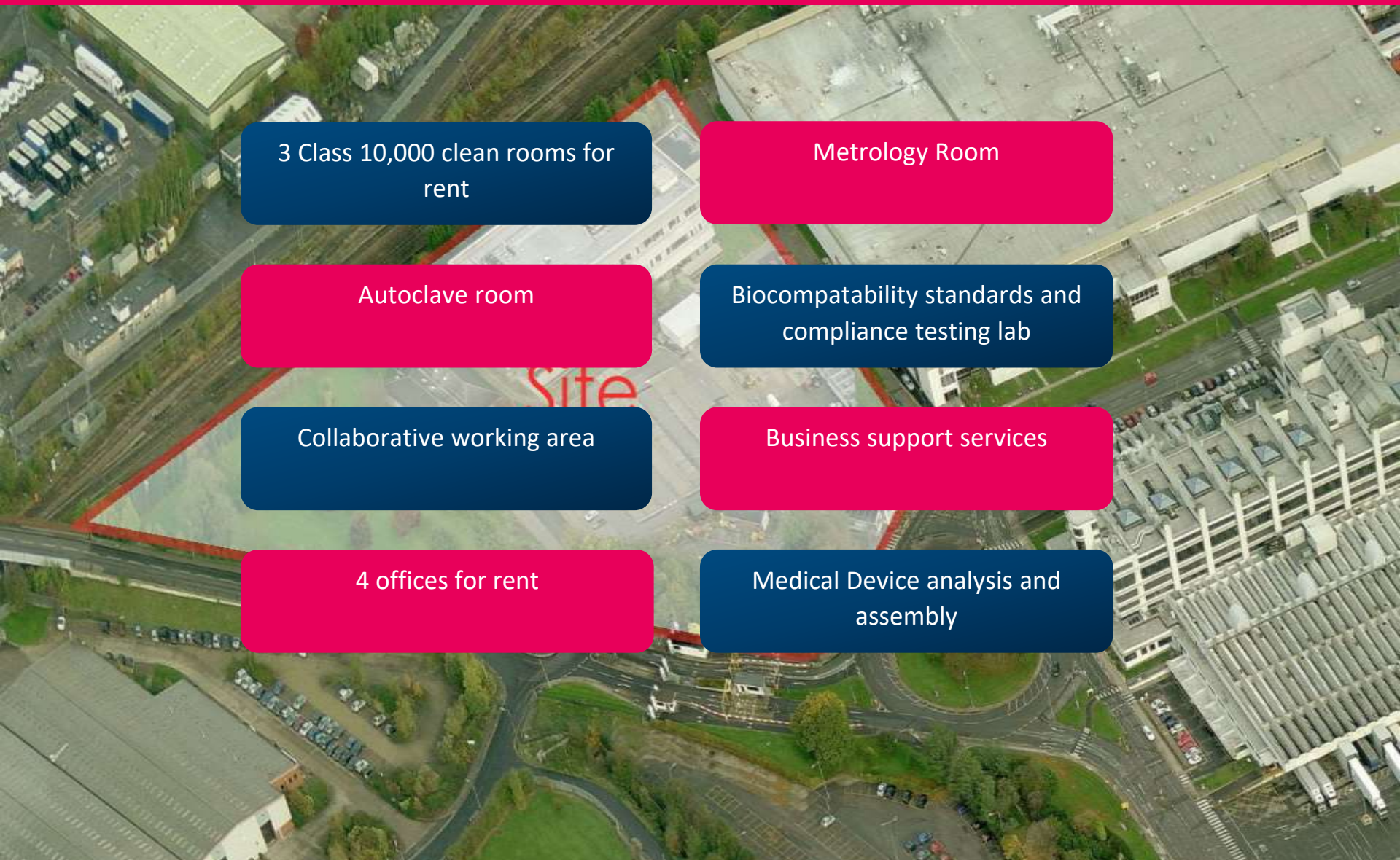
Workshop
Fabrication and machining equipment

High Performance Computing Laboratory
For intensive modelling and simulation of medical devices

Diagnostics and Analysis Laboratory
Home for advanced instrumentation suite

MTIF

What's inside – Boots Enterprise Zone



MTIF
Staff Resources

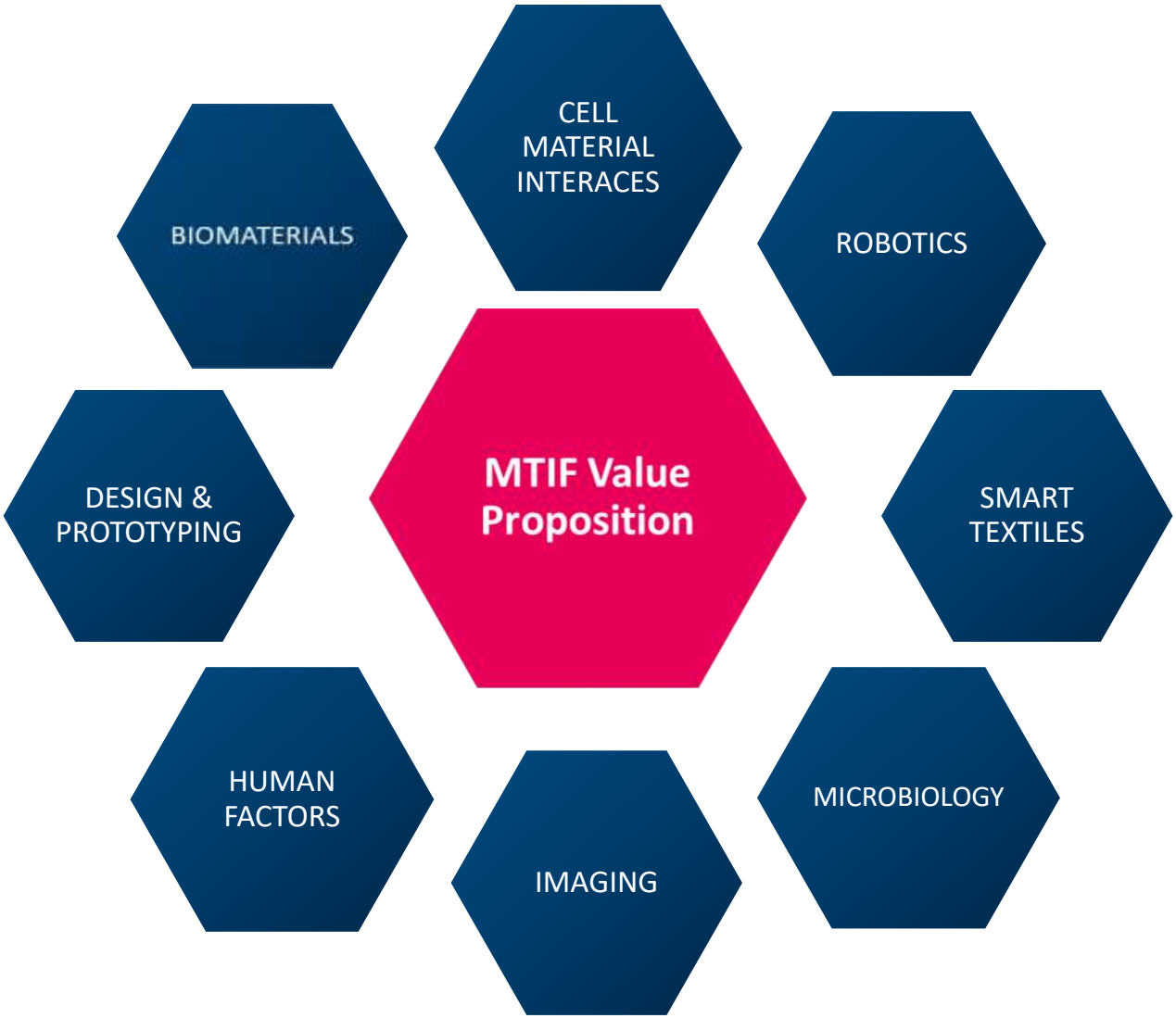
Management (7)

- Managing Director
- Chief Technology Officer
- Operations Manager
- Business Development Manager
- Business Acceleration Manager
- Admin/Reception – Boots Enterprise Zone
- Admin/Reception Clifton

Technical (24)

- Research Fellows (10)
- Project Manager/ Technologist (4)
- Development Engineer (6)
- Technicians (4)

MTIF
Areas of Scientific Expertise

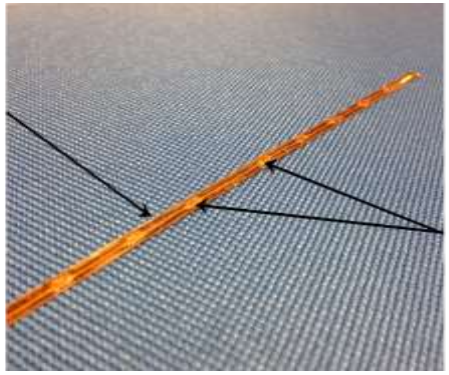


MTIF

What do we offer for Rural Health & Care?

Integrated remote sensor monitoring supporting citizens to stay healthy at home

- Sensors woven into fabrics for ECG, Temperature, Location, Acceleration.
- Sensors can be built into devices such as inhalers,
- Data can be collated and analysed remotely to identify physiological changes,
- Patients can be seen when appropriate or interventions made electronically.

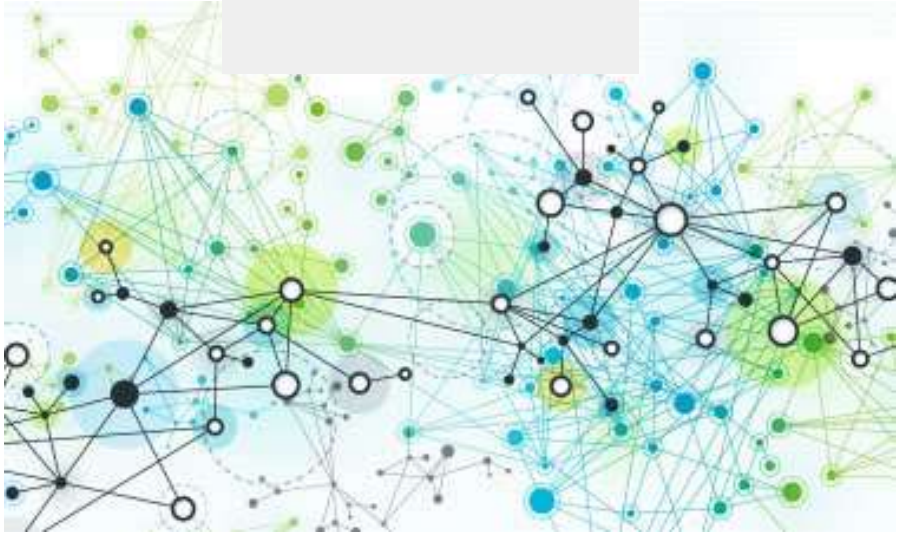


MTIF

What do we offer for Rural Health & Care?

Big Data Analytics to support healthy ageing

- Data from sensors in the home identify normal patterns of behaviour,
- All sorts of sensors - When a kettle is normally switched on, when the fridge is opened, when the heating goes on, movement and falls.
- Everyone is different but we are creatures of habit and changes to the normal routine may indicate problems,
- Data analytics can develop a “normal” pattern and identify changes in the normal routine to trigger alerts or follow up calls to support citizens.



MTIF

What do we offer for Rural Health & Care?

Remotely Operated Surgical Robots

- Research in MTIF is supporting the development of surgical robots,
- Advances have been achieved in complex spinal surgery ensuring greater precision and better outcomes for patients,
- Remotely operated surgical robots are becoming a reality enabling surgeons to operate from different locations,
- For rural populations this could enable patients to receive the best possible treatment wherever they are,
- This may in some small way address the challenges of the rural health and care workforce.

MTIF

What do we offer for Rural Health & Care?

Companion robotics supporting carers

- Assistive robotics are being developed to support individual citizens and carers to enable people to remain at home longer,
- An ageing population with increasing health and care needs is placing an ever greater challenge on local government,
- Assistive robots seem to provide an opportunity for identifying changes in people at home, providing visual links with carers and potentially providing companionship,
- For rural populations this could be a game changer in providing elements of care at a time when the cost of care provision is escalating and the recruitment of professional carers is increasingly difficult.

MTIF

What do we offer for Rural Health & Care?

Developing the next generation of medical implants

- Implantable medical devices have evolved dramatically with pacemakers, insulin pumps and drug delivery devices become more readily available,
- Development is challenging and ensuring the body is able to accept the device is one of our areas of expertise,
- Self adjustment using machine learning combined with remote monitoring by health professionals is possible but not widely used,
- For rural populations remote monitoring and self adjusting drug delivery devices would enable patients physiological response to be monitored and optimised without endless visits to hospital.

MTIF

Improving Rural Health & Care

by helping organizations to accelerate the development and commercial availability of innovative medical technologies and devices.