

The
Northern
Robotics
Network

Special
Interest
Group

Robotics and
Autonomous Systems

A Strategy

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Why a Northern Robotics Network

Robotics and Autonomous Systems (RAS) has been recognized by the UK government as one of the 8 great technologies to deliver growth and sustain its economic wealth.

The Northern Robotic Network has a great opportunity to support this initiative to generate growth and sustain its economic wealth, by leveraging the Northern Region's capability to increase productivity through RAS.

Current Issues

- * RAS is not a market segment but it is a diverse set of enabling technologies that brings about disruption, efficiencies and productivity growth in nearly all market areas: It is a means of combining and communicating underlying market technical requirements is required.
- * There is a need for mechanisms for generating innovative products & services through responsive and sustainable supply chains
- * Competitiveness pressures in all markets need rapid innovation to increase productivity and effectiveness.
- * Business challenges require access to leading edge RAS knowledge.
- * Access to RAS knowledge and experience from other sectors is difficult to access.
- * There is a need to find ways of making R&D resources go further by pooling and coordinating RAS activities, creating more effective ways to access knowledge and thereby making the successful transition to market growth and wealth creation.
- * There is an opportunity impact over one trillion pounds in the global market place. (ref RAS 2020, July 2014)
- * There is a need to create an environment which will initiate a cultural change in the adoption the use of robotics in industry.

Highly Innovative

Why a Northern Robotics Network

The Northern Robotics Network (NRN) recognizes that there is a need to use an existing and developing RAS ecosystem to release the power of the northern region to benefit the UK by delivering these key challenges

Key Challenges

- * Build a vibrant technical and business ecosystem that can compete successfully in a global market place
- * Grow and expand a diversified supply chain that can respond to the mix of application challenges and bring about cost effective solutions through common supply across different market segments
- * Provide a focal point for combining sector challenges and promoting open innovation methods
- * Facilitate the access for new, innovative companies to support structures and development & test facilities
- * Facilitate direct access to technical expertise in regional H.E.I's and research facilities
- * Coordinate access to Regional and National RAS assets (large scale test facilities, etc)
- * Access Funding and resources to benefit businesses
- * Establish partnerships to learn from each other and jointly support RAS projects
- * Educate the supply chain in RAS to increase their efficiency and productivity
- * Improve and develop a skilled work force to deliver new and innovative products and services and facilitate this by promoting effective national training and learning programme
- * Enable first to market opportunities giving greater scope to exploit global markets

Where do we want to be?

A Northern Powerhouse for RAS in the UK

How do we want to get there?

By delivering wealth creation for the UK, through developing and delivering innovative RAS technologies, by having more efficient and effective networking through our members.

What needs to be delivered?

In order leverage the strength of the capability of the members and to match their expectations five strategic objectives have been set.

RAS Coordination:

To achieve this, the following objectives have been set:

- * Set up a governing Board, consisting of academic and industrial representatives. This is to provide a link into government and a two-way bridge between academia and industry to foster the growth of new business and wealth creation in the region.
- * Build the membership from the academic, industry and funding sectors. This is to have a basis to build a RAS network.
- * Develop and maintain a funding calendar and broker industrial and academic partnerships to support cross sector-funding calls. This will enable high gearing on available funding, resources and to access funding routes, which are not available to individual parties.
- * Influence strategic governmental planning in the RAS technical domain and seek to establish a major national/ regional resource that will promote the uptake of the technology to enable the growth of new business and wealth creation in the region.
- * Promote education of industries in the benefits of RAS technologies. To enable UK industry to be world leading in international markets.
- * Identify UK companies, which can benefit from RAS technologies. This will maximize the benefit to UK industrial, the network can provide education to the benefits of RAS technologies and the network would have another member to partner with on new existing and new programs.

RAS Assets Enhancement and Exploitation:

To achieve this, the following objectives have been set:

- * Develop assets through grants, supported by industry, focus on the industries grand challenges. This will give the maximum benefit by 'economies of scale' and the opportunity to organically grow capability, and it will also act as a focus point for key grand challenges and by careful selection benefit across the industrial sectors.
- * Provide access to specialist assets, skills and consultancy through, networking events, membership database of skills, assets and challenges. This will give opportunities for academia and industry to seek advice and support.

RAS Industrial challenges

To achieve this, the following objectives have been set:

- * Identify key challenges (needs, risks and opportunities) across the industrial sector. This will enable alignment of challenges across the range of industrial and commercial sectors, identifying generic issues and foster interdisciplinary/cross sectorial cooperation.
- * Actively support industry in generating key challenges. This will enable the network by having one strong voice to lobby stakeholder groups for, funding, access to assets and expertise.
- * To provide an environment for industry to access benefits of RAS technologies. This will enable company's new to RAS technologies to understand how they can use and benefit from them.
- * Align challenges across a range of industrial and commercial sectors, identifying generic issues. This will enable interdisciplinary and cross-sectorial cooperation by understanding each other's challenges.

**Be
Centre
Stage**

RAS Clusters¹

To achieve this, the following objectives have been set:

- * To identify potential cluster foci / areas and profile capabilities and missing capacities or sub-critical resources.
- * Work with LEPs to identify strategic RAS objectives and mechanisms (including funding opportunities) for the creation or extension of supporting infrastructure.
- * To provide networking opportunities to help form ad-hoc clusters to work on industrial challenges, both grand challenges and individual challenges.
- * To actively promote the capabilities of emerging clusters to related and / or missing stakeholder groups including the financial sector, government procurement bodies, serial entrepreneurs and other companies capable of relocating.
- * To encourage open innovation within emerging clusters by helping end customers (both industry and government) to define challenges and by assisting the formation of collaborative groups in coming together to meet such challenges.

RAS Skills

To achieve this, the following objectives have been set:

- * Identify the current span of regional resources in skills and supportive infrastructure in both industry and academia. This will enable the network membership to understand the present RAS state.
- * Identify skill gaps and professional development needs via the use of industrial and academic network. This will enable the network to set curriculum for education establishments to align to industrial need; to promote employment in this sector to close skill gaps in industry and academia; and to enable a cultural change in the use of RAS through understanding its benefits.
- * Identify the current span of regional resources in skills and supportive infrastructure in both industry and academia. This will enable focused RAS technologies development to directly support industry challenges.

*A challenge is a risk, a need and an opportunity.

Clusters have a critical mass of supply companies and skills / research groups such that become generators of new companies and products. Cluster actors are close enough for frequent face-to-face interactions, have common focus and embedded access to equity finance and incubation facilities as well as end user representation. Experience shows that cluster formation cannot be forced but it can be encouraged.