SMART @HEART

Patients
at the heart of healthcare

Smart Systems, with their **in-built adaptive capabilities** and great potential for portability brought about by miniaturisation, promise benefits across the whole spectrum of healthcare and wellbeing.

Applications include personal diagnosis, monitoring and fitness, treatment and implants, and ultimately to enhanced levels of telemedicine across the community.

Smarter use
of natural resources

Smart Systems, with their ability to accept multiple inputs and to infer appropriate responses, are already finding application in local environmental conditioning controls.

Their ability to network, coupled with **small size** and **low cost**, is expected to enable area-wide detection and improvements not only in living and working environments, but also across the recycling and disposal landscape.

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SO SMART
SO SSI
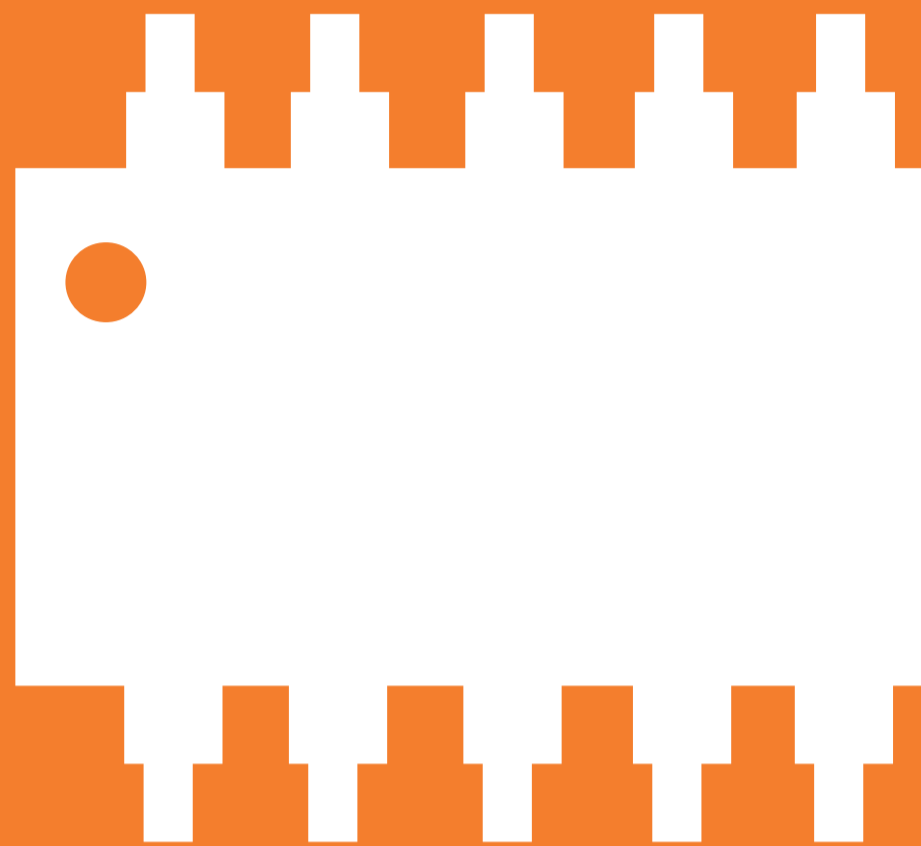
For smarter
food chains

Food production is undergoing a **Smart Systems revolution**, with drones providing aerial surveys of crops, to combine harvesters measuring precisely the output of every square metre, and sensors giving minute-by-minute updates on the health of animals.

For the consumer, Smart packaging promises to monitor freshness, contamination, and optimizing the logistics of distribution, whilst safeguarding against tampering and counterfeiting.

Powered
by SSI

Energy is behind almost every class of human endeavour. Civilisation depends upon care, security and efficiency at every stage from the discovery and unlocking of energy sources, through the storage and distribution of energy and on to its final use.

Smart Systems, with their capability for **rapid response** either autonomously or through networking, can safeguard and optimise every aspect of this critical chain.

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SYSTEMATICALLY SMART
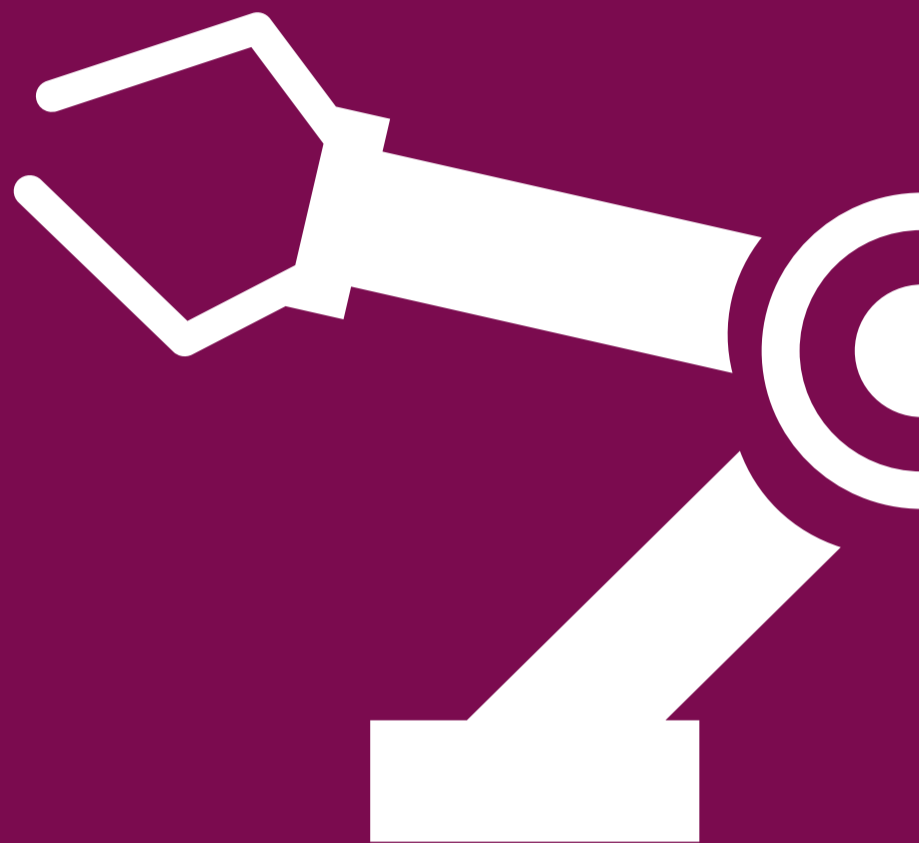
Smart Systems
for Industry 4.0

Smart Systems in Manufacturing promise to carry out local optimization underpinned by local knowledge bases, ranging from the examination of raw materials and parts and predicting subsequent machine settings to compensate for variation, all the way through to **optimizing manufacturing parameters** based upon end-product performance.

Smart Systems could in principle compensate from measurements on-line, at end-of-line or indeed from live data collected in the field as the product is used.

SSI:
Safety, Security & Integrity

Smart Systems, with their ability to make **autonomous decisions** based upon a combination of events, perhaps sensed in multiple domains, promise to be strong enablers to safeguard life, property and information.

Safety, Security and Reliability are transversal across all market sectors. Applications cover a full range from the protection of transactions and identity through to the **continuous monitoring** of food quality.

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SMART SYSTEMS EVERYWHERE
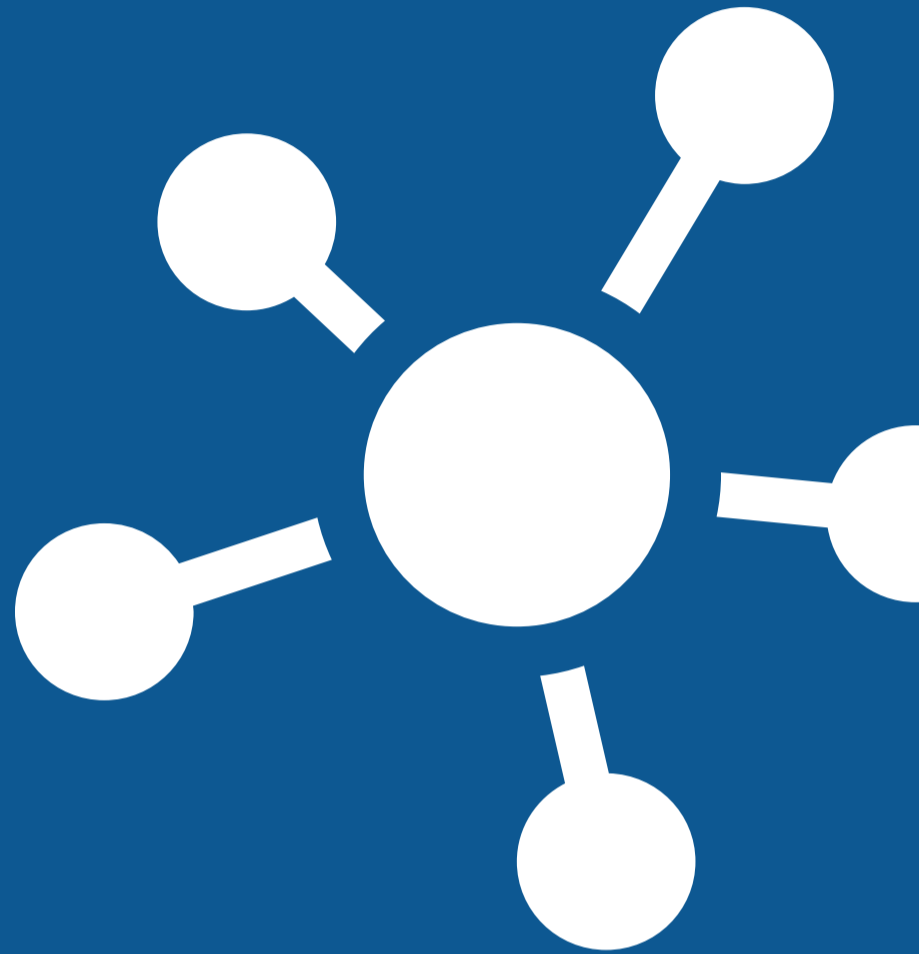
SSI drivers
the future of mobility

All forms of transport and their necessary infrastructure are continually demanding increasing levels of safety, efficiency and environmental performance.

Smart Systems, with their in-built knowledge base, offer **reduced** operator **distraction and error**, and optimisation of vehicle control, navigation and logistics potentially across multiple modes of transportation.

SSI:
The "T" in IoT

The capability for Smart Systems to communicate, with users and with other collaborating systems is paramount. Furthermore, the individual elements of Smart Systems may be **integrated wirelessly** rather by than direct physical integration.

But, importantly, Smart Systems themselves are set to enable immense strides in the whole domain of Communications within a **Connected World**.

THE WORLD OF SMARTCRAFT
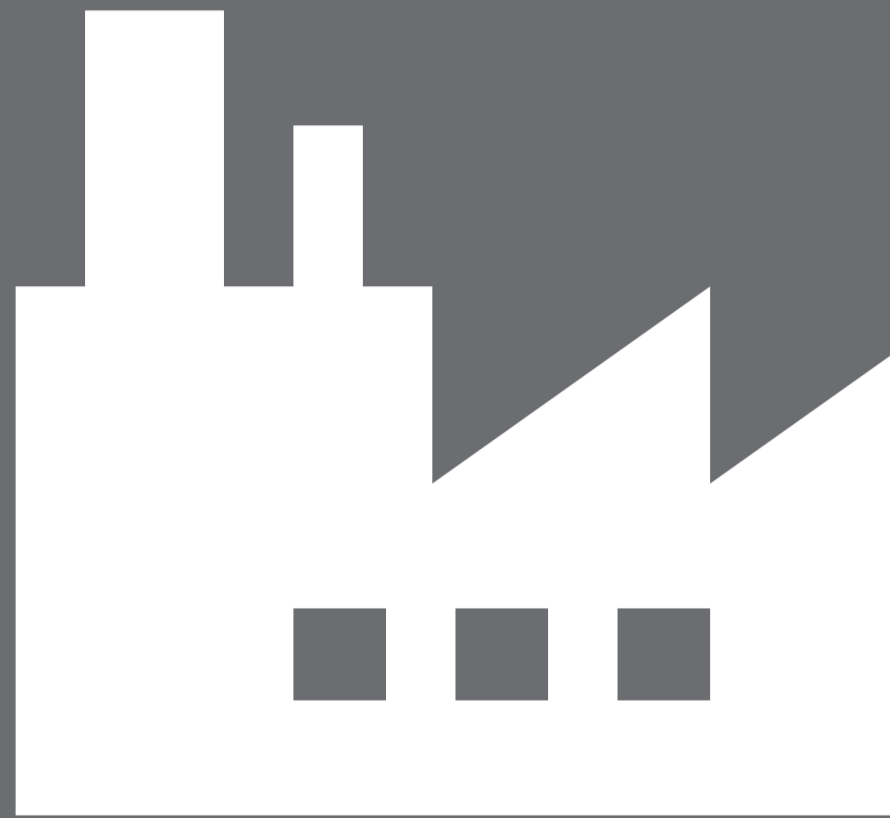
From Smartware to Smart-wear

Textiles are an indispensable part of our everyday life. They are not limited to clothing made of fabric, knits and fleece, but also include technical textiles and composite materials. They withstand extreme stresses during washing and have many different functions while being light and highly flexible.

By integrating **electronic components**, textiles can be enhanced with many different functions such as **sensors** and **lighting**. This enables completely new application areas.

SSI for construction

Right from the beginning Smart Systems are helping in surveying and the alignment of materials, which may ultimately result in fully **automated construction**. Health and Usage Monitoring Systems (HUMS) measure the stresses and strains in structures during their life.

On a wider scale Smart buildings and Smart cities promise to provide safer, healthier, **more efficient** and more pleasant lifestyles.