



Australian Government
Department of Defence

Defence Science and Technology Group

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Land Division, Defence Science and Technology Group

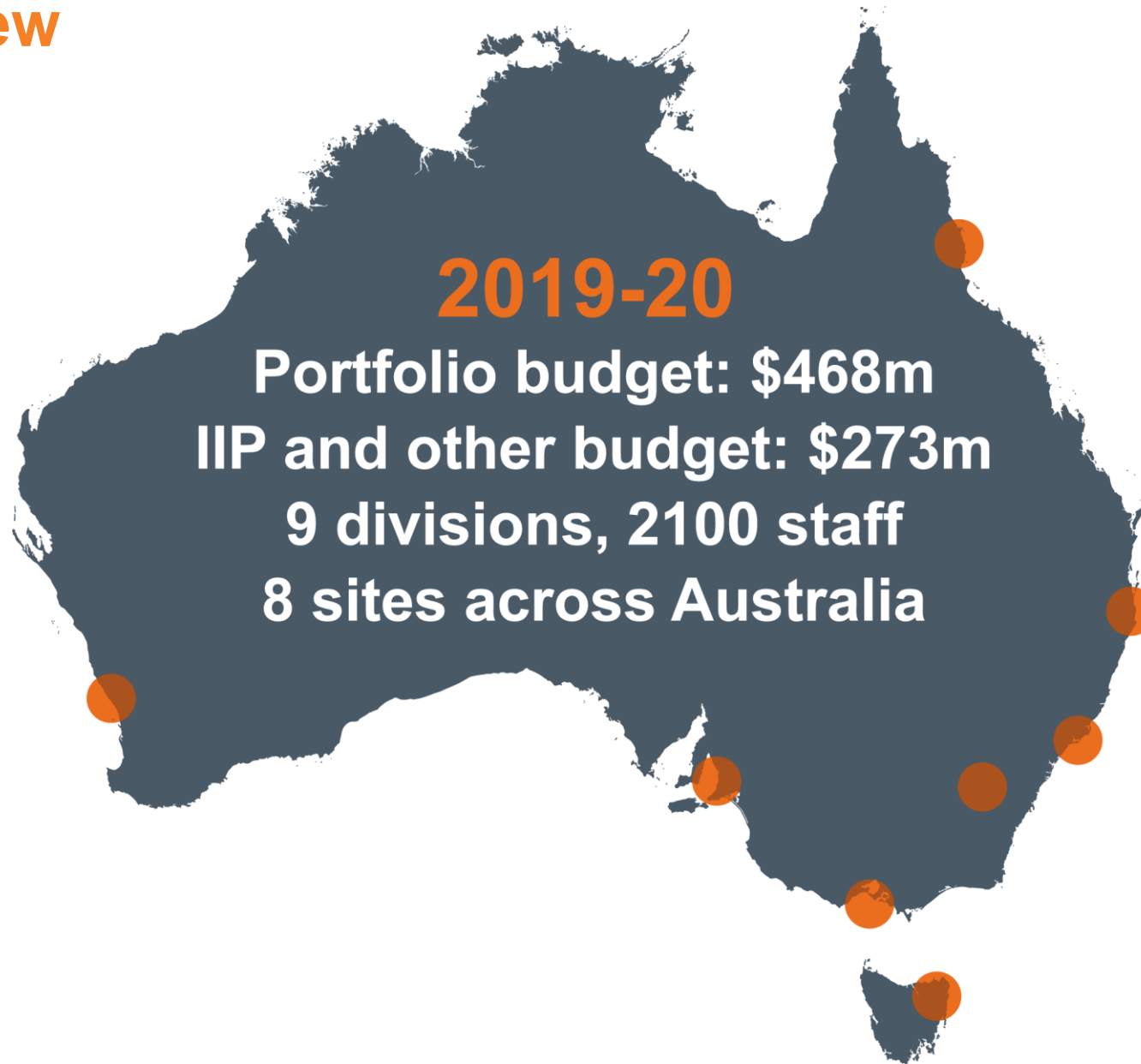
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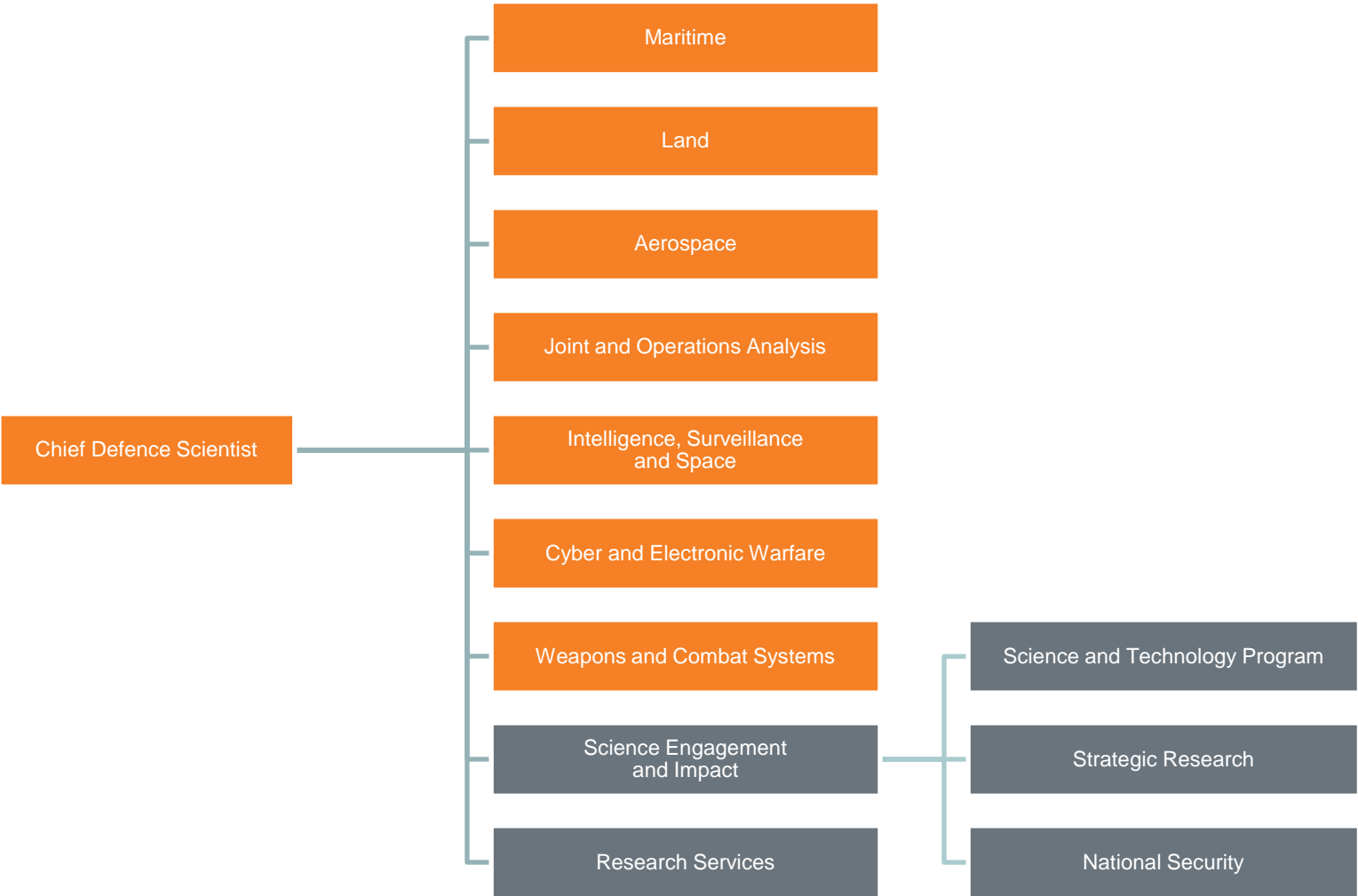
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Who is Defence Science and Technology Group?

DSTG overview



Defence Science and Technology Group



The role of Defence Science and Technology



Defence Science and Technology Strategy 2030

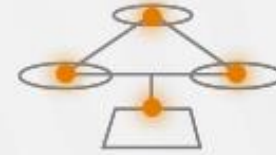


Focus

Scale

Impact

Information warfare



Agile command and control

Resilient multi-mission space



Disruptive weapon effects



Operating in CBRN environments



Battle-ready platforms

Quantum assured position, navigation and timing

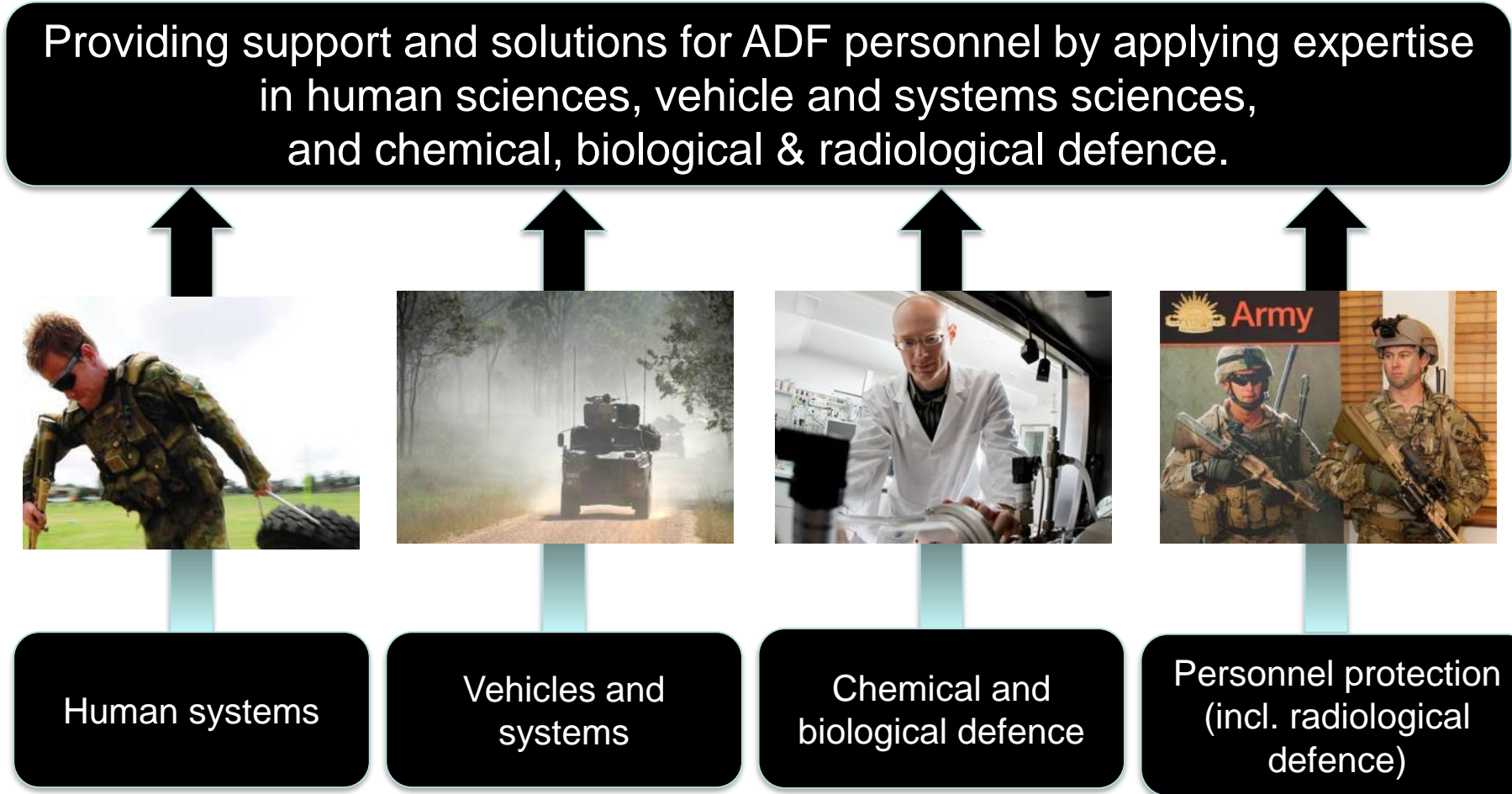


Remote undersea surveillance



Radiological Defence

Land Division



Delivering training, support, advice and research in radiological defence

Operate an accredited radiological laboratory for training, equipment testing and development

Provide to ADF:

- Operational support, training and technical reach-back
- Forward deployed scientist, embedded scientist roles
- Support to acquisitions, capability development
- Specialised research



Search for radiological sources in complex environments

Complex physical environments
E.g. urban areas, port facilities

Contested environments

Weak source signals
E.g. shielded, low intensity

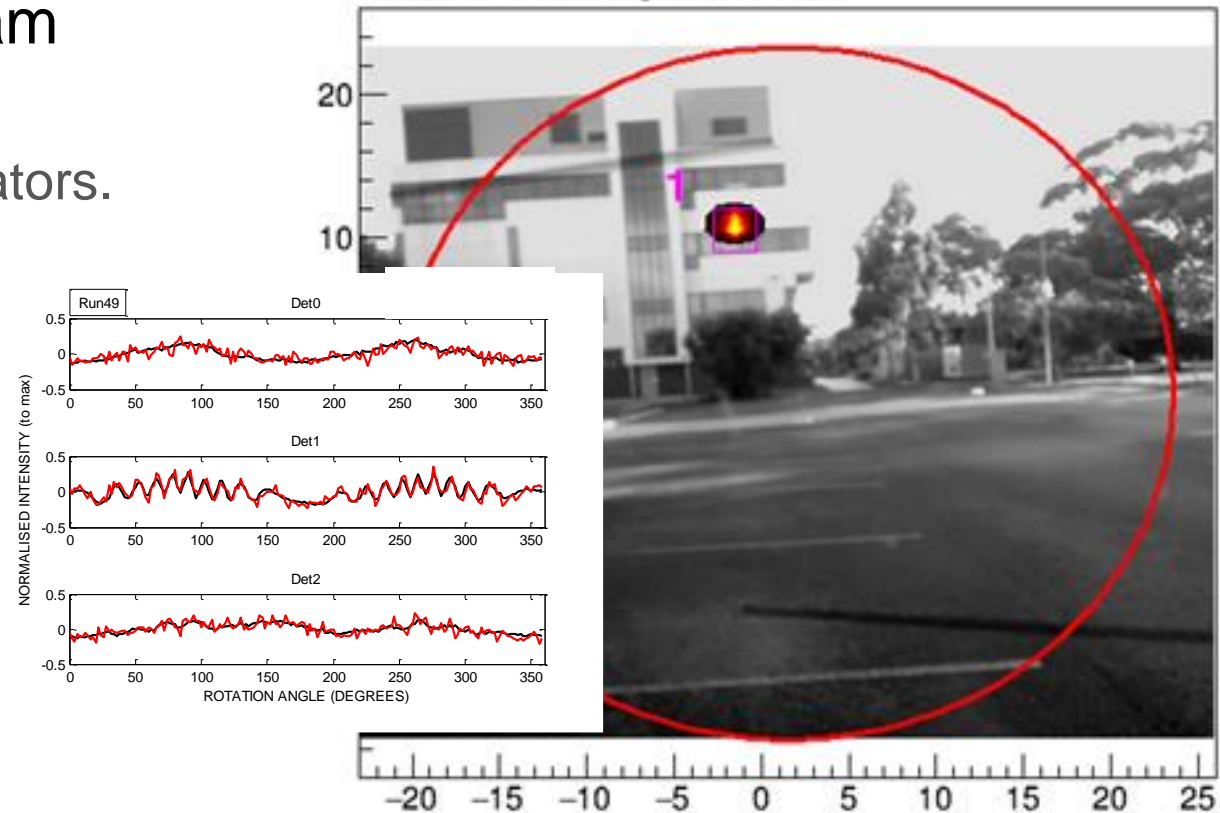
Twofold approach in R&D program

1. Development of capability demonstrators.

DSTG developed gamma imager:



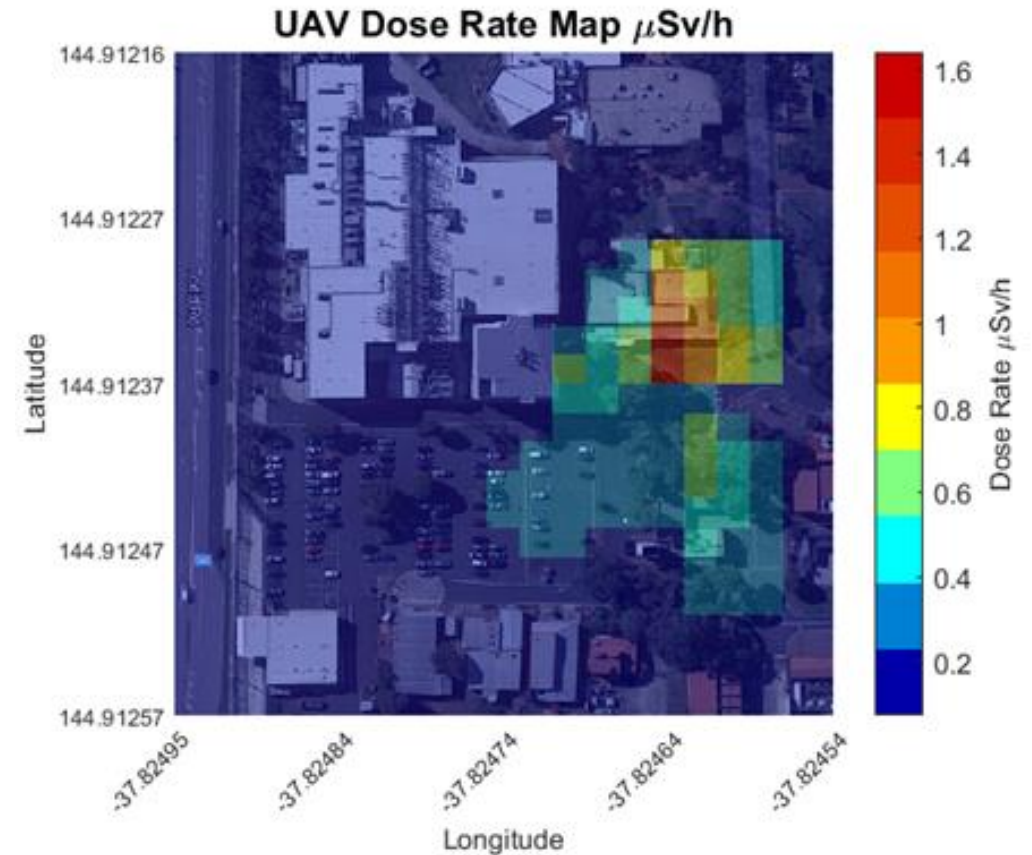
Rank: 1 Isotope Cs-137



Search for radiological sources in complex environments

2. Geant4 Radiation Simulation Development

- Simulation where trials are too difficult, dangerous or expensive
 - detector development
 - support to detector evaluation and procurement
 - Validated HPGc, NaI, LaBr detector models
 - new concepts of use for equipment
 - new radiation source search methodologies
- Including implementation of neutron transport and activation models



Radiation sensor data fusion and visualisation

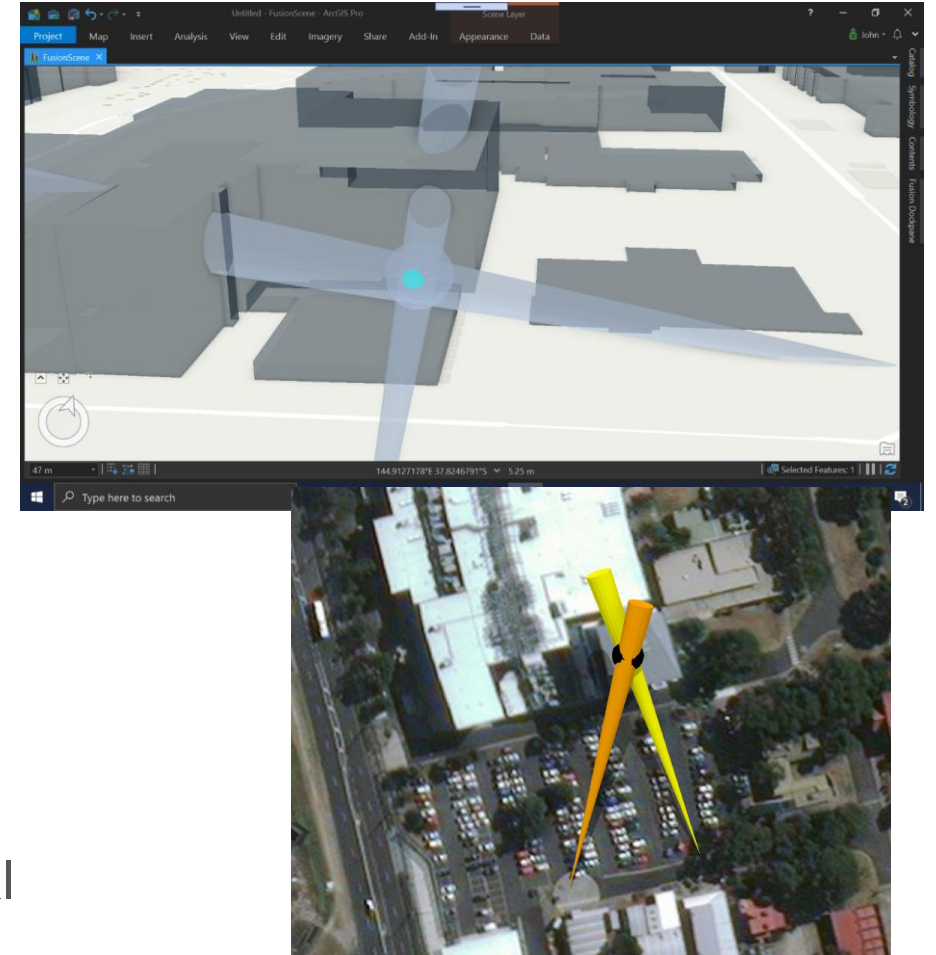
Proliferation of new sensing and survey paradigms including UAV/UGV sensors and standoff radiation imagers

But for Defence use, produces issues around:

- User requirements and T&E standards to guide acquisition
 - current standards based largely on safety
- Integration issues
 - how will new capabilities interface with existing rad search capability
- Data complexity
 - new detection systems will provide rich data which may overwhelm operators

Fused data from DST gamma imager

Visualisation of radiological survey data



Thank you

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