Centres of Excellence

A report for the Aerospace IGT

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Derek Simpson - General Secretary

Foreword

Amicus believe that the UK aerospace industry has a unique opportunity presented by the establishment of the DTI Aerospace Innovation and Growth Team (AeIGT).

As a representative body of Britains major aerospace trade union we believe that the UK's Aerospace industry is vital to the success of Britains economy. It is our belief in the future of the sector and the progressive attitude of our members that has led to many ground-breaking agreements. We have no doubt that the UK's aerospace industry is the jewel in what is left of the UK's manufacturing crown.

The effects of September 11th 2001 badly wounded the UK aerospace industry with tens of thousands of job losses in most case's highly skilled jobs that have underpinned the industry. Despite this fact this was still a sector of UK industry which last year contributed £3.8 billion to the UK balance of trade and accounted for 7% of the nations total exports*.

Aerospace is a highly skilled industry, with over a third of all employees holding a degree or equivalent qualification and over 11% of its workers involved in research and development. This has meant that aerospace is at the forefront of the knowledge economy*.

The Government, Industry, and Trade unions must work together to overcome the many issues facing the industry. Issues such as recruitment and retention a recent report published by the SBAC* highlighted that 42% of the workplaces it surveyed had problems filling vacancies. This is just one of many areas which identified that a tripartite partnership between employers, unions, and Government would benefit the industry.

Amicus believe that it is right that the industry should acknowledge the support received from Government and identify ways of improving within, but also believe that if investment is needed this unique industry must campaign for that support.

We hope that this document will outline the areas where the industry can improve itself and outline the support needed from Government in order to leave future generations an aerospace legacy.

* SBAC Facts and Figures 2001

* SBAC High Performance Work Place Organisations 2002

Introduction

Amicus welcome the involvement it has had within the AeIGT. This report has been produced to provide a framework of key recommendations, we believe are necessary to underpin the future of the industry.

The main theme to the recommendations contained within the report is that the UK aerospace industry is facing a number of major challenges, many of which are linked to the continued globalisation of the economy. Research and Technological development has a key role to play in mastering these challenges, as will productivity and competitiveness. The ongoing globalisation of the economy can only increase the challenge to remain competitive within the Aerospace industry, as trade barriers and protectionist mechanisms continue to fall by the wayside. UK aerospace is now battling head-to-head with industries around the globe, including Europe and the traditional power of the United States. The up and coming industries in Asia and South American are rapidly becoming more competitive.

Amicus believe that in order for the UK aerospace industry to maintain its current position as the world's second largest supplier the UK will need to adopt a more strategic view. We believe that this can be achieved by establishing a number of National Centres of Excellence for the industry. These Centres can provide a vital link between the unions, industry, government and the world market. The centres themselves need not require additional funding from government, just better use of funding currently available. The Centres by providing a client- based service can help to ensure that best practise within the industry is freely available.

A more detailed view of the different types of Centres of excellence needed are contained within the report, but we believe the philosophy of maintaining the UK's aerospace manufacturing base is fundamental to the success of the industry. We have also included within this consultation document a number of smaller regional case studies for centres of excellence. These proposed projects supported by the union are fundamental to the continued success of the industry.

Although it is right that Research and Development (R&D) is the lifeblood of the industry, we believe however that manufacturing has been the heart of the UK's success over the last decade. Low cost-low value manufacturing has been under increasing pressure recently as third world countries offer a lower cost base. We believe that in order to take full advantage of successful R&D programmes the UK must seek to develop the manufacturing capabilities to match any technological advances.

The employment figures within the UK aerospace industry for 2001 show that employment had declined by 2.5% to 147,090*. We believe that the hollowing out of the aerospace skill base within the UK will if unchecked seriously harm the industry's ability to continue to function in all but a few niche areas.

We must not forget that air transport is experiencing a period of remarkable expansion and is expected to maintain and even increase its growth rate over the coming decades. Globally, over 16,000 new commercial aircraft worth more than 1 trillion Euros will have to be produced within the next 20 years to satisfy demand*.

It is vital that the AeIGT scopes within its final recommendations the whole industry from board- room to shop floor. Amicus look forward to jointly promoting these recommendations and working with the industry, Government to provide future generations with a worthwhile aerospace legacy.

Rob Jonston, John Quigley, Tom Gunner, John Wall

* SBAC Facts & Figures 2001
* European Commission New perspective in Aeronautics(KI-NA-20-058-EN-C)

1.0 Why UK Aerospace Manufacturing is the key to future prosperity

Amicus believe the development of post industrial services such as computer software, entertainment and media, and financial services have caused the UK to abandon its manufacturing base in pursuit of a supposedly more prosperous future within these sectors. The advent of the new economy driven by communication networks and knowledge workers has seemingly made manufacturing a second or third world concern. However the recent collapse of the dot-com industry has already demonstrated that any country which adopts the post- industrial route at the expense of its manufacturing base risks economic instability.

The UK aerospace manufacturing base far from being mere snap assembly work, has moved on to a modern sophisticated production of high tech components and materials. Although at the leading edge of many technological and process innovations the UK is still seen by some as under increasing pressure from third world and developing countries. However the third world is heavily handicapped in trying to export manufactured goods to the west because of abysmal local transportation systems, not to mention the high cost of shipping bulky goods to overseas markets.

High tech manufacturing such as the aerospace industry is necessarily very-capital intensive. To some this seems a major disadvantage, but this view could hardly be more wrong. Generally the more capital invested in a factory the higher its productivity is likely to be. This superior productivity is usually the driver to higher wages. Also the fact that an industry is capital intensive almost automatically elevates it beyond reach of competitors in low-wage nations.

Wage costs in capital intensive industries such as aerospace are likely to represent only a small proportion of total costs. They dwarfed by depreciation, financing charges, royalties for intellectual property, research and development expenses and other high overheads. Just how small the wage component can be was illustrated by Motorola who after looking at many alternative sites around the world decided to locate the factory in the ultra-high wage Germany. Germanys high wage costs mattered little because wages accounted for only 3% of the company's total expected costs.

In truth from the point of view of an advanced manufacturing company the need to offer higher wages was a small price to pay for the advantages of a German location. Where as wages added only slightly to the overall costs, Germany offers a world class manufacturing infrastructure complete with superb utilities, reliable delivery services and honest regulators. Also the advantage of a well-educated and disciplined workforce. Capital intensity is not the only advantage that manufacturing has also another key advantage is that it enables incumbents in an industry to build up huge endowment of property know how that gives a wide productivity edge over new entrants to the industry. Patents explicitly protect some of this know-how, but often the most valuable know-how can only be acquired by many years of learning by doing. This is one of the key reasons why the UK aerospace industry must maintain its current manufacturing leadership.

Manufacturing know-how can be a formidable advantage over a new entrant to an industry. Lacking the benefit of the incumbent's know-how a new entrant is condemned to achieve notably poor labour productivity rates. Even if a new entrant operates from a developing nation and therefore enjoys a large advantage in lower wages, its unit costs will start out considerably higher than those of the incumbent and it will continue to absorb losses for many years as it struggles to catch up in know-how.

In highly advanced manufacturing techniques such as those found in products like liquid crystal displays, a new entrant to the industry would be lucky to get a yield of good screens of as much as 10%. By contrast the leading incumbents in this complex field achieve yields of 90% or more. This difference can give incumbents a 9 to 1 productivity advantage over new entrants.

To further expand the argument of productivity and innovation being of greater importance than a low wage cost base we can use one of the oldest manufacturing activities shipbuilding. Again this is an industry which is perceived to have been lost to low wage countries when in fact some of the most successful shipbuilding countries are exactly the opposite and high wage.

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Moreover not only has the shipbuilding industry survived as a first world activity it is also likely to remain a key provider of high wage manufacturing jobs for years to come. If we use Singapore as an example in 1996 the British Shipbuilding industry's shipbuilding launches trailed those of tiny Singapore by 5,000 dead-weight tons. An amazing fact when you consider at the time that wages in Singapore where running at nearly 45% higher than in the UK.

Another eye opener for those that maintain that shipbuilding can no longer maintain first world jobs is Japan who have maintained a World-class shipbuilding industry despite paying some of the worlds highest wages. All these facts clearly point to the fact that the UK must work to retain its entire aerospace- manu-facturing base. We innovate and seek greater productivity but this should be done in the name of expan-sion not contraction. Amicus believe that advanced nations such as the UK clearly need a judicious balance of manufacturing and services, not least post industrial services as most of these services are necessary to support and enhance the manufacturing base.

2.0 Market Observatory and Information Centre

The issues raised in the Amicus study **World Class A blueprint for the future of the aerospace industry**, have brought together much of what is currently known about the challenges and threats facing the UK aerospace industry. The report also pinpoints the need for much greater intelligence about the dynamics and direction of change within the industry. The report highlights a need for improved co-ordination, monitoring, communication and information exchange in order to build a stronger body of aerospace intelligence, not only for the union movement but also the industry and Government.

By establishing a UK aerospace Industry Observatory to monitor trends in investment decisions and flows, international trade and exports the UK can establish itself as a centre of excellence for aerospace intelligence. The UK observatory would be used to inform all industry stakeholders- from corporate to community. In particular the observatory could be used to provide information on offsets, outsourcing, and workflow, overseas investments and the links between big procurement or investment decisions and the UK industrial Base.

This exchange of information would ensure that there is greater cohesion within the industry and that the UK would have a clear policy on Aerospace information dissemination. It would also ensure that the industry could become more proactive rather than reactive to market change. The whole industry would benefit from the experiences of each other making sure that UK PLC comes first.

There would of course have to be a degree of confidentiality but this could be provided by the observatory complying to the same rules that bound the Dti. The Observatory and information centre would also provide advice on issues to the industry through regular bulletins and also a web site would provide on-line advice. Also a centre of excellence for the provision of information will improve the interaction between the industry and Government with the key stakeholders being situated in the centre of excellence.

Currently the union, industry and government all fund their own information gathering networks and although these all provide good service to their individual client bases they are all limited to the resources they have available. By pooling these resources the same information would not be researched several times this would allow for a wider scope of information to be commented on and greater dissemination within the industry.

3.0 Aerospace Human Resource Centre

Amicus are without doubt Britains largest union in the Aerospace Industry, providing high quality representation to tens of thousands of members across the sector. The membership base of Trade Unions in the sector make us major stakeholders. We also have good relations with other major stakeholders in the industry such as the SBAC and many of the employers within the industry.

This relationship has led to many ground -breaking agreements and has helped the industry to fight for its survival in a difficult period after September 11th last year. The UK Aerospace industry in the past has represented the best and worst of Britains manufacturing industry. At best world class job and wealth creation and at worst the haemorrhaging of jobs we have seen since September 11th.

Amicus has already carved out for itself an unequivocal preference for working with employers in partnership on the basis of good industrial relations. The Union has based its approach to industrial relations on this model and has been at the forefront of many of the UK's most innovative partnership agreements. Partnership runs like a watermark through many of the Union's policies and has brought many benefits to both employers and employees. We believe the development of a proper partnership offers a major opportunity to improve performance and profitability as well as raising wages and ensuring long-term job security in the sector.

Partnership at work is about good industrial relations, joint approaches to solving business problems; implementing change through consultation and involvement of employees; emphasising shared culture and shared learning and recognising the rights and responsibilities of both management and employees.

We believe by establishing a national human resource centre we can model the industry on the best practise of its leading employers and unions. The recent publication of the SBAC audit of High Performance work place organisations 2001 highlighted some worrying trends within the industry.

The effects of September 11 badly hurt the British aerospace industry with 20,000 job losses announced and 18,000 in the immediate supply chain. A total of over 40,000 jobs where vulnerable. But by taking a common sense approach with employers we have been able to mitigate many of these redundancies and retain many of the highly skilled workers needed within the industry.

Aerospace is a high skills industry, with over a third of all employees holding a degree or equivalent qualification and over 11% of aerospace workers are involved in research and development*. This has meant that aerospace is at the forefront of the knowledge economy, creating high value added jobs.

But recruitment and retention have remained problems for the industry and the report highlights that 42% of establishments have problems filling vacancies*.

Although the industry has just been through huge waves of redundancies an upturn will quickly expose the deficit of scientific, engineering and technical skills. This is just one of many areas where both Unions and employers can work together in making sure Britains manufacturing industry comes first. The highly skilled nature of the Industry means that skill retention and training are other ingredients vital to the industries long- term success.

While orders have slowed down it is all to easy to look to a short term fix of redundancies, but this approach will only lead to a widening of the skills gap. Now is the time for the industry to begin the training programs that will build a workforce capable of embracing the new technologies of the future.

The survey reveals a rather discouraging picture in training. While expenditure per employee in the industry has increased – from £220 in 1997 to £337* now the number of days devoted to training has only increased slightly over the past five years. By taking the long -term view the industry can demonstrate its willingness to match the commitment of its employees.

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High performance work organisations are founded on good employee relations and have strengthened employee involvement and encouraged the development of skills. The report highlights that employers providing profit sharing or share ownership schemes in 1997 had enjoyed higher sales per employee and higher added value per employee in 2002*.

Greater provision of information to employees was also associated with higher levels of profit per employee, and staff turnover is lower where companies give employees more responsibility for the quality of their own work

Larger companies and Unionised companies are more likely to have adopted lean manufacturing systems*. A fact both the companies and unions should be proud of. All of these areas would benefit from the establishment of a national human resource centre. The centre would be able to provide vital services and know how for the industry. Small to medium enterprises would be one area most likely to benefit from such a resource, the centre would be able to act as a database of skills and in some cases it may even be able to facility the provision of labour between companies.

This innovative approach would insure that vital skills are retained within the industry and that employees could enjoy a greater degree of employment stability. The Union with its knowledge of best practise in human resources within other industries would play a vital role in interaction between the national centre and local employers.

Already Amicus and the SBAC have worked closely together in submitting a proposed partnership bid for Dti funding, and it looks likely that this bid will be followed up by an additional bid aimed at promoting the industry to young people. Both of these bids will help establish a common culture within the industry. A national human resource centre would be able to facilitate the maximum dissemination of these industry-leading bids.

Amicus believe that a centre of excellence for human resources will not only have a national impact but also help to co-ordinate many local projects. We must encourage good industrial relations as an industry standard and ensure that good relations are not so reliant on individual relationships.

Included below is a case study from Bombardier Aerospace Shorts we have included this to demonstrate the type of project we would like to see facilitated at national level but with clear regional benefits.

Bombardier Aerospace Shorts is a firm believer that there is a need for UK Government support in at least two key areas:

1. Technology Development
2. Technology Application

1. Technology Development

In respect of the first, technology development, we would strongly advocate the establishment of a limited number of Aerospace Centres of Excellence at selected Universities within the UK, however those centred on Integrated Aircraft Technologies (IAT) rather than those centred exclusively on the more traditional areas of specialism. For example, BA Shorts has developed, over a period of 10+ years, a close relationship with Queen's University Belfast (QUB), leading to the proposal for the establishment of a Centre of Excellence in IAT at the University. This proposal is in the final stages of the approval process, however an overview thereof is provided below as an illustration of the perceived benefits associated with this approach to technology development.

Centres of Excellence – A Case Study

The challenge in Aerospace Engineering over the next decade is to meet the increased demand for safety, environmental compatibility and capacity, enhancement in performance and reduction in cost, but with new technologies. This requires not only a better understanding of new technologies in traditional performance disciplines such as Aerodynamics, Propulsion, Structures, Systems, Materials and Manufacturing but also a profound shift towards the integration of these disciplines through, for example multidisciplinary design optimisation, integrated product and process development, project management, risk management and supply chain management. There is also required a profound shift towards improved communication, better training of young Engineers and a stronger bridge between industry and academia.

In a major step towards meeting these challenges, there has already been proposed, with potential funding by Invest Northern Ireland for an initial 3-year period under the EU Programme for Peace and Reconciliation, a Centre of Excellence on Integrated Aircraft Technologies at Queen's University Belfast (QUB) , in partnership with Bombardier Aerospace Shorts and the Northern Ireland Aerospace Consortium (NIAC). The purpose of the proposed Centre is to make Northern Ireland Aerospace education, training, research and aircraft component design and manufacturing capability globally competitive with retention of skilled personnel and sustainable employment.

It is intended that the research of this Centre of Excellence be focussed on innovative technologies in traditional disciplines, but in parallel with a major challenge of developing methodologies for integrating these technologies at an early stage of design, for best cost and performance. This type of research demands a high degree of specialist knowledge in several areas of Aeronautical Engineering and close links between academia and industry. In recent years the School of Aeronautical Engineering at QUB (which has an RAE 5* rating) in conjunction with Bombardier Aerospace Shorts has been conducting research in aircraft engine nacelle, aircraft fuselage and aircraft cost modelling, leading to the establishment in 1999 of the Bombardier Aerospace / Royal Academy Chair of Integrated Aerospace Engineering at the University. This unique link between academia and industry opens up the opportunity to conduct the high level of both targeted and focussed research that is required to make the Centre a successful venture.

The strategic aims will include the following objectives:

- Research into strategic targeted technologies on aircraft engine nacelles and fuselages
- Develop an integrated model for aircraft design linking critical disciplines
- Develop a sustainable infrastructure for research and training of Engineers for employment in Aerospace and Allied industries
- Develop a strategic partnership between Industry, Academia and Government Agencies
- Develop tools for technology transfer
- Attract high quality international experts to conduct research at the University
- Maintain RAE 5* Rating of the Schools of Aeronautical and Mechanical Engineering
- Develop multidisciplinary links within the University
- Host international conferences on Integrated Aircraft Engineering
- Establish a new more integrated and focused context for the research endeavours of the University
- To help meet new engineering requirements that demand high performance at competitive cost

In the context of Northern Ireland specifically, the Centre of Excellence is envisaged to offer several significant attractions:

1. It should generate opportunities for wealth creation, skills enhancement and increased employment, especially if it sustained beyond its embryonic (3-year) stage.

2. The initiative should be a mechanism for keeping well-trained engineers motivated, encouraging them to remain in Northern Ireland (in the past a significant number of aerospace engineers have left the province)

3. By offering an opportunity for increased employment and career enhancement, the initiative should enable people from all traditions, classes and backgrounds to work together (the so-called peace dividend)

4. It should help to establish appropriate collaborations with other organisations within the UK and Europe, thereby maximising the potential for UK Limited to pursue inherent synergies that to date may not yet have been fully exploited

In summary, the Centre of Excellence should make Northern Ireland aerospace and allied industries highly competitive in the global market.

2. Technology Application.

In respect of technology application, we are conscious of how many US companies have been able to lever advanced technologies and advanced manufacturing processes off their involvement in nationally funded military programmes. Similar opportunities are rarely available to UK companies. We are aware of examples of where new technologies, some of which were 'discovered' or developed through links with academia, have failed to reach the point of application on 'real' production aircraft programmes because the high level of capital investment required has not been available.

There is little point therefore in establishing Centres of Excellence for the identification and development of potential new technologies if there is no funding available to develop these technologies to the next stage of production readiness.

Therefore, to meet the competitive challenges facing Bombardier Aerospace Shorts, and to ensure that we attain the maximum possible leverage for the technologies which we have developed or which we are in the course of developing, we would propose a series of Technology Application projects which are focused on our core business activities, i.e. the design and manufacture of fuselages, engine nacelles and large composite structures.

As an example, consider the potential application of welding technologies to the manufacture of fuselages. Both friction stir welding and laser welding have been proven to work in the laboratory and physical tests have been carried out on small-scale specimens to build confidence in the mechanical properties of such structures. In order to further explore and quantify the opportunities presented so that a full production capability can be proven to be a worthwhile investment, capital investment is required to accurately assess one welding technology against the other on production scale hardware but without full automation (it is unlikely that one would fully utilise both simultaneously) and to accurately measure the true benefits of the chosen technology over current (riveted) configurations.

Conclusion

Bombardier Aerospace Shorts is already committed to the creation of a Centre of Excellence for Integrated Aircraft Technologies in Belfast and would fully support the expansion and integration of this proposal with other institutions and universities, should the opportunity arise.

However, whilst we believe that such innovative approaches will in themselves bring real benefits to our industry and help us to maintain our competitive advantage, the full potential of technologies developed under such initiatives will never be fully realised unless financial support is available to bring the technologies to full production readiness.

Industrial Relations built on strategic partnership

Strategic partnership is the development and maintenance of working dialogue between key sector stakeholders which helps to ensure there is a framework of common understanding throughout the industry, from individual workplaces to national policy discussions. This helps to both identify and address the key issues affecting the competitiveness and performance of the industry.

A well-developed strategic partnership between the trade union and the trade association has already delivered key benefits in terms of common objectives for ensuring the continuing competitiveness of the industry. These include research and technology investment, lean manufacturing best practice, skill retention, and improved industrial relations. Amicus and SBAC also believe in the importance of supporting the development of clusters of excellence throughout the UK. All of this can only be achieved by companies adopting a proper partnership approach.

Aerospace is one of the most keenly competitive industries in the world. It is vital for the continued success of this important sector that the key stakeholders in the industry's future share a common vision.

Strategic Partnership will also be vital in ensuring that the DTI Innovation and Growth Team (IGT) achieves maximum benefit for the UK Aerospace industry. The Amicus/SBAC partnership bid will look to build on conclusions from the IGT and help provide a structure for long-term dialogue that is independent of individuals.

Amicus already develops its own competencies that add value to the many partnerships we have. This balance of obligation approach is central to the union's perception of what partnership means. The SBAC has likewise developed a number of key strategic partnerships in its dialogue with Government and within the industry.

A national Human Resources centre of excellence would provide the insight and experiences needed to ensure that the UK could benchmark its corporate culture against the rest of the world.

4.0 Best Practise Centre

Innovation in its broadest sense is about improving performance by doing something differently. Innovation is the successful exploitation of new ideas. It is these new ideas which will help the UK aerospace-manufacturing base keep one step ahead of direct cost comparisons with developing manufacturing countries.

Changes in the global economy highlight the role of innovation in driving sustainable increases in productivity and living standards. The combined forces of globalisation, changing tastes and preferences and Information and Communication Technology (ICT) investment are shortening product cycles. This has meant that products move from being able to command a premium to being price sensitive commodities more quickly*.

This has meant that in order for the UK aerospace industry to compete it must not only embrace modern manufacturing techniques it must also be able exchange and develop best practise techniques. A national centre of excellence to facilitate the exchange of best practise within the industry will help the UK to maintain high productivity and competitiveness.

We believe that a fundamental reason why more companies do not introduce best practise techniques is that up to now they have only had the option of pursuing business and product strategies based on mediocre quality and low price. These strategies depend on minimally skilled workers, performing standardised tasks to produce cheap goods on time and to a consistent standard. What many of these companies can not do is to produce to a high specification.

This problem is more common amongst SME's than in tier one and prime suppliers. Often it is not through reluctance on behalf of the SME's to embrace high performance manufacturing techniques but the costs associated buying in the necessary experience, which proves prohibitive.

Human capital has been identified as an important driver of economic performance. Skills gaps may cause a lack of, or delay to, product process innovation because workers may not have the skills to cope with producing new or better quality products or improved ways of making an existing product. This can constrain their ability to reap potential productivity gains.

The TUC Manufacturing a strategy for growth publication highlights that not only does the UK manufacturing compare unfavourably with other economies such as France and Germany, skills levels in UK manufacturing are worse than in the rest of the economy.

Even in high technology sectors like aerospace there are problems with basic numeracy and literacy. UK management and leadership are less skilled and less able to provide long-term leadership than their European counterparts. The Dti conclude that manufacturing employers provide fewer training days, devote less management time, are less likely to have a training plan and provide less new technology training than employers as a whole.

As well as influencing productivity growth, the skill of the nations workforce is one of the determinants of how well the economy adapts to structural change. The ability of an economy to foster lifelong learning is becoming increasingly important as this rapid structural change creates constantly changing skill needs.

Research by the NIESR* suggests that lower average skill levels in the UK account for one fifth of our productivity gap with Germany. Although the UK has a similar proportion of graduates to Germany, the UK has a much higher proportion of lower skilled workers. The US has a higher proportion of graduates than the UK, and the US stock of workers with intermediate skills may also be significantly understated by conventional data due to the lack of comparable national qualification structures in the US and the prevalence of uncertified vocational training. This suggests that the UK may have a higher proportion of low skilled workers than the US.

Skill proportions by country:

Higher Skilled	Intermediate	Lower
18% UK	24% UK	58% UK
25% US	20% US	55% US
15% Germany	61% Germany	20% Germany

The skills and training programmes adopted by the industry will determine its future. It is vital that the industry, Government and union take a unilateral approach to this issue. Providing a national Best Practise Centre that informs the industry and also provides on site education programmes is one way in which we can achieve this.

Amicus is committed to high quality training and education for all its members. In 1998, there were 91 education courses for 1,401 delegates delivered at the Union's **Esher Place** and Cudham Hall training colleges.

Technical training is also one of the Union's key priorities - 32 courses are on offer at employers' premises across the UK and Eire. Amicus is also currently working with partner companies and organisations on projects financed by the Government's Union Learning Fund. **Lincoln, Derby** and **Hull** are the venues for these.

The SBAC High Performance Workplace Organisations audit 2002 highlighted that Companies with a greater number of high involvement practices in 1999 such as semi-autonomous team-working, provision of information to front-line workers and job rotation within and between teams, tended to have more lean practices in 2002. These types of high performance work practices align closely with, and potentially reinforce, lean systems such as cellular manufacturing, Kaizen and Integrated Product Teams.

Size is also a factor with larger companies much more likely to have introduced lean systems, Amicus believe as stated earlier that this is due to the larger resources bigger companies have. Lean systems are also more prevalent in Unionised workplaces, indicating that Unionisation is not a barrier to workplace innovation and may even facilitate the introduction of these practises.

The UK aerospace industry must continue to be pro-active in its approach to manufacturing, Amicus believe that lean manufacturing if applied correctly is not a tool to reduce head count but a system to improve productivity. That is why our knowledge and that of employers who have been through this process will be a vital benchmark for the rest of the industry.

* Dti Productivity and Competitiveness indicators update 2002
* National Institute Of Economic and Social Research

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5.0 International Lobbying Centre

Globalisation and the increasing importance of European-level decision-making are two key reasons for the Amicus active International Department. In today's world interest, representation and the struggle to maintain the UK's aerospace industry have to go beyond national boundaries.

To effectively represent the interests of our members, Amicus is actively engaging with trade unions in other countries, particularly in Europe, as well as European and international trade union bodies. European works councils (EWCs) are another important area of acticvity for the union, with Amicus members representing workers on more than 100 EWCs. We as a union believe that international trade union co-operation is vital to secure the interests of our key industries, members and working people all over the world.

The European Metal workers Federation has recently welcomed the "STAR 21" report of the European Advisory Group on Aerospace, which outlines the future for a strategic industry with substantial potential for growth, technological autonomy, global competitiveness and employment prospects.

This Strategic Aerospace Review for the 21st century (STAR 21) provides a detailed analysis and broad economic guidelines for the future development of aerospace in Europe. It recognises that the aerospace industry is a metal sector where the level of employment, the quality of skills of workers, and the motivation and incentives for high technology productions is essential for global competition.

STAR 21 Report not only analyses the state of the aerospace industry in the face of these challenges but also makes a series of recommendations effecting its longer-term policy needs. The only downside of STAR 21 is its inability to really tackle the 'human resource' issues, which are essential factors in the development of a highly skilled, competitive workforce and growth in this strategic industry. This is a key area that with a joint approach between the Union and industry the UK would be able to take a lead on.

The EMF appreciates the openness of the Commission and Industry in having invited the EMF as an advisor within the work process. But the EMF reiterates and emphasises that there is a need to make trade unions a visible stakeholder in the future of industry. In the autumn the EMF will present its own policy document for the future of the European aerospace industry.

The union already has established a European Forum to support Amicus members in the European Parliament. The Forum involves all Amicus MEP's and projects Amicus policy at all levels in Europe and it gives a high priority to the campaigns of the Union. 17 UK MEP's are Amicus members, making ours the largest trade union grouping in the European Parliament.

This network and those of other stakeholders within the aerospace industry could be briefed jointly on a regular basis to ensure that the UK has a clear message to its representatives within Europe. The UK aerospace industry in comparison to its European counterparts is woefully under represented in Brussels.

The Union also has a network of relationships across the rest of the world. The ability to harness this network and compliment it with the SBAC's would give the UK a fantastic opportunity to promote the industry. Both in terms of the representations given out about the industry, but also a joint approach would be a key element to attracting overseas investment into the UK.

An established international lobbying centre would also be able to increase the examples of joined up Government. By engaging with all the various elements and departments with the structure of Government a consistent approach would be followed.

Amicus is a major political force, reflecting a very healthy political structure. The Unions Parliamentary Group consists of Amicus members who are members of the Labour Party in both Houses of Parliament, including 110 MP's. Amicus also has a prominent position within the Scottish Parliament and Welsh Assembly.

The group considers matters referred to it by the NEC and is focussed in sub-groups around Amicus main industrial areas: manufacturing, science, pensions, the voluntary sector, health and safety, equalities, the NHS, and finance, mergers & takeovers. The group supports members' interests through involvement in drafting and amending legislation, making representations to government departments, tabling Parliamentary questions and in work on Select Committees.

Already Amicus has worked closely with the SBAC in staging a number of high profile events designed to represent the industry at the highest levels of Government. Already we have staged Regional campaigns and this success should be the foundations for a joint strategic approach aimed at raising the profile of the industry throughout the world.

This unique approach of industry and Unions working together on behalf of UK aerospace will put out a strong message of common goals. Britain is currently one of the most dependant industries on exports so this would be vital.

6.0 Technology Centre

It is no coincidence that both Amicus and the SBAC both ran campaigns for the R&D Tax credit. R&D is the lifeblood of the aerospace industry, but despite this fact the UK only invests 10% of its turnover on this activity. If you compare that with France and Germany who are investing around 14% it is easy to see potential problems for the industry.

Last year Amicus carried out research into the Technology Partnership Fund in Canada. This innovative scheme encourages companies to carry out R&D within Canada. Since being in place Canada has grown from being the 7th largest aerospace nation to the 4th within just five years.(Copies of the report are available from Amicus)

Although a scheme like this would take Government commitment and a review of current policy there are more direct ways in which the industry and Government can take a joint approach. By providing greater cohesion between Regional Development Agencies and local industry several smaller Centres of Excellence could be established throughout the UK. These centres which would focus of specific skills or technologies would provide the UK with the framework to encourage more activity within this area.

The case study below is the best current example of how this programme should work and a scheme fully endorsed by the union. The scheme at Smiths Industries is vital to the long tem future of the site and has provided both management and the Union with a common goal. Currently representations are being made to Government and the local Regional Development Agency.

Centre of Excellence.

“Systems Integration” at Smiths Aerospace Cheltenham

Smiths Aerospace functions as part of Smiths Group Plc, a FTSE 100 company, which operates in four sectors: Sealing Solutions, Industrial, Medical and Aerospace, of which the Aerospace sector is the largest with approximately 38% share of turnover. Smiths Aerospace is Europe’s largest aerospace equipment supplier.

Smiths Aerospace Electronic Systems – Cheltenham employs almost 1200 people in Engineering, Manufacturing, and Support departments. It is responsible for the design and manufacture of major electronic, electrical and mechanical aerospace systems for use on both military and commercial aircraft. Its main customers are Boeing, BAE Systems, Airbus & Lockheed Martin. It exports approximately 80% of its products.

The main products of the Cheltenham site are:

- Power Management systems
- Fuel Gauging systems
- Display avionics
- Computer systems

This application is with respect to the establishment of a “Systems Integration” Centre of Excellence on the Cheltenham site. This is directly linked with the Company strategy of becoming a tier one supplier to all of its major customers through being capable of designing and delivering complete systems instead of individual piece parts.

The creation of a Centre of Excellence will strengthen our business competitiveness and becoming the systems supplier of choice to all its customers. Enabling Smiths to win more business over its European competitors in this high-end technology market.

The establishment of a centre of excellence on the Cheltenham site would have a significant impact for all the employees and the local community alike by creating a stronger business and centre of local employment.

The establishment of a Centre of Excellence would enable goals of:

- Allowing Smiths to address the expanding “integrated systems” market
- Securing UK employment for the existing workforce at Cheltenham and Smiths Aerospace UK.
- Providing supplier base benefit in terms of new orders – Suppliers will be required to develop higher capability.
- Local suppliers will also be required and assisted in creating their capability and competitiveness.

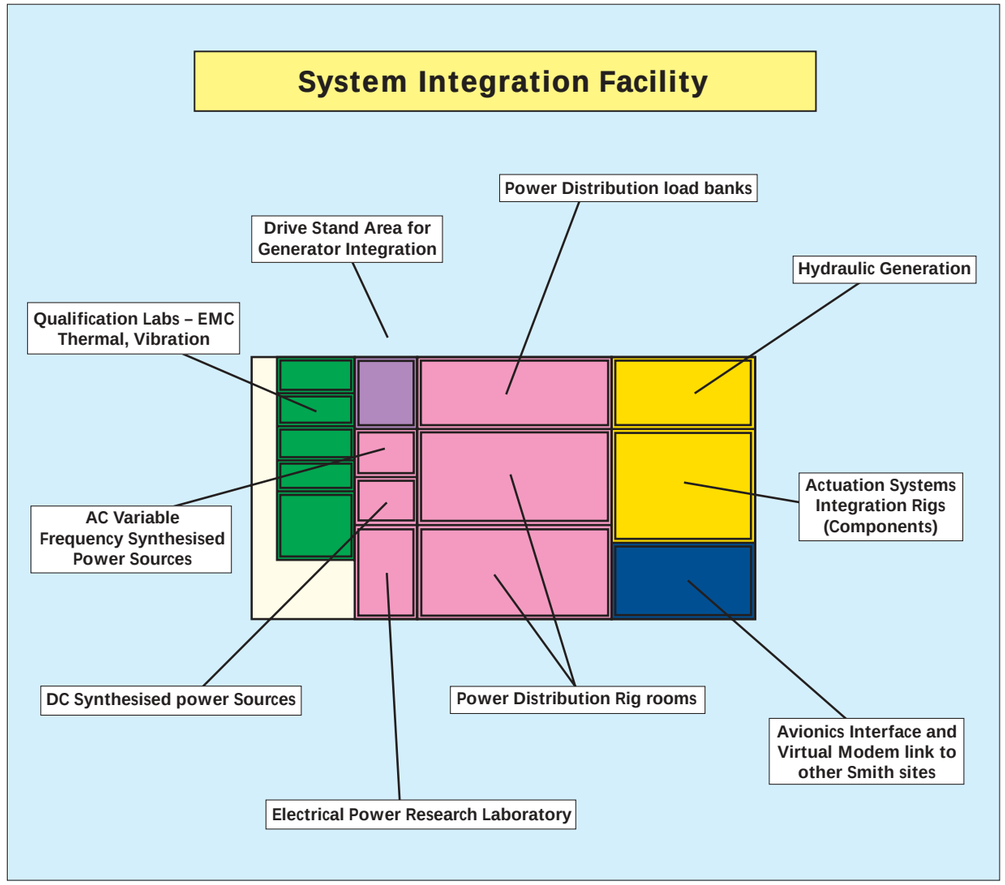
The establishment of a Centre of Excellence would directly align with Smiths Aerospace objectives. Smiths Aerospace has set aggressive strategic targets to grow the business by doubling both sales and profits in five years; this will be achieved through:

- Increasing share of existing markets
- Entry into new markets
- Putting continuous improvement (Lean) at the heart of all daily activity.
- Furthering the partnership between the Company, Unions and Employees.

Working in partnership is recognised as crucial to the future success of the business and evidence that the Company is committed to maintaining long-term employment on the site.

The lean enterprise philosophy has long been recognised as essential to enable profitable business growth. All Smiths Aerospace sites are engaged with lean activity as a means of achieving the strategic objectives. Smiths Aerospace Cheltenham is a ‘lean’ lead site within Europe and has been developing and promoting the lean enterprise approach for over 3 years, an approach which has been benchmarked by many National companies. It is expected that the establishment of Smiths Cheltenham as a Centre of Excellence will further enhance the lean activity by making the factory a ‘show case’ of activity.

The Centre of Excellence facility



The implementation of a Centre of Excellence in Cheltenham will have a positive effect on our supply base with many of our suppliers based in the local community, of which a large number are SME’s. With approximately 75% of Smiths Aerospace product cost bought out, of which 45% is from SME’s, the Centre of Excellence is expected to have a significant and direct impact through to all of our SME suppliers

Smiths Aerospace Cheltenham has enjoyed many years association with local and national universities. Smiths, has run an apprenticeship scheme for more than 30 years. Many of those recruited still work at Cheltenham. It has a stable workforce, with over 63% of the workforce, having more than 10 years service.

Currently the Company supports the development of young people into the field of engineering via a number of routes:

1. Smiths Technology Award – focused on Primary and Secondary Schools
2. Work experience
3. Apprentice development in software and electronics
4. Year in Industry students
5. Summer placements for engineering students
6. Graduate development programme

The systems integration facility would require the Company to recruit additional employees and retrain existing employees to operate it. The key skill areas will be laboratory engineers and technicians, simulation engineers and aircraft safety & legislation engineers.

To support training in general, the Company is currently planning the establishment of a learning resource centre for the site and for the benefit of the local community and local suppliers.

The Company has established and is actively strengthening links with a number of the UK's leading universities. Including:

- Bristol
- Cranfield
- Warwick
- Birmingham
- Bath
- Nottingham
- Imperial College, London

These links will continue to strengthen the Intellectual Capital of the Cheltenham site and continue to ensure that Smiths continues to design, develop and manufacture high technology products that meet the customer demands of the future.

Smiths Aerospace also enjoys a strong and rewarding relationship with academia through the Society of British Aerospace Companies UK Lean Aircraft Initiative, the Supply Chain Relationships In Aerospace (SCRIA) programme and the West of England Aerospace Forum (WEAF).

Summary

Amicus believe that the Aerospace IGT should make the following key recommendations:

- **The UK seeks to maintain and grow its current Aerospace manufacturing base.**
- **Good industrial relations form the cornerstone of this approach.**
- **Aerospace companies and Unions must develop joint training initatives**
- **Best Practise within the industry and manufacturing base is built upon**
- **Information about the market place is distributed more widely**
- **The UK becomes a world leader in R&D and technology transfer**
- **The UK takes a leading role in Europe and STAR21**

That in order to achieve these recommendations Government needs to factilitate:

- **A national strategy for Centres of excellence on those shown below**

Market Observatory & Information Centre	**Human Resource Centre**	**Best Practise & Skills Centre**	**International Lobbying Centre**	**Technology Centre**

That these centres be based on a pooling of resources where available and that Government provide funding for resources where needed. Also we believe the two cases studies shown should receive funding and be the first of several Regional Centres of Excellence built to underpin the future of the industry.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