

Locally-led Innovation Accelerators delivered in
partnership with DSIT, Innovate UK and City Regions



ASSIST Project Summary Report

Project Name:	ASSIST (Aerospace Suppliers Innovation Support Trial)
Programme Name:	West Midlands Innovation Programme (WMIP)
Organisation:	Midlands Aerospace Alliance (MAA)

PROJECT SUMMARY

Background:

The West Midlands aerospace cluster is strong in the number, breadth and depth of its advanced-technology lower-tier aerospace manufacturers. Yet 94% have received no R&D grant funding from the UK's national aerospace innovation ecosystem in the last decade. This is despite the establishment of a UK Aerospace Technology Institute (ATI) in 2014 which has distributed £3.6bn of R&D funding to subsidise technology development in the aerospace sector. For the purposes of the ASSIST Project, we have called these 94% of companies Group X. The 6% which have been in receipt of some form of national innovation funding have been called Group A.

Group X companies tend to be well-established and have strong ties to their local communities, providing long-term high-value jobs. They typically hold the 'gold-standard' AS9100 aerospace qualification for the manufacture of aircraft flying parts, including safety-critical parts, and are highly technically proficient. Their technical expertise is often prized when it comes to solving challenges associated with the introduction of technologically innovative new aircraft.

Anecdotally, Innovate UK, the ATI and national publicly funded R&D assets like many of the High Value Manufacturing Catapult centres have reputations among Group X companies as being difficult to access as sources of funding to subsidise R&D, and expertise. On the other side, national innovation scheme operators report that they find it difficult to engage with these companies.

Without effective support and funding for innovation, the risk is that Group X companies will continue to compete only on price, quality and delivery, increasingly with well-funded and innovative emerging market competitors around the world keen to grow their own market share and jobs. Group X companies themselves have significant untapped potential for accelerated innovation, and if this can be unlocked, regional economic outcomes could be impressive.

Project description:

The ASSIST Project engaged in depth with 11 Group X companies within the West Midlands Combined Authority (WMCA) borders to understand empirically why they do not participate in

the national innovation ecosystem today. It also interviewed 10 Group A companies to understand where the differences lie.

In parallel, the potentially relevant current UK innovation funding and activities landscape was researched to understand what support is available to small aerospace manufacturers.

The ASSIST Project proceeded to take a cohort of six Group X companies through a pilot process with an MAA aerospace technology expert to develop a holistic view of their capabilities and innovation potential. It then tried to identify the national funding streams, R&D assets and big industry partners that could help them.

Target objectives:

The objectives of the ASSIST Project were to:

1. Advise national innovation institutes, R&D assets and major (Prime, in aerospace language) companies in the industry how to best engage with Group X companies and facilitate their participation in innovation programmes.
2. Define a process for supporting small companies like those in Group X to access innovation funding and collaborations.
3. Take 6 Group X companies through a process to assess their potential, produce a tailored innovation plan for them, and match them to an appropriate funding scheme or opportunity.

Associated outputs:

- A piloted development process to assist companies in understanding their innovation potential and match them with national funding or support opportunities.
- A better understanding of how the detailed design of R&D programmes within the national or regional innovation ecosystem could be improved to make them work effectively for place-based small manufacturing companies.
- More WM companies participating in the national and regional innovation ecosystems.

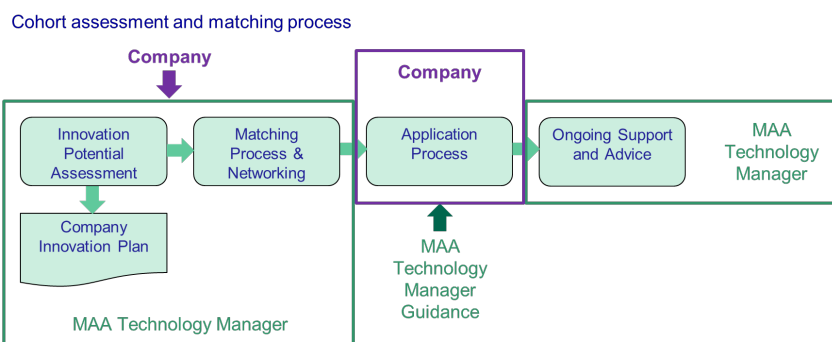
PROJECT EXECUTION

Eleven Group X companies were interviewed, all within the WMCA area. Ten Group A companies were interviewed. So few WMCA aerospace manufacturing suppliers have received national ecosystem support that the MAA were forced to look beyond WMCA borders into Leicestershire, Shropshire, Staffordshire and Worcestershire to find sufficient Group A companies to work with.

Pilot scheme process

The information gathered from company interviews, sources such as their websites, and reports which had been shared, were pooled into a single Innovation Potential Report for each company.

This report highlighted areas where the company has scope to develop or grow, as well as areas in which they need support or advice to exploit their innovation potential. It also identified where the company would benefit from partnership, networking or customer contacts, and it listed actions to be taken immediately.



PROJECT FINDINGS

Group X and A company characteristics

All the Group A and Group X companies engaged were small specialist manufacturers. They manufacture small batches - often related to New Product Introduction (NPI) or Aftermarket (AM) niches. They tend not to seek large volume production or try to compete with companies that do, although they often win work away from larger companies with their superior technology know-how. Often, following their involvement with NPI work, they expect to lose the larger production volumes to an overseas low-cost competitor, and they remain focussed on difficult short-term business opportunities.

Most of the Group X companies, the 94%, have traditional aerospace capabilities such as metal finishing or treatment, precision machining, forming and/or joining of aerospace metals, but their real USP is their customer service and their ability to fulfil difficult jobs in small batches with flexibility. They innovate largely around quality and cost or improvements in product specifications specifically for their customers. They have a culture of improvement throughout the organisation. Yet characteristically, they have not developed a strong R&D lead in the senior leadership team.

Group A companies, the 6%, have participated in the national innovation ecosystem from an early point in the company's development, or they have been latterly encouraged to do so through partnership with a larger company that has received R&D grants. They usually have senior employees or a founder from an R&D background, who are accustomed to writing technology papers and are not fazed by the jargon specific to R&D application forms.

Group A and X experiences and perceptions of national innovation funding

Group A companies have experience of funding programmes and the advantage of templates based on this experience that they can apply to upcoming funding opportunities. They can find those opportunities thanks to their familiarity with the ecosystem, and their contact network. They are known within the innovation community and are sometimes asked to participate in consortia. They are familiar with the administration involved and the potential benefits of a funded R&D project, so can weigh up its value.

Group X companies have no experience and a very large learning curve to negotiate which is a significant barrier even to getting started. They have no network, are unlikely to be invited to participate and without a full understanding of the benefits, struggle to justify the effort involved. Moreover, the bureaucratic jargon employed by national innovation ecosystem institutions often appears inscrutable to them.

Group A specific experiences of funding and feedback

Group A companies fed back on their experience of national funding. They explained that high administration overheads, high levels of effort to network and connect, long timescales from application to contracting, and low chances of successful application even for good well-designed projects have to be weighed against the advantages of working with higher tier aerospace companies, the financial subsidy that allows more risks to be taken and getting access to new markets, new customers and even new suppliers.

They would like to see some improvements in funding streams to attract smaller manufacturers such as a quicker, less onerous process with impartial expert support at application stage and help to find partners. They would recommend subsidy rates which recognise the level of risk and high administration overheads involved (conversely, reduced administrative burdens would allow lower subsidy rates and therefore more “bang for the public sector buck”). They would also recommend timely payments to help cashflow, as well as elimination of minimum grant sizes that often disqualify small companies that need to undertake small projects.

Group A companies also had valuable advice for Group X when making applications, which focussed on ensuring that the project is right for the business and that the application contains all foreseeable costs including the sometimes-high levels of administrative process imposed by funding bodies.

Group X specific perceptions of funding and future need

The Group X company perceptions of the national innovation funding ecosystem are that it is time-consuming, bureaucratic, unresponsive and slow to pay. They have some reservations about entering consortia with aerospace Primes due to intellectual property protection issues (they fear large companies will not respect their IP), and they are often suspicious of government scrutiny. They can put off by jargon and feel remote from the world of “official” R&D.

The Group X experiences of regional R&D funding schemes (when these have existed, which they do not at present) were gathered, since this is where they have some direct experience. This suggested that even small regional grants have often called for longwinded, prescriptive justifications such as requiring job creation which tends to exclude manufacturing R&D designed to increase the productivity of existing employees.

An open question was asked of all the Group X companies to tease out the ideal R&D funding programme format for them, and what they would need or like to see in the way a programme is set up.

The picture that emerged was one of a quick, jargon-free application process in business language, with simple justifications, a quick decision turn around, and light touch administration combined with industry expert help to develop their R&D project design. The programme would need to be flexible in terms of eligible projects and what grant subsidies can cover, and would ideally be open for companies to apply to over a long period so it is there when business needs it rather than when the funding body decides.

Actions taken with the pilot cohort

A number of actions were taken with the Pilot Cohort companies, which focussed on increasing their innovation funding network and understanding of the ecosystem, making introductions to relevant institutions and funding bodies, applying for funding where appropriate and registering

companies for generic publicly funded support programmes in both technology and business support domains.

THE NATIONAL INNOVATION FUNDING ECOSYSTEM

A significant strand of the ASSIST project was to research and map today's UK funding ecosystem. The research looked at the recent past and present picture of that ecosystem and explored what might be needed to augment it and fill any gaps in the future.

Innovate UK provides national funding for aerospace largely through the ATI. These are typically large strategic projects that subsidise R&D at Primes and first tier companies, sometimes partnered with new technology start-ups or R&D assets including universities.

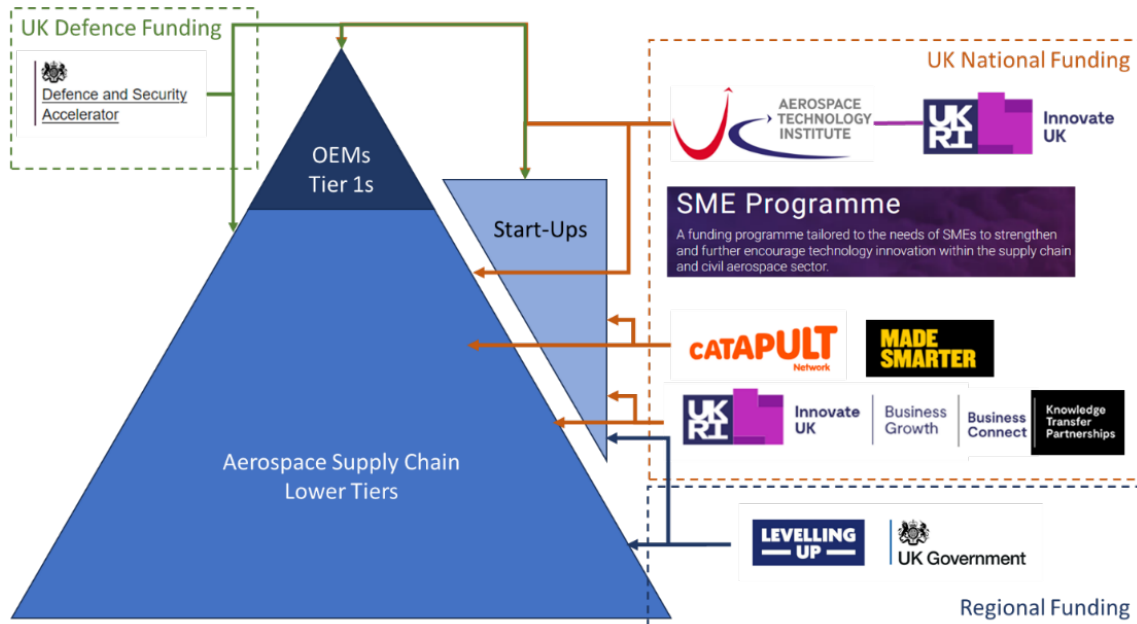
The National Aerospace Technology Exploitation Programme (NATEP) was run by national bodies even though aimed at the lower tier suppliers based in the regions, so could appear distant to West Midlands companies. The European Regional Development Fund (ERDF) provided many distinct regional funding programmes, often in much smaller funding pots, that were ideal for lower tier suppliers. With Brexit, ERDF funding has dropped out and the Department for Business and Trade withdrew its support for NATEP which has come to a close.

The gap created is now starting to be filled with a new ATI "SME programme", and in some regions rather patchy Levelling Up funding and the Shared Prosperity Fund. UK defence funding through the Defence and Security Accelerator can be accessed by any supplier as long as they meet the security criteria.

The most promising programmes to support small traditional manufacturers would appear to be those associated with some of the High Value Manufacturing Catapult centres. For example, the Advanced Manufacturing Research Centre (AMRC) at the University of Sheffield has bespoke support for development and innovation that they can offer to small companies. The AMRC and Warwick Manufacturing Group (WMG) have reputations as very responsive and SME-friendly Catapult centres. Conversely, the National Composites Centre (NCC) and the Manufacturing Technology Centre (MTC) and are perceived as very difficult to engage with (even though the latter is in Warwickshire) and do not seem to have any specific SME or lower tier manufacturer outreach programmes currently.

The various business support mechanisms offered by Innovate UK are primarily aimed at high growth areas or game-changing technologies rather than the long-term steady incremental technology improvements many Group X companies require support to develop.

There are some specific modes of support in existence today which are of interest for small manufacturers including the Made Smarter Digital Adoption Programme, and the Business Energy Advice Service (BEAS), though these are targeted at what policy makers perceive as key priorities, not necessarily what Group X companies perceive as their requirements.



The current aerospace R&D funding ecosystem

The ATI SME programme

Since the new ATI SME Programme is aimed at providing R&D grants to smaller businesses, the ASSIST project focussed on understanding how it will be administered and how it might be of assistance to Group X type companies.

The programme's outline stage has been designed to help SMEs to come into the national aerospace innovation ecosystem and get support for their application writing, with support from staff at the ATI Hub in the form of online clinics and 1:1 support. However, the following full stage application is largely unchanged from the larger strategic programmes with much of the same administrative overheads and timescales.

Comparing the ATI SME programme to some current and recent regionally funded programmes that are probably more appropriate for Group X companies, we see some obvious differences. The regional programmes are easier to access, have much quicker application processes with less administration, smaller grants and more flexible definitions of eligible technology development that reflect what Group X aerospace businesses themselves require rather than being constrained by the strategies of national policy makers.

CONCLUSIONS

Most national innovation and funding opportunities are set up with the development of new technologies and products in mind. They appeal to the big technology companies on the one hand and small technology startups on the other. Established companies who are looking to develop incrementally and grow their existing expertise or develop a new manufacturing process or capability would be hard put to find anything of relevance there and would struggle with the administrative overheads.

Whilst there are currently limited regional or generic business development funds available, these are fragmented and difficult for smaller companies to find through their own efforts.

In a nutshell, the key conclusion of the ASSIST project is that with thoughtful design of smaller-scale R&D and innovation funding programmes, many more West Midlands aerospace manufacturers could join the large companies and be supported to develop their own IP, grow their businesses and make a greater contribution to the local economy.