



Capturing the opportunity for compact MRI

29 January 2021

Steve McQuillan, CEO

Stephen King, CFO

Medical imaging summary – MRI total market is c\$4Bn

- We have merged our UK and US medical businesses with Magnetica of Australia
- The new Magnetica can make cryogen free, compact MRI systems in-house
- We will target niche applications which lack effective current solutions – eg:
 - Orthopaedics
 - Neonatal
 - Neurology
 - Veterinary
- We will use partners for:
 - Cloud imaging sharing and storage
 - AI and/or remote diagnosis
 - Product distribution



Magnetica

- We completed the merger our UK and US medical businesses with Magnetica on 29/01/21
- Sci Mag and Tecmag are now wholly owned subsidiaries of Magnetica and will rebrand
- Avingtrans now owns **58.1%** of Magnetica (rising to 61.2% after expected investment)
- We will invest **£3.2m** in Magnetica, to reach a launch point for new products
- We expect to have products ready for clinical testing in 2022
- Scale up will take place after regulatory approvals are granted
- In parallel, we have begun to withdraw from MRI component manufacture at Metalcraft

Magnetica Board Composition			
Avingtrans	Steve McQuillan	Steve King	Clint Gouveia
Magnetica	Duncan Stovell	Prof Stuart Crozier	Indep. Chair TBC



Rationale for merger

Individually, Magnetica, Sci Mag and Tecmag can design, or make parts of MRI systems
Together, the new Magnetica can make entire MRI systems in-house

Magnetica, AUS

System architecture and patient handling

Gradient and RF coils

Asymmetric magnet IP

Sci Mag, UK

Magnet design and manufacture

Cryogenics design and manufacture

Cryofree magnet IP

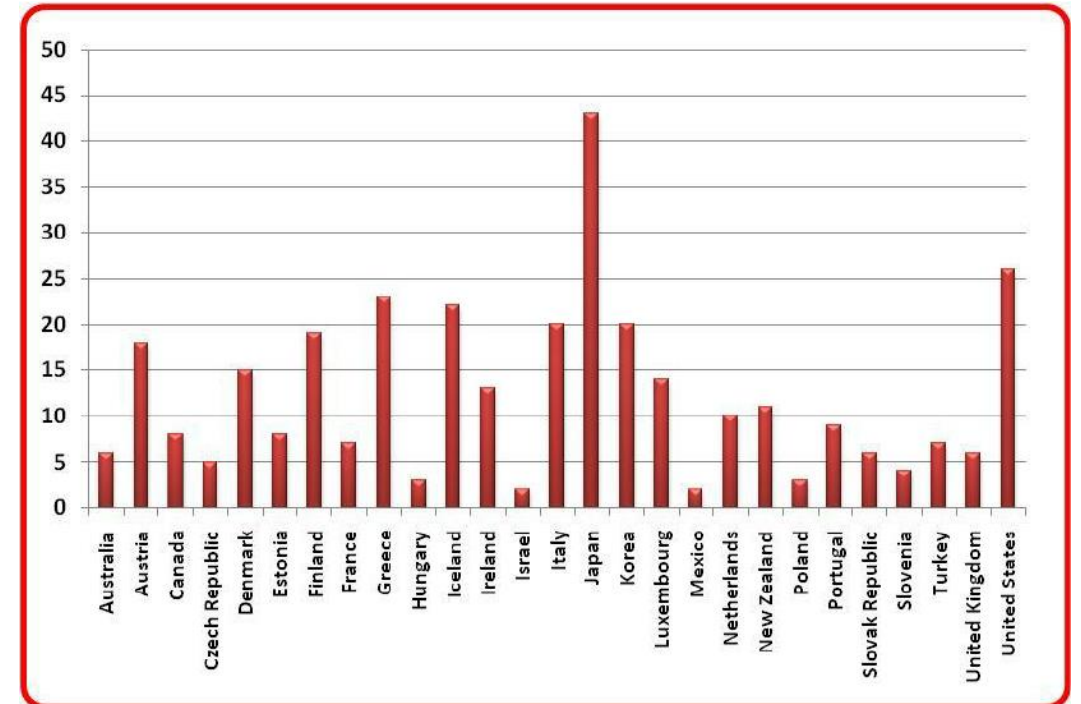
Tecmag, USA

Spectrometer design and manufacture

System electronics and software

MRI application IP

- Total market size over **£20 billion p.a.** in 2017
- CAGR projected to be **4%** from 2020-2027
- MRI is **18%** of the total market
- MRI is the most expensive imaging technique
- However, it provides the best images
 - Especially of soft tissues...
 - and there is no radiation exposure
- An estimated **40%** of new systems are 3 Tesla
- At least **20%** of scans are of limbs
- Potential addressable market of (est) **£100m p.a.**
- For veterinary and neonatal imaging, a lack of products makes precise market estimates difficult
- No available product is: compact, cryogen free and yet high field, for optimum image quality



MRI units per million people

MRI is still the “gold standard” for medical imaging, but there are limitations

Current whole body systems (the market is dominated by Siemens, GE and Philips):

- Using these for certain scans seems inefficient and can be uncomfortable for patients
- Neonatal scans rarely performed, due the difficulty in moving the neonate to the MRI suite
- Use of helium entails expensive infrastructure which limits the location of MRI systems
- The systems are expensive – especially when infrastructure is included
- Around 10% of the population can't be imaged due to claustrophobia
- Disinfecting whole-body systems is now more problematic due to Covid-19

Permanent magnet systems (niche players like Esaote and Aspect Imaging):

- Siting is improved and infrastructure is eliminated, BUT
- The low field strength means there is a limited range of clinical applications
- Heavy weight of permanent magnets and shielding limits them to ground floor locations
- Hence, these systems have not been popular

- Population demographics - An ageing population will increase MRI demand.
- Prevention of medical conditions - Transition towards early detection and prevention of medical conditions will sustain MRI demand.
- Move away from radiation - Ongoing shift from basic diagnostic radiology (eg X-ray) towards more advanced procedures without radiation, such as MRI.
- Increasing number of applications - Technological advances enable examinations in a variety of specialties, including orthopaedics, neurology, and cardiology to utilise MRI in new ways.
- Demand for imaging equipment in Emerging Markets - Developing regions will emerge as new destinations in the MRI market, as health infrastructure continues to improve in these areas.
- Demand for MRI systems in physician practices - Increasingly, physician practices that have historically referred patients to hospitals or imaging clinics are installing MRI systems on-site, bringing high-quality imaging closer to the patient point-of-care.
- Research needs of pharmaceutical industry - R&D investment by the pharmaceutical industry in the clinical development of science products will affect the growth of the MRI industry, because medical imaging plays a key role in supporting clinical trials.
- Demand to overcome patient comfort challenges - Existing MRI systems do not cater well to patient comfort and claustrophobia. Smaller sized extremity MRI systems resolve such challenges.

- Reduce the cost of high field MRI systems by shrinking their size and footprint
- Eliminate infrastructure costs by using cryogen free technology
- Dramatically expand potential locations for MRI systems, by virtue of the above
- Unlock precious capacity in existing whole-body systems, by migrating certain types of imaging onto dedicated MRI systems
- Maintain clinical interoperability of imaging by using high-field (3 Tesla) magnets
- Free-up radiologist time and capacity by moving to cloud/AI diagnosis



Outcome: earlier, better diagnosis, to reduce total healthcare costs and improve quality of life

Technical

- Cloud / AI diagnostics – work with existing 3rd parties to develop these linkages
- IP infringement – our systems are using novel configurations, but the basic system IP for MRI is now out of patent, so not likely to infringe current 3rd party patents
- Copycat systems – not impossible, but superconducting / cryofree capabilities are rare

Practical

- Routes to market – will work with 3rd party medical equipment agents, as required
- Geographical scatter of business units – using workshare tools to operate globally
- We have successfully trialled remote team working during the transaction discussions

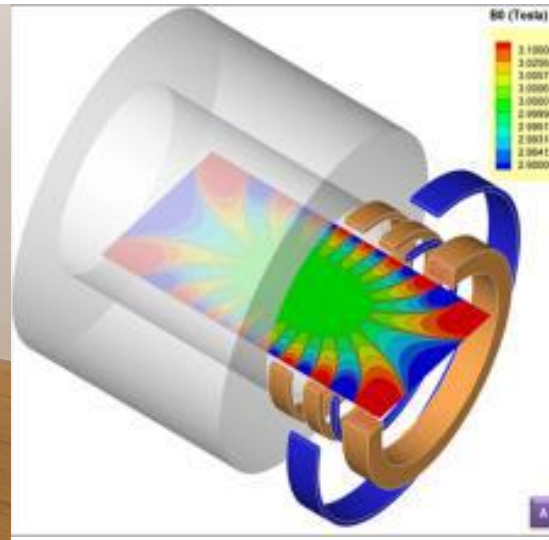
Financial

- System costs – all key system components are now in-house manufacture
- Scale-up funding – initial product launch programs will prove investability and value
- Business model – “scan as a service” improves margin potential and product uptake

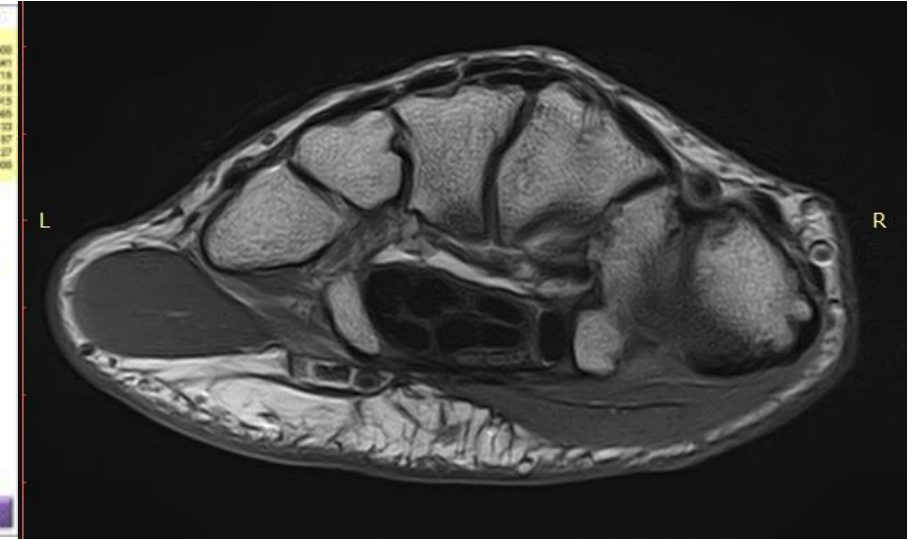
**Compact, cryofree, superconducting systems,
targeting specific application niches**



Orthopaedic system for limbs



Asymmetric magnet
for patient comfort



High quality images from 3T high field

Compact, cryofree high field systems with cloud/AI diagnosis:

- Free-up capacity of existing installed whole body systems (at least 20%)
- Widen capability to critical new applications – eg neonatal scans in the NICU
- Require minimal infrastructure and can be sited easily – weight is c20% of whole-body
- Resolve the claustrophobia problem and improve patient comfort
- Are easier to clean and disinfect between patients
- Have clinical interoperability with whole-body systems (3 Tesla field strength)
- Can free up radiologists' time taken up by routine scanning
- Have the potential to allow for image fusion with other compact systems (eg X-ray)
- Increase scanning capacity through efficient workflow and optimised scan protocols
- Earlier, better diagnosis, to reduce total healthcare costs and improve quality of life

Next phase plan for orthopaedic MRI system

