MENSUS is a new interdisciplinary initiative centred at the University of Southampton that focuses on system monitoring technology and applications, and exploits expertise to tackle the challenges encountered by many industrial sectors.

Aims

MENSUS will build innovation and applied value for industry from a diverse but complementary research community for sensors, big data, wireless communications, instrumentation and business aspects of health monitoring for engineered and natural systems. Through combining the strengths of these individual parts, integrated systems level solutions will be achieved. MENSUS will develop a world leading Centre of Excellence providing integrated solutions to complex systems over a wide range of sectors.

Benefits

- Access to leading multidisciplinary academic expertise for new paradigm thinking, problem-solving and practical ways to exploit an increasingly sensed world.
- Leveraging unique R&D facilities, including state of the art cleanrooms, large wind tunnels, high voltage laboratory, X-Ray computed tomography, mechanical testing integrated with imaging, 138m towing tank for maritime and water borne applications.
- Meeting skills and talent needs through engagement with undergraduate and postgraduate students, tailored courses, and CPD.

Outcomes

- Tailored response to the multidisciplinary needs of industry.
- Approaches that deliver quantifiable benefits to industry.
- Novel technical approaches with strong industrial relevance.
- Increased safety by better identification of equipment at risk as well as avoidance of unexpected / early failures.
- Improved operational efficiencies, productivity, availability, energy and resource use.
- Cross-sector knowledge transfer.
- Research consortia established for tackling existing and future challenges
- Enhanced educational experience for industry.

Contact

The MENSUS website **www.southampton.ac.uk/mensus** provides more information about our activities.

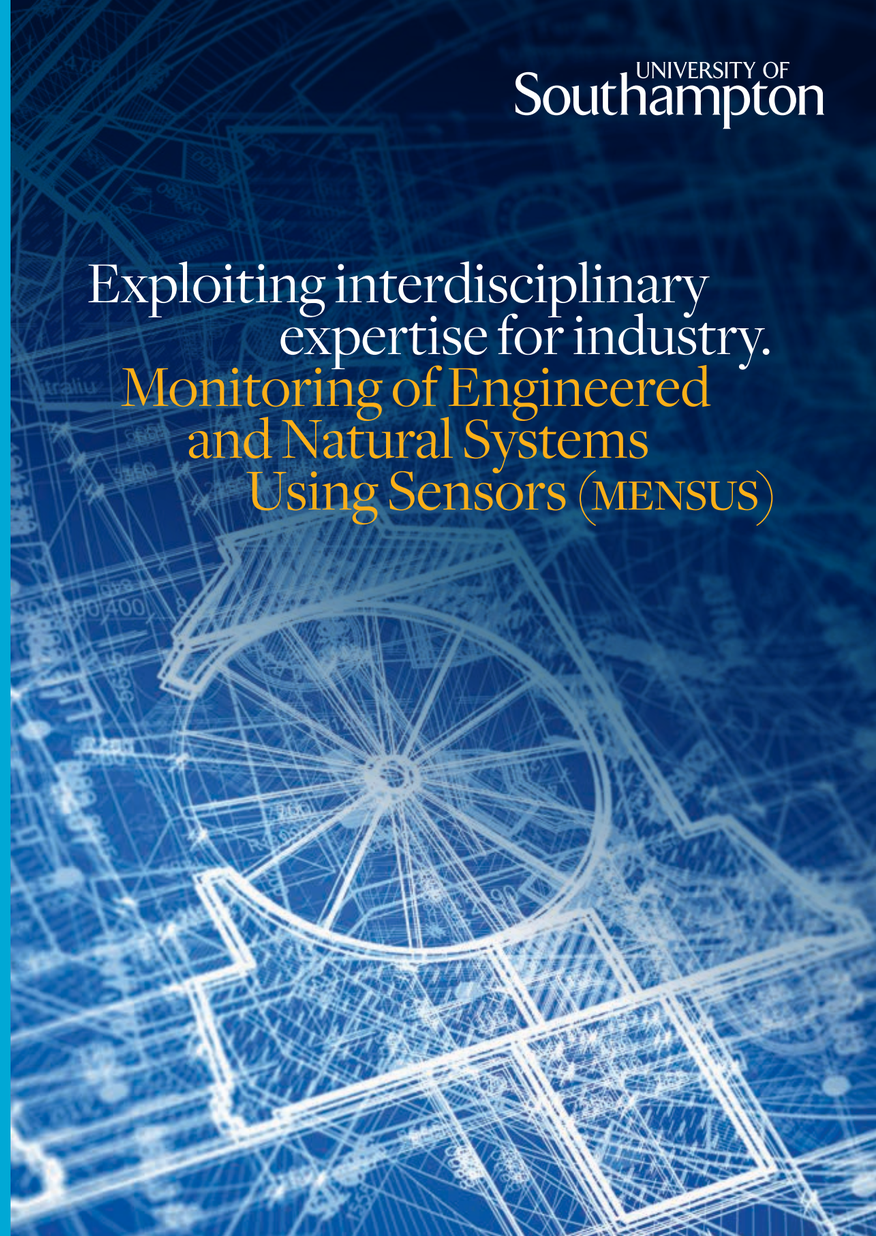
MENSUS invite industry collaborators to engage with us. Please contact **mensus@southampton.ac.uk**

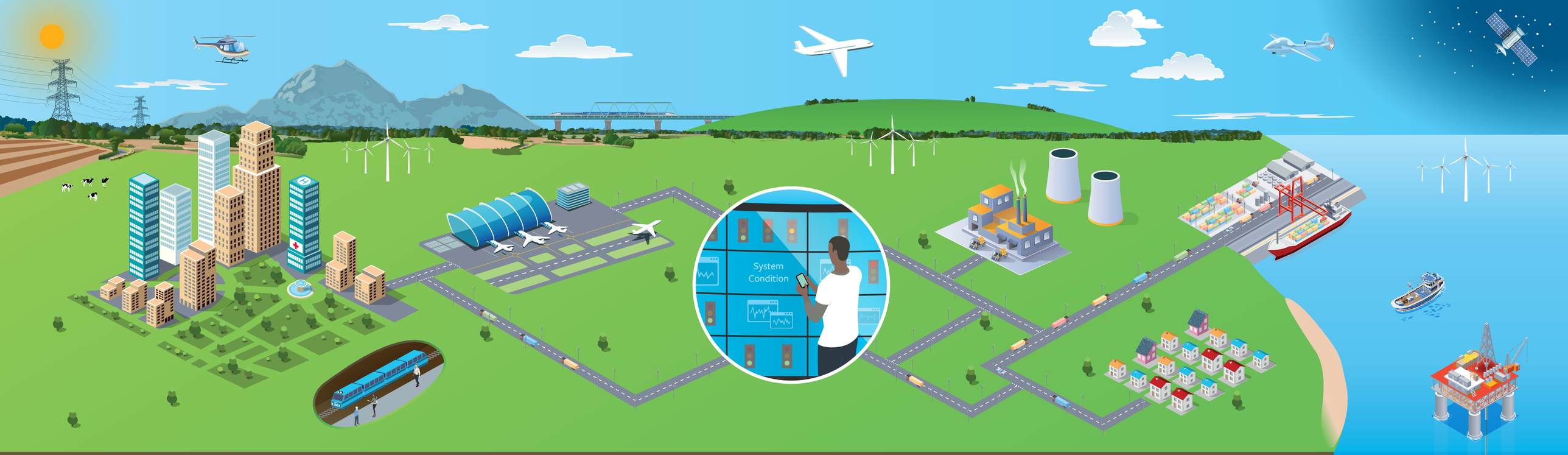
www.southampton.ac.uk/mensus

UNIVERSITY OF Southampton

Exploiting interdisciplinary expertise for industry.

Monitoring of Engineered and Natural Systems Using Sensors (MENSUS)





Intelligent Monitoring in a Sensed and Connected World

System Characterisation focuses on modelling and experimental methods for establishing the behaviour of time varying systems to controlled or naturally occurring stimuli. Observed changes to their responses can then be attributed to the existence and severity of any evolving abnormalities.

Sensors and Devices encompass a wide range of physical and chemical detection methods using both optical and electronic platforms. The theme promotes novel sensors that utilise nano and micro fabrication, smart materials and photonics to monitor harsh environments, provide energy efficient solutions and integrate into smart networks.

Energy Harvesting is the process of using ambient forms of energy (solar, thermal, vibration, wind etc.) and converting this into electrical energy, which can be used to power autonomous devices, sensor nodes and measurement systems. A key enabler is wireless sensor networks, which can be coupled with energy harvesting systems to provide low-power, wire-free solutions.

Big Data and Analytics deals with structuring and analysing high volume data, enabling extraction of insightful and actionable information. Examples include high resolution data, such as imaging or acoustic data, or data collected from multiple or numerous entities and a variety of sources, as encountered with industrial machines.

System Integration enables the identification of the system measurable characteristics and appropriate sensor selection, sensor excitation and powering, signal processing and data transfer to be treated holistically. The theme focuses on the performance of the integrated system in its operational environment. An overarching consideration is the business models for application of the integrated system, managing risk, and societal and environmental impact in a highly sensed world.