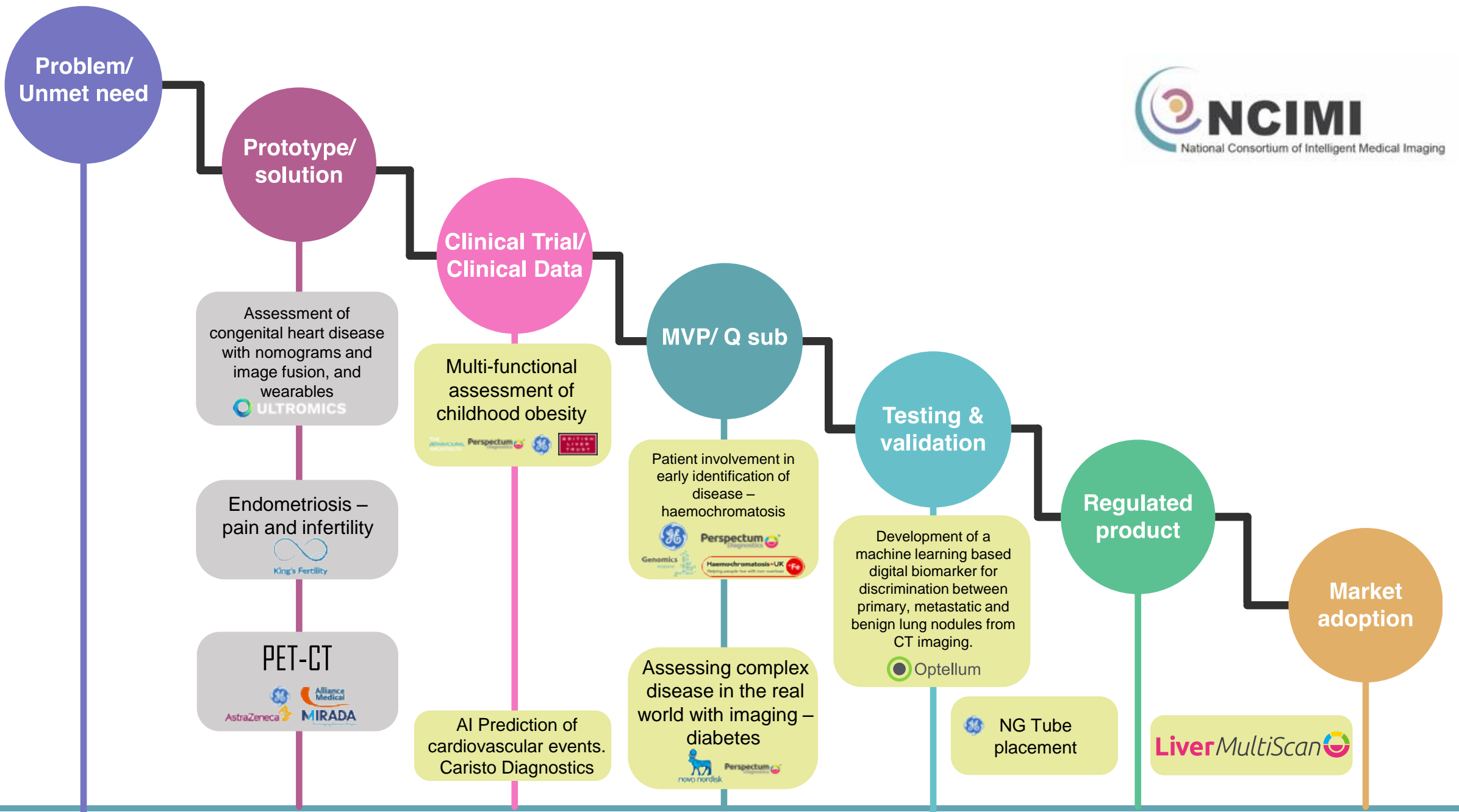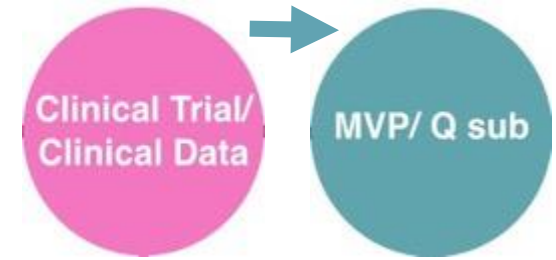# National Consortium of Intelligent Medical Imaging

- Develop an ecosystem in medical AI

- Develop a framework of hospitals/staff involved in AI

- Aid adoption of AI into the NHS

- Support medical AI SMEs in the development and market adoption of AI solutions

- Support and better understand the patient and public perspective of AI in medicine

Problem/ Unmet need

Prototype/ solution

Clinical Trial/ Clinical Data

MVP/ Q sub

Testing & validation

Regulated product

Market adoption

NCIMI
National Consortium of Intelligent Medical Imaging

Assessment of congenital heart disease with nomograms and image fusion, and wearables
ULTROMICS

Endometriosis – pain and infertility
King's Fertility

PET-CT
GE Alliance Medical AstraZeneca MIRADA

Multi-functional assessment of childhood obesity
Perspectum GE BRITISH LIVER TRUST

AI Prediction of cardiovascular events. Caristo Diagnostics

Patient involvement in early identification of disease – haemochromatosis
GE Perspectum Genomics England Haemochromatosis-UK Fe

Assessing complex disease in the real world with imaging – diabetes
novo nordisk Perspectum

Development of a machine learning based digital biomarker for discrimination between primary, metastatic and benign lung nodules from CT imaging.
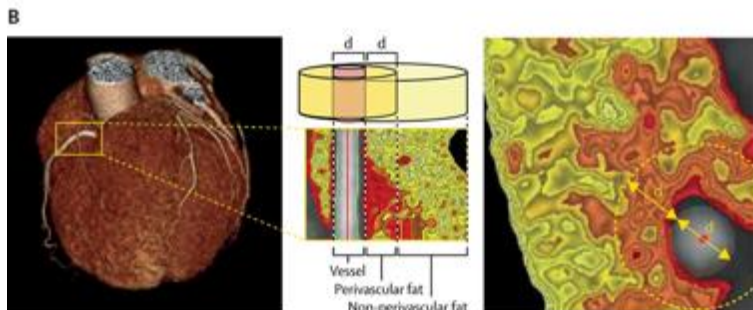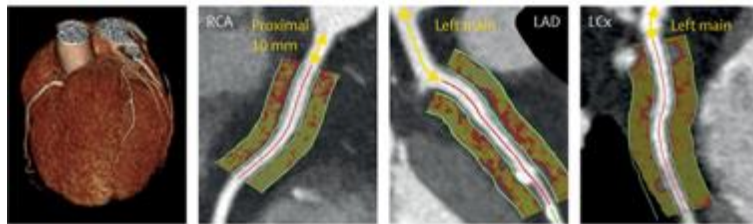Optellum

NG Tube placement
GE

LiverMultiScan

Exemplar 1- Early detection of cardiovascular disease

- Coronary disease still the **No. 1 killer**

- Coronary CT now first line diagnostic test in patients with chest pain

- **Early detection** enables early stage intervention

- More useful clinical information from **same routine test**

Non-invasive detection of coronary inflammation using computed tomography and prediction of residual cardiovascular risk (the CRISP CT study): a post-hoc analysis of prospective outcome data

Evangelos K Oikonomou*, Mohamed Marwan*, Milind Y Desai*, Jennifer Mancio, Alaa Alashi, Erika Hutt Centeno, Sheena Thomas, Laura Herdman, Christos P Kotanidis, Katharine E Thomas, Brian P Griffin, Scott D Flamm, Alexios S Antonopoulos, Cheerag Shirodaria, Nikant Sabharwal, John Deanfield, Stefan Neubauer, Jemma C Hopewell, Keith M Channon, Stephan Achenbach, Charalambos Antoniades

Summary

Background Coronary artery inflammation inhibits adipogenesis in adjacent perivascular fat. A novel imaging biomarker—the perivascular fat attenuation index (FAI)—captures coronary inflammation by mapping spatial changes of perivascular fat attenuation on coronary computed tomography angiography (CTA). However, the ability of the perivascular FAI to predict clinical outcomes is unknown.

Exemplar 2- Discrimination between primary, metastatic, and benign lung nodules


- **Unmet need:** Accurate detection of malignant nodules in cancer patients

- **Aim:** Optellum have developed and validated a CT imaging digital biomarker that can discriminate between primary lung cancer and benign PNs.

- We will recruit a new set of patients, focusing on those with PNs that have a **history of cancer**, to expand the uses of the digital biomarker.

Exemplar 3- Market adoption model NGT placement
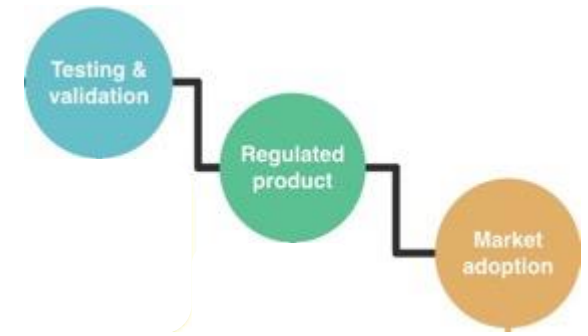
- Incorrect placement is a 'never' event but still arise with potentially severe clinical consequences

- GE has developed a CXR Critical Care CXR Suite to help correctly identify NGT tip position, and avoid feeding if it is misplaced

- This technology will be trialled with performance testing and clinical utility testing
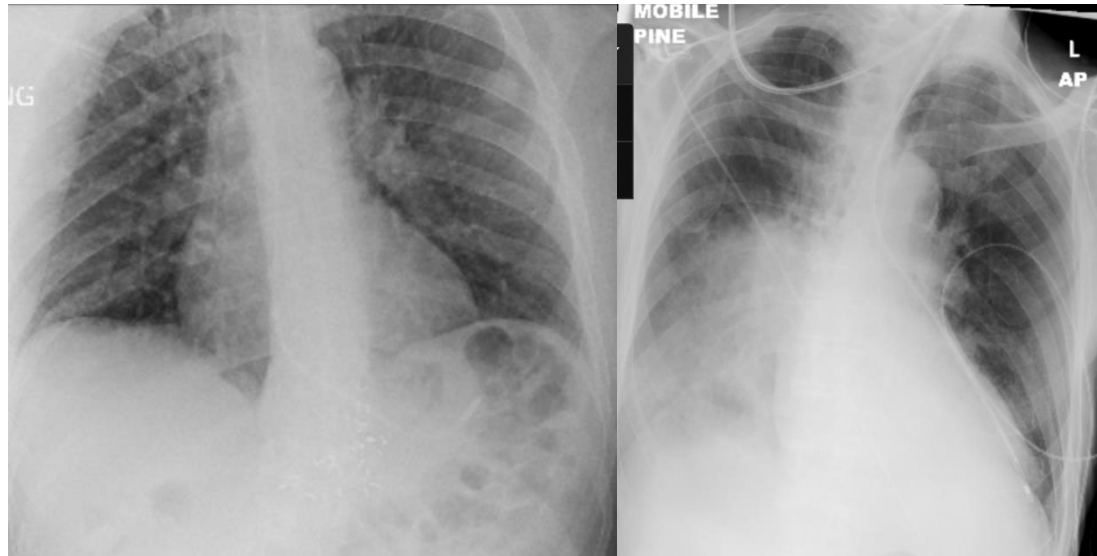
Deliverables of NCIMI

- Large integrated resource of multi-modality clinical imaging data sets

- AI solutions to address unmet clinical needs of national importance

- Patient engagement and trust in the development of solutions

- Shaping framework for future projects in digital health

- Expandable and inclusive