



## **Solent Enterprise Zone Skills Plan**

Produced by Marchmont Observatory

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## FOREWORD

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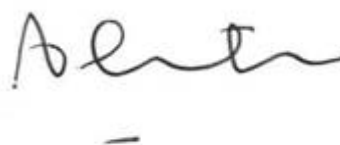
Enterprise Zones are a key part of the Coalition Government's growth agenda. The Solent Enterprise Zone, one of the first new Enterprise Zones to be designated nationally, is a clear demonstration of the commitment of partners in Solent to seek to regenerate an area which has experienced significant economic and social difficulties. Through the opportunities afforded by the Enterprise Zone designation, we believe we can create an exciting new development which will enhance and benefit the whole of Solent, whilst addressing the specific challenge of creating new jobs for local people.

Solent Enterprise Zone provides a unique opportunity to combine a substantial package of benefits designated by Government, together with the strong commitment of Solent partners to work together and combine resources. Through this we seek to work to the benefit of businesses and those who live and work in the area as well as attracting new high growth companies, to secure the area's long term prosperity. Already, there are signs that the designation of the area is acting as a catalyst for ideas, development opportunities and securing additional resources.

But let us not underestimate the challenge. For whilst the Government has given the Solent Enterprise Zone its backing, there can be no guarantee of success. We know from previous initiatives such as this that the package of incentives alone will not be enough. The unconditional support and commitment of the partners and businesses will be needed to truly make this a success.



Doug Morrison  
Chairman  
Solent Local Enterprise Partnership



Anne-Marie Mountifield  
Chief Executive  
Solent Local Enterprise Partnership



# EXECUTIVE SUMMARY

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## Introduction

This *Skills Plan*, commissioned by Solent Local Enterprise Partnership (LEP) and produced by the Marchmont Observatory at the University of Exeter, aims to:

*Promote a shared understanding of the Skills priorities needed to support the development of the Solent EZ to ensure that the provision of adult skills is tailored to the needs of the EZ, thereby maximising employment opportunities for the resident labour force on the Gosport Peninsula.<sup>1</sup>*

It has been developed in partnership with the Solent EZ Stakeholder Group and has drawn on:

- a literature review of relevant research and policy;
- a broad-ranging data analysis;
- presentations and views expressed by members of the Solent EZ Stakeholder Group during two workshops;
- interviews with employers and training providers; and
- responses to an online survey.

The *Skills Plan* thus seeks to: understand the challenges facing the Solent Enterprise Zone (EZ) and its surrounding area; articulate the skills needs of businesses; and assess the resources available to meet those needs. Through this process, we have identified a range of actions that will be required to ensure that the demands of businesses and the needs of local people are met, both now and in the future.

## The Solent Enterprise Zone

The Solent EZ is located on an ex-military airfield, HMS Daedalus, situated on the Gosport Peninsula between Portsmouth and Southampton. This coastal location benefits from both slipway access to the sea and an operational runway. It is a large site, covering around 400 acres, of which approximately 200 are located within the EZ, made up by both empty land for development as well as a significant number of hangars and other buildings that are in need of renovation or replacement.

## Objectives

Solent LEP has an ambitious vision for the site, aiming to make it:

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<sup>1</sup> The Enterprise Zone Skills Fund – Outline Plan available at [http://www.push.gov.uk/pic-amm-120607-r01-append\\_a.pdf](http://www.push.gov.uk/pic-amm-120607-r01-append_a.pdf)

*Solent's premier location for advanced manufacturing and technology focused on the marine, aviation and aerospace sectors<sup>2</sup>.*

More specific objectives are to:

- create up to 3,700 additional jobs on the EZ by 2026, contributing more than one third of the Solent LEP's additional jobs target;
- promote an advanced manufacturing and technology cluster focused on marine, aviation and aerospace;
- provide a catalyst for the regeneration of Gosport, as the least economically viable area in South Hampshire; and
- utilise the incremental growth in business rates to unlock the full potential of this and other Solent employment sites.

These objectives also align with the priorities set out in the Partnership for Urban South Hampshire (PUSH) Economic Development Strategy, which identifies Advanced Manufacturing, Marine and Aerospace as three of the areas five High GVA priority sectors.

Attracting new businesses to the EZ, and supporting existing ones to grow, requires a concerted effort. Partners will need to harness a wide range of resources to provide sufficient critical mass to make the most of this exciting proposition. Meeting the skills needs of employers is central to this effort and will require innovative approaches to the design and delivery of skills provision. Equally critical will be ensuring that local people are equipped with the skills to meet these needs.

This requires a strong partnership approach to address issues of market failure and ensure that the right mix of public funding and private investment is available to deliver the solutions the area needs.

The Government has recently announced its commitment to enhance the role of LEPs, positioning them as key players in developing the strategic planning that will drive the delivery of skills, as well as having a say over spending of national growth funds for housing, transport and planning. This enhanced role in ensuring that resources are used to meet local needs will be an important additional dimension to the success of the EZ.

## **Developing the Skills Plan**

The content of this report has been developed in consultation with local partners, using the following methods:

1. a review of the relevant literature, including research reports and policy documents;
2. an analysis of a wide range of data sources;

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<sup>2</sup> Solent LEP, The Solent Enterprise Zone at Daedalus, Implementation Plan, 2011 – 2013.

3. a workshop with the Solent EZ Stakeholder group;
4. interviews with key local employers and training providers; and
5. an analysis of input given in response to an online survey.

It has been overseen by the Solent LEP Chief Executive and her Executive Support team.

## Context

Alongside the core EZ offer, Solent LEP and local partners have already taken a number of additional measures to kick-start the development of Solent EZ.

The two local planning authorities have made a resolution to grant outline planning consents for the development of over one million square feet of commercial floor-space at the site, which, in total, contains 82 hectares of development land, available for new build and the conversion of existing buildings. Development Orders are being considered to simplify the planning regime further.

Solent LEP, the Homes and Communities Agency and Hampshire County Council will be investing over £15 million in a phase one development of the EZ, to unlock 21.6 acres of land for new commercial space (including 25,000 square feet of new advanced manufacturing business space), as well as off-site access improvements to the road network leading from Fareham and the M27 to the site.

Solent LEP has secured £5 million from Round 2 of the Regional Growth Fund (RGF), £2.94 million of which is being used for an 'Expansion Fund' providing grants of between £50,000 and £200,000 to small and medium-sized businesses that move to or that are already based on the site. This is a competitive grant fund, to accelerate business growth at the Solent Enterprise Zone and to safeguard existing jobs within a) companies already located on the site or b) businesses moving onto the site engaged in advanced manufacturing (with a focus on marine, aviation, and aerospace or similar advanced engineering businesses). Bidders to this Fund are required to invest at least 80% of the capital requirement for the project as a whole. An additional £1.5 million of RGF has been secured by the Homes and Communities Agency to improve the infrastructure.

Solent LEP has also been advised that they have been awarded £13 million from Round 3 of the RGF for the Solent Futures project. This provides £13 million of investment, of which £10 million will be allocated to support the defence sector in the Solent and it is intended that £3 million will be used to develop CEMAST - a Centre for Engineering Manufacturing and Engineering Skills Training at the Solent EZ. CEMAST is envisaged as 'a *world-class employer-led training hub*', delivering training and support to businesses sited on or around the Enterprise Zone, focused on manufacturing, engineering, marine and aerospace. Positioned in a prime location on the site, it is designed to act as a catalyst for attracting manufacturing employers to the EZ and securing a sustainable future for advanced manufacturing skills in the Solent.

In total, CEMAST, which was initiated and is being developed by Fareham College, is proposed to receive £13 million of investment:

- £3m from Hampshire County Council;
- £3m from Solent LEP's Growing Places bid;
- £3m from Solent LEP's Solent Futures bid;
- £3m from Skills Funding Agency; and
- £1m from Fareham College.

Due to open in September 2014, it will accommodate all of Fareham College's engineering provision alongside St Vincent College's marine engineering provision. It is anticipated that total provision will build to around 600 learners over four years, of which 200 are expected to be Apprenticeships.

All partners, including those investing in CEMAST, are clear that it needs to be much more than a single provider training centre. It needs to be a hub to which employers are drawn and through which they can access solutions to all their skills needs, including those at higher level. If aspirations are realised, CEMAST should offer local manufacturers the opportunity to: network with peers from other businesses; build knowledge; access innovation support; collaborate on recruitment; and develop bespoke provision.

## **Demand for Skills**

The foundations of the Solent EZ will be built upon a set of existing sectoral strengths. The importance of the engineering, aerospace and marine industries to the Solent LEP remains evident in the presence of major employers with supply chains running through the area, such as:

- BAE Maritime Services and Naval Ships which has a total of more than 4,000 employees employed across three locations within the Solent LEP area;
- QinetiQ, a Fareham-based defence technology company, focused on research, design and the development of marine, aerospace and land-based defence equipment;
- Eaton Aerospace, which has around 800 employees in Fareham, producing (re)fuelling systems and components for the aerospace sector;
- Vector Aerospace, which undertakes helicopter repair, maintenance and overhaul in Gosport.

The Skills Plan analysis shows that:

- The Solent LEP has a particularly strong concentration of employment in manufacturing, accounting for 9% of all employees (58,800 jobs). Within the manufacturing sector,

employment is concentrated in 'Other transport equipment', including aerospace/aviation and boat building. This accounts for 14% of all manufacturing jobs in the area (around 8,000 jobs in total) and more than double the concentration for either the South East or England.

- Compared with the average for England as a whole, the LEP also has a much higher concentration of employment in 'advanced manufacturing', particularly in the areas of computer, electronic and optical products, and electrical equipment.
- The Solent Enterprise Zone area has an even greater concentration of manufacturing employment than the LEP as a whole, accounting for 11% of all employees, around 7,200 jobs in all.
- In terms of employment in the LEP priority sectors, there has been some growth across the LEP area, with around 4,800 more jobs in 2011 compared with 2009, but relatively little of that growth has been in Fareham & Gosport. Nevertheless, employment in priority sectors remains comparatively more important to Fareham & Gosport than elsewhere in the LEP, accounting for 9.4% of all employee jobs.
- At the same time, in the LEP priority sectors, the overall number of active businesses has fallen by around 8%, with most of the fall being within advanced engineering. Turnover in that sector has fallen accordingly, but there have been significant increases in local turnover in defence and the extended marine sector.
- Looking to the future, the LEP is forecast to lose a further 15% of its engineering employment (2,300 jobs) between 2010 and 2020, reflecting national level forecasts. However, this change will affect different occupations to a different extent, with a clear shift away from lower skilled employment in process/machine operatives and elementary occupations, and strong increases in higher-level occupations i.e. managerial, professional and technical.

The challenge, then, is how to build on these strengths, particularly in the context of some of the broader economic challenges:

- The overall number of businesses (VAT/PAYE registered) has fallen in recent years, more sharply than national trends, accompanied by a sharp dip in the number of new business registrations.
- Increasing numbers of local people have become self-employed in recent years, possibly setting up businesses that are too small to be VAT/PAYE registered.
- Survival rates for new businesses have plummeted during the economic downturn, although this is true of the nation as a whole.
- One important indicator of the demand for skills is the number of employers reporting a skills gap. 16% of Solent LEP employers, that is 9,500, reported having a skills gap, with as many as 37,800 employees assessed as not being fully proficient in their job. This

accounted for 5.9% of total employment, a slightly higher level than was reported by employers across England as whole (5.5% of employees).

- The greatest concentrations of skills gaps are found in some of the least skilled occupations, such as Elementary occupations, Sales and customer service and machine operatives.
- Higher level (managerial, professional and technical) occupations have the lowest intensities of skills gaps (both locally and nationally), suggesting that higher level skills are not the main source of difficulty for employers in terms of being able to obtain the skilled labour they need.
- Taking into account the need to replace those in the workforce who will be leaving because of retirement (or other factors), it is estimated that there will be a net requirement for around 3,500 new recruits into the LEP's engineering sector from 2010 to 2020. Almost 80% of this requirement is expected to be in higher level occupations.

## Meeting the skills needs

A critical issue for the EZ is the extent to which the current supply of skilled labour in the local area meets those needs described above. The Skills Plan analysis shows that:

- 45% of local employment is in highly skilled jobs, in the three most highly skilled occupational groups (Managers and Senior Officials, Professionals, and Associate Professional and Technical occupations). This is slightly higher than the national average.
- However, the analysis indicates that the LEP's manufacturing workforce is not as skilled as might be expected, given its relatively high concentrations of employment. The proportion of people working in 'science, research, engineering and technology occupations' at professional or associate professional level is lower than the South East average, while the proportion working as 'process, plant and machine operatives' is higher.
- Claimant unemployment currently stands at 2.5% for the LEP (24,891 claimants), well below the national average of 3.8%. However, the 'real' unemployment rate is much higher (as measured by the ILO), currently estimated at 6.5% (49,200 unemployed) for the LEP.
- The claimant unemployment rate for Fareham & Gosport is 2.4%, with some local 'hotspots'. Six wards in the area had unemployment rates higher than the national average.
- The sharp rise in unemployment since the recession started has particularly affected young people, although the proportion of 16-24 year olds out of work is not as high as nationally. With a stuttering economic recovery and a slow increase in the number of job

opportunities being created, the number of long-term unemployed has been rising consistently over recent years.

- In terms of their usual occupation, just 5% of the currently unemployed worked in occupations that would most commonly be found within the LEP's priority sectors. The number of claimants usually in these occupations has been falling in the last two years, suggesting a reasonably good match between employer demand for these kinds of labour and the skills local people can offer.
- A lower than average proportion of the Solent's LEP's workforce (32%) is qualified to Level 4 and above, with a higher proportion qualified to Level 3 (21%). A quarter of the working age population (26%) do not have a Level 2 qualification, which is generally regarded as the benchmark for employability.

## The Flow of Skills

The Skills Plan examines various aspects of the local education and training infrastructure to look at its engagement with Science, Technology, Engineering and Maths (STEM) subjects, as these may be the most important areas of skills for employers within the LEP's priority sectors. Analysis found that:

- Achievement levels at Key Stage 2 (11 year olds) in Maths and Science are generally above average, while at Key Stage 3 (14 year olds), they fall below average. At both levels, schools in Hampshire generally perform better than their counterparts in Portsmouth, Southampton and the Isle of Wight.
- Engagement with STEM subjects is fairly high locally at GCSE level, with 40% of entries in related subjects. An encouraging sign is the higher-than-average levels of entries in additional Science and Maths options.
- The number of entries in ICT and Design & Technology options have fallen sharply, in line with the wider trend across England.
- At A Level, STEM subjects accounted for 24% of all Fareham & Gosport entries in 2011, lower than LEP and national averages. There were very few entries in Design & Technology options (0.6% - a third of the proportion for England), and entries in Biology, Chemistry and Physics were all significantly lower than average.
- In 2010/11, 54,540 people from the Solent LEP were participating in Higher Education (HE). The recent trend has been for rising participation, with a levelling off in the last year. Despite this levelling off, the overall number of HE students from the area was 7.5% higher than in 2007/08.
- Just 30% of HE students from the Solent LEP area were attending one of the four Higher Education Institutions (HEIs) within the LEP area (Southampton, Portsmouth, Winchester and Southampton Solent Universities), a proportion which has fallen for each of the last three years.

- In terms of Further Education (FE) (excluding A Levels), local provision appears to be more weighted towards priority sectors, with enrolments in STEM-related provision growing strongly in recent years.
- Comparing locally delivered provision with local residents' take up, the data suggests that there is particular demand from local people for provision in Freight Logistics & Wholesale and Maritime that is not being met within Fareham & Gosport itself.
- Local Apprenticeship delivery is much more heavily weighted towards the LEP's priority sectors, where STEM subjects accounted for 63% of all Apprenticeship enrolments, more than double the level across the LEP and around six times higher than nationally. This suggests that providers have managed a high rate of penetration among local employers in these key sectors.
- In terms of local HE provision that might be most useful to employers in priority sectors, there were over 6,500 students in these 'priority sector subjects' in 2010/11, and these subjects have grown strongly since 2007/08, by almost 27%. The largest areas of provision are Electronic & electrical engineering, Mechanical engineering and Civil engineering.
- In terms of training being arranged and/or funded by employers, the Solent LEP compares favourably with the all-England average, with 66% of employers having funded or arranged training for staff in the last year.
- Further data suggests that levels of job-related training (whether employer-funded or not) are relatively high in the Solent LEP area compared with regional and national averages, with 13% of 16-64 year olds in the area having undertaken training the last four weeks, and 23% having done so in the last 13 weeks. Encouragingly, the data suggests that the Solent LEP area has managed to maintain and even increase its levels of job-related training throughout the economic downturn.

## The Skills Plan

The analysis has led to a number of recommendations for action.

### Recommendation 1

Employers (and employees) in the advanced engineering, aerospace and marine sectors should be encouraged to:

- support schools' and colleges' Careers Information Advice and Guidance (IAG) activities;
- provide workplace visits and work experience for young people;
- act as STEM Ambassadors;
- encourage more girls and young women to consider engineering and STEM careers;
- support STEM enhancement & enrichment activities;



- support Continuing Professional Development (CPD) for teachers and technicians.

### **Recommendation 2**

Public sector partners (such as STEMNET Hampshire and the Portsmouth Education Business Partnership (EBP)) should work together to provide a coherent package of information and support for employers at Solent EZ and across the LEP area, demonstrating the benefits and opportunities that exist for employers wishing to be active in improving the flow of skills into their sector.

### **Recommendation 3**

Solent LEP should support initiatives to improve Maths and Science teaching in Fareham & Gosport, focusing on schools that need particular support. Employers locating at the Solent EZ should be encouraged to support this agenda. They should be provided with clear information on how they can get involved, and be supported through the EBP and other partners where necessary. Resources could be provided for jointly-developed curriculum enrichment projects and the scope for developing qualifications appropriate to the needs of specific industries could be further explored.

### **Recommendation 4**

Alongside raising interest in STEM study (Recommendations 1 & 2) and improving STEM teaching (Recommendation 3), larger employers based at Solent EZ could be encouraged to become involved in the governance of local schools and colleges, as a route to ensuring that the provision and skills that they deliver meet local employers' needs.

### **Recommendation 5**

Solent LEP, working with employers, should take steps to ensure that facilities at CEMAST keep pace with the latest industry standards. Employers should be encouraged to donate or contribute towards the cost of equipment that is required to meet their training needs. Solent LEP should make it clear that it is willing to seek public sector co-financing for the acquisition of equipment where there is adequate employer support, drawing down public resources through sources such as the Employer Ownership of Skills programme of the European Regional Development Fund. Initiatives that reach out into supply chains, drawing in smaller companies to support collaborative employer-led projects focused on up-skilling in key areas, should be supported.

### **Recommendation 6**

Solent LEP should work with local employers to understand and overcome specific barriers to delivering greater volumes of Apprenticeships better.

Financial incentives should be considered, such as awarding grants to priority sector employers who offer Apprenticeships, Advanced or Higher Level Apprenticeships for the first time (or for the first x number of Apprenticeship offered).

The scope for extending existing Apprenticeship brokerage services for employers at the site should also be examined. Although this may be complex, given the competitive nature of Apprenticeship delivery, it is important that employers have a clear route through which they can: link to young people; establish their entry requirements; identify the content of pre-Apprenticeship training; set up screening processes and job trials; and source impartial advice and training from the organisation best suited to their needs.

### **Recommendation 7**

CEMAST must be much more than a college based on the site, and must act as an avenue to a wide range of specialist and higher-level provision.

Solent LEP should encourage a high-level partnership working between training providers and the delivery of an integrated offer to employers moving to the Solent EZ.

Employers locating at Solent EZ should have easy and free access to expert, impartial advice on how their skills need might best be met. They should be supported in assessing the options available to them by an independent Skills Broker, who has knowledge of the sector and an overview of the provision available at different levels, in the local area. Although it will be important for this individual to be independent of Fareham College, we would suggest that the service be delivered from the CEMAST centre, in keeping with the emphasis on building CEMAST as a hub for employers on the site.

### **Recommendation 8**

Solent LEP should consult with partners on the case for including the delivery of higher-level skills within advanced engineering, aerospace and marine as a priority within a prospectus for the use of EU funds at the local level over the period 2014 to 2020.

### **Recommendation 9**

HEIs in the Solent LEP area should be encouraged to align an element of their outreach activities to the Solent EZ priority sectors. They should consider giving less advantaged school pupils and pupils from poorly performing schools in Fareham & Gosport opportunities to engage with their STEM programmes by:

- offering guaranteed interviews and, where appropriate, lower offers to pupils in schools that they support;
- offering guaranteed admissions interviews to those who successfully complete a university-preparation programme, such as a summer school;
- recognising the successful completion of such programmes with UCAS tariff points.

These recommendations align with those in the Cabinet Office reports, *University Challenge: How Higher Education Can Advance Social Mobility* of October 2012.

### **Recommendation 10**

Employers on the EZ, and those within the EZ priority sectors across Solent LEP, should be encouraged to participate in HE programmes (such as those described above) that enable them to identify and recruit local graduates with the skills they require.

Solent LEP should ensure that impartial information, support and guidance is available to local employers through the services of the Skills Broker (identified in recommendation 7).

In keeping with the aspiration of establishing CEMAST as a central hub for employers at Solent EZ, information on these initiatives should be readily accessible through CEMAST.

### **Recommendation 11**

Solent LEP should include, within their proposals for European Funds for the period 2014 to 2020, scope to create a programme that funds the retraining and up-skilling of individuals who are at risk of redundancy or who have been made redundant from the Solent EZ priority sectors. The structure of this programme, which may take the form of grants to individuals or employers, requires further discussion.

### **Recommendation 12**

Employers at Solent EZ should be made aware of, and encouraged to make use of, the support available through Jobcentre Plus and Welfare to Work providers.

As Solent EZ grows, Jobcentre Plus should train a number of specialist advisors, who have a detailed understanding of the skills and recruitment needs of employers in the Solent EZ priority sectors as well as IAG, training and other support services. These advisors should be tasked with developing close ties with employers at the EZ, by working in close partnership with others through CEMAST.

### **Recommendation 13**

Partners should take steps to ensure that employers are fully aware of the wide range of R&D expertise and facilities available to employers at the EZ, both locally and beyond. Networking evenings, presentations, poster-sessions, open forums or speed-dating sessions should be organised, focused on CEMAST. Site visits should be considered where appropriate, e.g. to view specialist facilities that are available to hire, such as the Warsash wave tank or Southampton University wind tunnel.

### **Recommendation 14**

CEMAST should be developed as a focus for employer networking and information-sharing. Employers located on and around the Solent EZ should be encouraged and supported to join a

Solent EZ employer network, which should link with wider supply chain initiatives, such as the Farnborough Aerospace Consortium. The Solent EZ employer network, should host a series of business briefings and informal events, based at CEMAST, where employers can gather to collaborate and further their understanding of topics and activities (such as those of business support organisations) that are of mutual interest and advantage.

### **Recommendation 15**

Solent LEP should conduct a review of the availability of incubation and 'move-on' space in the area, with a view to establishing whether demand is sufficient to warrant further investment, potentially supported through ERDF funds.

### **Measuring Success**

The LEP is committed to monitoring progress and assessing the performance of the EZ and its impact on the local economy.

To support this aim, the Solent EZ Stakeholder Group have identified that they wish the University of Exeter to construct a 'Dashboard' which should include the following indicators:

- The number of enterprises in the EZ priority sectors
- The number of employees in the EZ priority Sectors
- Change in employment by occupational group
- Change in youth unemployment
- Change in the number of young people Not in Education Employment and Training
- % of the population with qualifications at Level 4, Level 3 and below Level 2
- Attainment of Science, Technology, Engineering and Maths (STEM) at age 19
- Levels of STEM study at FE
- The volume of STEM Apprenticeships

The Dashboard will be published and made available for public scrutiny through the LEP website. It will be updated regularly and used by partners as a basis for monitoring progress and assessing where there is a need for additional action.

## 1. INTRODUCTION

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The Solent Local Enterprise Partnership (Solent LEP) is working with partners to develop the Solent Enterprise Zone (EZ) at Daedalus Airfield.

One aspect of this work involves drawing up a Skills Plan for the EZ to:

*Promote a shared understanding of the Skills priorities needed to support the development of the Solent EZ to ensure that the provision of adult skills is tailored to the needs of the EZ, thereby maximising employment opportunities for the resident labour force on the Gosport Peninsula.<sup>3</sup>*

The Marchmont Observatory, at the University of Exeter, has been asked to develop this skills plan along with an accompanying 'Dashboard', which will enable progress against the plan to be assessed over time.

Research<sup>4</sup> conducted with 876 businesses that moved to EZs in the 1980s and 1990s shows that they attributed great significance to the quality and availability of labour. The strength of this finding, led the authors to conclude their report with the following words.

*The labour market characteristics of local areas are of key importance to inward investors. EZ policy in the UK has so far not sought directly to influence these labour market characteristics. However, the importance of labour supply nonetheless suggests a role for training, skills match, job-search initiatives and placement initiatives to complement existing EZ incentives. This would help to secure and demonstrate the availability of labour to inward investors as well as to increase opportunities for disadvantaged local residents to gain employment in incoming firms.*

The fact that partners in Solent have been working from the outset to understand how they might enhance the availability of labour and skills at Solent EZ is commendable.

This document provides: a description of the background to the work; an analysis of the employer skills needs in the EZ priority sectors; an assessment of the supply of skills available to employers at the EZ; and a review of the key skills gaps. It identifies a number of challenges that will need to be addressed; makes a series of recommendations on steps that partners could take to address them and suggests a range of indicators to be used to assess whether things are moving in the right direction. These indicators will form the basis of a Solent EZ 'Dashboard', which will be published on the Solent LEP website.

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<sup>3</sup> The Enterprise Zone Skills Fund – Outline Plan available at [http://www.push.gov.uk/pic-amm-120607-r01-append\\_a.pdf](http://www.push.gov.uk/pic-amm-120607-r01-append_a.pdf)

<sup>4</sup> UK Enterprise Zones and the Attraction of Inward Investment, Potter and Moore, Urban Studies, Vol 37, No. 8, 2000

The content of this report has been developed in partnership with the Solent EZ Stakeholder Group, made up of private sector companies and public sector partners. The work itself has drawn on:

- a review of the relevant literature, including research reports and policy documents;
- an analysis of a wide range of data sources;
- presentations and views expressed by members of the Solent EZ Stakeholder group during two workshops, focused on informing the content of the report and selecting the Dashboard Indicators;
- interviews with key local employers and training providers; and
- analysis of feedback contributed in response to an online survey.

A great many people have contributed to the content of this report, too many to name. We would, however, particularly like to thank members of the Solent EZ Stakeholder group and organisations who gave up valuable time to be interviewed, including:

Robert Craig, HR Manager, Eaton Aerospace

Nigel Clay, Academy Manager, Babcock

Kristina Crowe, Head of Communications, Maritime - Naval Ships at BAE Systems

Jude Robinson, Area Manager Post 14 Learning, Hampshire County Council

Tony Mundy, Economic Development Manager, Fareham Borough Council

Siobhan Flynn, Principal Economic Prosperity Manager, Gosport Borough Council

Jeff Channing, Solent Enterprise Zone Programme Manager, Solent LEP

Nigel Duncan, Principal, Fareham College

Martin O'Rourke, Segensworth Business Forum

John Craven, Vice Chancellor, University of Portsmouth

Jason Stubbington, Office & HR Manager, Marine Concepts

Genevieve Dady, Senior Projects Officer, Hampshire County Council

Frank Thompson, Managing Director, Phoenix Aviation

Eric Miller, Academic Lead, School of Technology, Southampton Solent University

Anne-Marie Mountifield, Chief Executive, Solent LEP

Richard Jones, Executive Support, Solent LEP

Di Lloyd, Principal, St Vincent College

## 2. BACKGROUND

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### 2.1 Solent LEP

Local Enterprise Partnerships (LEPs) have been created *‘to provide the clear vision and strategic leadership to drive sustainable private sector-led growth and job creation in their area.’*<sup>5</sup>

In October 2010, Government Ministers approved the formation of the Solent LEP. In doing so, they gave local businesses and Local Authorities responsibility for determining local economic priorities and for working with partners, such as colleges and universities, to drive economic growth across an area covering 1.3 million people and 50,000 businesses.

Solent LEP’s vision is to create an environment that will better facilitate economic growth and private sector investment in the Solent, allow businesses to grow, become more profitable, greener and enable new businesses to form and prosper. As a result, there is a need to make the best use of the assets that the area already possesses (highly skilled people, world-class businesses, outstanding Further and Higher Education (FE and HE), the natural environment and high quality of life) and achieve sustainable economic growth.

The Solent LEP partners are determined to put business at the heart of economic growth in the Solent, enabling this recognised globally-competitive area to realise its full potential. It is output driven, delivering real and substantial improvements in the co-ordination of private and public investment in key areas of sustainable economic development including skills, business support, regeneration, transport, housing and inward investment.

It has identified the following five key priorities<sup>6</sup>:

- Skills for Growth
- Enterprise
- Inward Investment
- Infrastructure
- Priority Sectors

### 2.2 Enterprise Zones

Enterprise Zones (EZ) are specific areas where a combination of financial incentives, reduced planning restrictions, and other support is focused, to encourage inward investment and the creation of new businesses and jobs. They were a feature of economic development policy in

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<sup>5</sup> Local Growth White Paper, HM Government, October 2010, p. 13.

<sup>6</sup> A Strategy for Growth, Solent LEP, December 2012 [http://www.solentlep.org.uk/uploads/documents/A\\_Strategy\\_for\\_Growth.pdf](http://www.solentlep.org.uk/uploads/documents/A_Strategy_for_Growth.pdf)

the 1980s and 1990s, resurrected in early 2011 to assist *'parts of Britain that have missed out in the last ten years'*<sup>7</sup>.

The first 11 EZs, within major cities, were announced by the Chancellor in his March 2011 Budget speech. During this speech, the Chancellor also announced a second wave of ten additional EZs. The Solent LEP Enterprise Zone was one of this second wave of EZs, approved by the Government in August 2011.

The core benefits flowing from EZ status include:

- 100% business rate discount, worth up to £275k over five years for businesses locating on the site;
- retention of business rates to support local economic development priorities;
- simplified planning; and
- Government support to ensure superfast broadband is rolled out across the zone.

Partnerships behind EZs normally seek to provide additional assistance, in addition to those outlined above. These might include access to: innovation/incubator space; enhanced business support; an integrated skills development/training offer; specialist assistance with exports and so on.

Although areas may have EZ status for up to 25 years, business rate discounts will be applied up until 2020. This means that it is only those businesses that locate in Solent EZ in 2015 or before that will benefit for the full five years of business rate discount. There is some urgency in developing and implementing a marketing strategy and putting in place other measures, such as the CEMAST training centre, to attract businesses to the site.

## 2.3 Solent EZ

The Solent EZ is located on an ex-military airfield, HMS Daedalus, situated on the Gosport Peninsula between Portsmouth and Southampton. This coastal location benefits from both slipway access to the sea and an operational runway, though this is in need of some maintenance.

The site is large, covering around 400 acres, of which approximately 200 are located within the EZ. The EZ area includes both empty land for development as well as a significant number of hangers and other buildings that are in need of renovation or replacement. Being located on the coast in a mainly residential area, it is likely that the site, or large parts of it, could be profitably developed for residential housing were it not reserved for business and employment use.

Road access to the site from the M27, via the B3385 and B3334, is a concern for many partners. £27 million has been secured to improve roundabouts and ease congestion at pinch-

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<sup>7</sup> George Osborne, We're building a better future for Britain, Cardiff, 5 March 2011



points on the single lane roads that currently link the EZ and wider Gosport peninsula to the outside world. Government support for EZs may yield further infrastructure improvements in the future and Solent LEP, with the support of partners, should lobby government to provide the resources to put these in place. However, for the time being, access remains a concern and, for Solent LEP, raising job density locally and reducing outward commuting is part of the rationale for creating the EZ.

Solent LEP has an ambitious vision for the site, aiming to make it *'Solent's premier location for advanced manufacturing and technology focused on the marine, aviation and aerospace sectors'*<sup>8</sup>.

More specific objectives are to:

- create up to 3,700 additional jobs in the EZ by 2026, contributing more than one third of the Solent LEP's additional jobs target;
- promote an advanced manufacturing and technology cluster focused on marine, aviation and aerospace;
- provide a catalyst for the regeneration of Gosport, as the least economically-viable area in South Hampshire; and
- utilise the incremental growth in business rates to unlock the full potential of this and other Solent employment sites.

These objectives also align with the priorities set out in the Partnership for Urban South Hampshire (PUSH) Economic Development Strategy, which identifies Advanced Manufacturing, Marine and Aerospace as three of the areas five High GVA priority sectors.

### **2.3.1 Sector Focus**

The focus of the EZ, on promoting an advanced engineering cluster, with a particular emphasis on the marine and aerospace subsectors, is clearly stated. The value of clusters is well established, in enhancing supply chains, delivering economies of scale, promoting innovation, enabling networks to apply for large-scale contracts and in generating informal businesses-to-business linkages.

Although the objective of establishing a cluster in these sectors should be not be diluted, it is important to recognise that:

- The area of development land at Solent EZ is large and that roughly half of it lies outside the EZ.

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<sup>8</sup> Solent LEP, The Solent Enterprise Zone at Daedalus, Implementation Plan, 2011 – 2013.

- All sectors of the UK economy are, to some degree, directly or indirectly connected. Large primes will have supply chains made up of thousands of firms that are active across a range of sectors. Component manufacturers may supply a whole range of different sectors. The skills found in aerospace and marine are highly relevant to wind-energy, for example.
- Generating employment opportunities for local people is a key aspiration for the EZ. Firms engaged in high-tech engineering, like others, will still require cleaning, security, refreshments and other services which it is hoped would be provided by firms based locally.

Potter & Moore's evaluation of EZ policy in the 1980s and 1990s<sup>9</sup> suggests that EZs that attracted manufacturing enterprises were relatively good at generating employment growth. Businesses moving to or growing on EZs recruited the majority of their administrative and clerical staff, skilled manual and technical workers, semi-skilled manual workers and unskilled workers locally. They were less likely to recruit managers or professionals and technologists locally.

The task of defining or deciding which businesses should be permitted to locate in the EZ (and draw on the associated benefits) and which should be required to locate on the 200 acres of development land outside the EZ boundary is likely to be a nuanced one. Although it is beyond the remit of this report, it is an issue that was raised repeatedly. We would recommend it requires an element of flexibility, with factors such as the employment density of the proposed activity<sup>10</sup>, the GVA per employee that may be generated or the extent to which the enterprise's presence may add value to the cluster as a whole considered alongside fit with priority sector definitions.

### **2.3.2 Geographical Analysis**

An analysis of patterns of commuting in and out of the area around the Solent EZ is provided at Annex 1.

This shows that in 2001 (when accurate data was last available), very few people were commuting to work in the area immediately around the EZ. The journeys that were made to work in the immediate area of the EZ also tended to be very local.

Outward commuting, resulting, at least in part, from a lack of local employment opportunities, is a clear feature of the Gosport peninsular economy. In 2001, 18,200 people were commuting out of Gosport District to work each day, compared with 7,600 people commuting in<sup>11</sup>. The location of the EZ on the Gosport peninsular is partly designed to counter-balance this exodus.

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<sup>9</sup> K Enterprise Zones and the Attraction of Inward Investment, Potter and Moore, Urban Studies, Vol 37, No. 8, 2000

<sup>10</sup> Measured in terms of square metres per employee.

<sup>11</sup> Gosport Borough Local Plan Review, May 2006

People who live in Fareham or Gosport, and who work in manufacturing, commute across much of the Solent LEP area to take up jobs in the sector. Portsmouth, Havant, Southampton and the M27 corridor are particularly common destinations. If inward commutes to the Solent EZ follow the same pattern, local people will find themselves competing for jobs at the Solent EZ with those from the wider LEP area, particularly where jobs are higher paid and higher skilled.

To reflect this, we have provided data in this report for both:

- 1) **Fareham and Gosport;**
- 2) **Solent LEP**, which includes four Upper-tier authorities:
  - Isle of Wight
  - Portsmouth
  - Southampton, and
  - the majority of Hampshire.

The geography of the Solent LEP is shown on the map below.

**Figure 1: The Solent LEP area**



Data for Fareham & Gosport and the Solent LEP is benchmarked against data for the old 'South East' region and England and, the key sector analysis, data is also provided for the following

comparator LEPs, based on their being host to similar Enterprise Zones and/or a significant aerospace sector:

- West of England
- Cornwall and Isles of Scilly
- Enterprise M3

Although our data appears to assume that the EZ will draw on skills from across the LEP, it is important to note that nearly all partners consulted in developing this report stressed not just the importance of growing employment, but the importance of doing so in a way that generated opportunity for local people. Employment growth generated by inward migration and a growth in inward commuting is a distinctly less favourable option.

Although meeting employer needs must remain the first priority, the success of Solent EZ will, therefore, also need to be measured by looking at the extent to which these needs are met through the recruitment of young people from local schools, colleges or universities and through providing employment for people from areas of high unemployment and deprivation.

## 3. NATIONAL POLICY CONTEXT

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### 3.1 Industrial Policy

Since 2007, the Government has been increasingly convinced of the importance of having a well-balanced economy and an industrial policy to support its development. Manufacturing remains the UK's third largest sector, contributing £149 billion in GVA and just under 11% of the economic output. It employs over 2.5 million people, or around 8% of the UK workforce<sup>12</sup>, large numbers of whom work in highly skilled, well-paid jobs<sup>13</sup>.

The Government's *Plan for Growth*<sup>14</sup>, which places advanced manufacturing at the heart of the UK's strategy for economic recovery, argues that the sector's success will depend 'on its ability to design and make high value products'. Likewise, Semta Sector Skills Council identifies the introduction of new technologies, the development of new products and services, and increasingly complex supply chains as being the key drivers of new skills requirements.

To support enterprises in making these changes, the *Plan for Growth* set out a number of actions specifically designed to support the sector, including:

- Extending capital allowances.
- Establishing 24 University Technical Colleges (UTCs). Nineteen of these were open or in development in March 2012.
- Investing £200m in the creation of seven high-value manufacturing Technology and Innovation 'Catapult' Centres to bridge the gap between universities and business<sup>15</sup>.
- Creating 12 university-based centres for Innovative Manufacturing, a number of which, such as the centres on Intelligent Automation, Composites, Ultra-precision, Photonics and Through-life engineering, have direct relevance to the Solent EZ priority sectors.

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<sup>12</sup> Industrial Strategy, UK Sectoral Analysis, BIS, September 2012

<sup>13</sup> Average annual earnings, from the Annual Survey of Hours and Earnings (2010):

Engineering Professionals	£36,204
Science Professionals	£35,658
Health Associate Professionals	£30,202
Science And Engineering Technicians	£26,352
All Occupations	£25,879

<sup>14</sup> The Plan for Growth, HM Treasury and BIS (2011)

<sup>15</sup> The seven Catapult Centres are:

1. Advanced Manufacturing Research Centre (University of Sheffield), Sheffield
2. Nuclear Advanced Manufacturing Research Centre (Universities of Manchester and Sheffield)
3. Manufacturing Technology Centre, Coventry
4. Advanced Forming Research Centre (University of Strathclyde), Glasgow
5. National Composites Centre (University of Bristol), Bristol
6. Centre for Process Innovation, Wilton and Sedgefield
7. Warwick Manufacturing Group (University of Warwick), Coventry

- Providing additional funding for the Manufacturing Advisory Service.
- Providing £75 million to help small employers access Advanced and Higher Apprenticeships, including £6m for Higher Apprenticeships, targeting sectors including Aerospace & Aviation, announced in February 2012.
- Developing a new degree-equivalent Higher Apprenticeship to support the Advanced Manufacturing sector. Examples of new qualifications under development in September 2012 included a Level 4 in Space Engineering 2 developed by Loughborough College and Semta's Level 4 Apprenticeship in Advanced Manufacturing; and
- Strengthening of the Government's strategy for promoting the acquisition of Science, Technology, Engineering and Maths (STEM) skills by improving student awareness of STEM careers and the uptake of STEM courses.

### 3.2 Skills Policy

In 2011, employers in England were estimated to have invested a total £42 billion<sup>16</sup> in skills development. Just over 2% of this £42 billion (which included salary costs for time spent training) was spent on fees to external training providers.

Although 2% appears a very small figure, it is the equivalent of around £1 billion, or roughly one quarter of the Skills Funding Agency's £4 billion budget for 2011/12.

For the Government, these figures are indicative of two things:

- the central role that employers must play in delivering the skills that the country requires to remain internationally competitive; and
- the scope that exists for employer-responsive training providers to grow, despite the fact that government funding for skills development is due to fall by circa 25% over the Spending Review period (2011/12 to 2014/15).

Indeed, the fact that just 2% of national FE income is contributed by employers is cited as evidence of a mismatch between the content of much FE provision and the needs of employers or the economy as a whole<sup>17</sup>.

The White Paper, *Skills for Sustainable Growth*<sup>18</sup>, and the accompanying investment strategy<sup>19</sup> set out the Government's vision of how it might be possible to achieve financial savings, while retaining high levels of participation through:

<sup>16</sup> Employer Skills Survey 2011, UKCES, 2012

<sup>17</sup> No Stone Unturned in Pursuit of Growth – The Hesaltine Review, BIS, 2012

<sup>18</sup> *Skills for Sustainable Growth*, BIS, November 2010

<sup>19</sup> *Investing in Skills for Sustainable Growth*, BIS, November 2010

- a) giving providers greater freedom for providers to deliver provision linked to local needs; and
- b) generating increased private sector investment through the delivery programmes that are more immediately responsive to employer needs.

At the same time, the Government is emphasising the responsibility that individuals have for contributing to the costs of training at Level 3 and above. From 2013/14, people aged 25 and over will need to take out a loan to cover the cost of Level 3 learning, both classroom and work-based. As with HE loans, these will be repaid once the learner has left the course and is earning more than £21,000 a year. For Advanced and Higher Apprenticeships, the loan will be up to a maximum of 50% of the rate for the relevant Apprenticeship framework, reflecting an assumed employer contribution towards the cost of the provision, though this is for negotiation between individual employers and employees.

### 3.3 Apprenticeships

Since coming to power, the Coalition Government has repeatedly stated its commitment to Apprenticeships. The abolition of Train to Gain and transfer of resources from this budget into Apprenticeships has left the Apprenticeship programme as the showpiece vocational education and skills policy in England.

Over recent years, successive waves of additional resource<sup>20</sup> have been found to grow Apprenticeship volumes. Following criticism that Apprenticeship expansion has focused too heavily on the accreditation of existing skills and the award of Level 2 qualifications to adults already in work, the focus for Apprenticeship growth is now on:

- increasing the volume of Apprenticeships for 16-18 year olds;
- reshaping Apprenticeships so that technician-level – Level 3 – becomes the level to which learners and employers aspire;
- broadening the range of Apprenticeship Frameworks that are available, enabling people to use Apprenticeships to access and progress in a wider range of occupations;
- developing Apprenticeships as a foundation for higher-level learning, including foundation degrees and other forms of HE;
- promoting Apprenticeship uptake among smaller firms and in sectors where take-up has historically been low.

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<sup>20</sup> In Oct 2010, the Government announced the release of £250m to fund 75,000 new Adult Apprenticeships. In March 2011, it found an additional £180m to fund: 50,000 additional Apprenticeships for young people over four years; and 10,000 Higher Apprenticeships in SMEs by 2015. In November 2011, it announced that an additional 20,000 incentive payments of up to £1,500 would be available to employers taking on young Apprentices aged 16 to 24 in 2012/13, taking the total number of these payments to 40,000 next year.

A number of these priorities are being addressed through the delivery of specific grants to employers, groups of employers and training providers that have close links with employer networks. The award, in June 2012, of £0.5M to Loughborough College for developing and delivering a Level 4 Apprenticeships in Space Engineering, with a particular focus on promoting participation by women, is an example<sup>21</sup>.

### 3.4 Challenge Funds

The early years of Coalition Policy focused heavily on creating a number of 'challenge funds'. In the place of Regional Development Agencies (RDAs), funds focused on creating growth were targeted on areas that were able to make the most convincing case for investment. Examples include:

- The Regional Growth Fund (RGF), a £2.6 billion fund supporting capital investment, research and development and training-focused projects that lever private sector investment and which create economic growth and sustainable employment.
- The Growing Places Fund, a £500m fund to enable the development of local funds to address infrastructure constraints, promoting economic growth and the delivery of jobs and housing.

Organisations responding to these initiatives are increasingly being encouraged to demonstrate that they can use the awards to establish sustainable revolving funds, so that further funding can be reinvested to unlock future developments.

### 3.5 Employer Ownership of Skills Pilots

The Employer Ownership of Skills Pilot is providing £340m to encourage employers to invest in their workforces, to raise skills levels and create jobs by 2016. It is a further example of a challenge fund.

Designed around the following five principles, it exemplifies the change in approach and culture that the Government wishes to see, with employers at the heart of the skills design and delivery process.

1. *Employers know their industry best and need the space to own the skills agenda.*
2. *There is a single market for skills which aligns public investment to private investment in workforce development to leverage more and better outcomes.*
3. *Employer facing skills solutions are employer led in design and delivery.*

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<sup>21</sup> BIS Press Announcement, 22<sup>nd</sup> June 2012, <http://news.bis.gov.uk/Press-Releases/Airline-pilot-apprenticeships-take-off-67b92.aspx>



4. *Incentives and investments should go to employers directly, giving purchasing power to employers.*
5. *Transactions are simple and understandable for employers*<sup>22</sup>.

Applications must be made by employers, though colleges and other training providers may act as brokers and can help to develop innovative skills products and solutions.

Industrial partnerships that take long-term responsibility for skills development in a sector or place and which include new employer networks or delivery mechanisms are particularly encouraged.

At the time of writing, £150 million of public funding is being made available, with an application deadline of 28 March 2013.

### 3.6 The Heseltine review

The recent, and apparently highly influential, Heseltine review, *No Stone Unturned in Pursuit of Growth*, has effectively suggested that the current system is too piecemeal and lacks the coherence required to meet the scale of challenge facing the UK in the light of the economic downturn.

It argues that initiatives such as the Employer Ownership pilot are *'steps in the right direction, but they are nowhere near comprehensive or far reaching enough'*. And that *'We are not going to succeed in aligning the skills system with the needs of local economies without devolving a significant proportion of the central skills funding to local areas, and allowing business a far stronger influence in what is provided.'*<sup>23</sup>

The review proposes that:

- a wide range of funds covering skills, employment support, infrastructure, business support, housing and innovation, should be brought together in a single pot of economic growth funding; and
- LEPs, in collaboration with local stakeholders, should lead the development of a long-term strategy and business plan for their area that will be used to bid for or unlock economic growth funds from central government to be used in their areas.

The report also suggests, in the area of skills, that:

- Vocational training budgets for learners aged 19 and over, including Apprenticeship funding for those aged 16 and over, should be devolved to local areas through the single funding pot.

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<sup>22</sup> Employer Ownership of Skills Pilot, Prospectus, UKCES, 2012, <http://www.ukces.org.uk/ourwork/employer-ownership/prospectus/long-term-vision>

<sup>23</sup> No Stone Unturned in Pursuit of Growth, M. Heseltine, H.M Government, October 2012

- Each LEP should develop a skills plan, driven by the needs of local employers and the practical experience of FE colleges, to be incorporated within their local economic plans.
- FE learning providers should consult and agree their provision with LEPs to ensure that the courses they offer to 16-18 year olds reflect local labour market requirements.

This, in the words of the review, *'represents a very significant devolution of funding from central government to Local Enterprise Partnerships so that government investment in economic development is tailored directly to the individual challenges and opportunities'*<sup>24</sup>.

### 3.7 EU Growth Funds

National plans for the delivery of EU funding over the period 2014-2022 show signs of having been influenced by the sort of thinking contained in the Heseltine review.

Government is proposing<sup>25</sup>:

- to establish a single 'EU Growth Programme', bringing together European Social Funding (ESF), European Regional Development Funding (ERDF) and appropriate elements of the European Agricultural Fund for Rural Development (EAFRD) into a single fund; and
- that LEPs should:
  - be the fundamental building blocks of the EU Growth Programme;
  - develop an EU investment prospectus alongside their wider investment strategies; and
  - have a 'notional allocation' for the period 2014-2020.

Taken together, these proposals appear to offer Solent LEP a guarantee that it will have a significant resource to put behind the vision and strategy it is developing for the area.

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<sup>24</sup> Ibid, p.9

<sup>25</sup> Common Strategic Framework Funds: Proposed 'Growth Programmed' Model, HM Government, November 2012.

## 4. DEMAND SIDE ANALYSIS

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Solent EZ builds on existing sectoral strengths, rooted in historic developments such as naval dockyards at Portsmouth and the Supermarine works, which built Spitfires in Southampton. The importance of the engineering, aerospace and marine industries to the Solent LEP remains evident in the presence of major employers with supply chains running through the area, such as:

- BAE Maritime Services and Naval Ships, which operate from three locations within the Solent LEP area (at Broad Oak, the Airport, Portsmouth; Cowes on the Isle of Wight; and HM Naval Base) with a total of more than 4,000 employees at these sites<sup>26</sup>;
- QinetiQ, a Fareham-based defence technology company, focused on research, design and the development of marine, aerospace and land-based defence equipment;
- Eaton Aerospace, which has around 800 employees in Fareham, producing (re)fuelling systems and components for the aerospace sector;
- Vector Aerospace, which undertakes helicopter repair, maintenance and overhaul in Gosport.

These enterprises are also active within wider supply-chain initiatives, such as the Farnborough Aerospace Consortium (FAC), which provides support to 300 member companies, through: influencing national strategies in support of the sector; facilitating learning amongst member companies; and promoting members' capabilities, through trade shows, directories and on-line tools.

In this section of our analysis, we begin by looking at the make-up of all local business and how this has changed over time, before focusing in on trends in these priority sectors.

### 4.1 Businesses and Entrepreneurialism

#### 4.1.1 Business Stock

The recent recession and stuttering economic recovery have had a significant impact on the number of businesses operating in the local area. Table 1 shows that there were 6,155 active businesses in Fareham & Gosport in 2001, 360 fewer than in 2008, a fall of 5.5%. This fall has been more severe locally than across the LEP area (a 2.3% fall), while, regionally and nationally, there has been some limited growth in the number of businesses. The total number of active businesses in Fareham & Gosport and across the LEP has fallen year on year since 2008. The need to reverse this trend is part of the rationale for establishing an EZ in the area.

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<sup>26</sup> Jaffy, S et al, *Socio-economic Impact Assessment of Portsmouth Naval Base*, 2012

The last year, 2010 to 2011, appears to have been a particularly tough, with a fall of 3.7% in Fareham & Gosport (235 fewer businesses) and a fall of 1.5% for the LEP as a whole (900 fewer businesses). The fall locally in business numbers has been well in excess of regional and national averages.

**Table 1: Change in number of businesses, Fareham & Gosport vs Solent LEP, South East and England, 2008-2011**

	Fareham & Gosport	Solent LEP	South East	England
2008	6,515	58,900	372,810	2,024,990
2010	6,390	58,445	377,315	2,046,310
2011	6,155	57,545	376,380	2,040,980
Change 2008-2011	-360	-1,355	3,570	15,990
% change 2008-2011	-5.5%	-2.3%	1.0%	0.8%
Change 2010-2011	-235	-900	-935	-5,330
% change 2010-2011	-3.7%	-1.5%	-0.2%	-0.3%

Source: ONS Business Demography 2011 (released December 2012)

This declining business base raises questions about levels of entrepreneurship and new business formation. Table 2 shows that there has been a big fall in the number of new businesses starting locally (both in Fareham & Gosport area and across the LEP as a whole). For the LEP, the number of new businesses starting in 2011 was 16% lower than pre-recession (2007) levels. The scale of the fall in Fareham & Gosport was double this, at almost 32%, with 270 fewer businesses forming in 2011 compared with 2007. These falls are far higher than the regional and national averages.

**Table 2: Change in number of new business births, Fareham & Gosport vs Solent LEP, South East and England, 2007-2011**

	Fareham & Gosport	Solent LEP	South East	England
2007	855	6,830	42,320	246,700
2008	710	6,025	40,365	236,345
2009	600	5,150	36,320	209,035
2010	610	5,370	36,910	207,520
2011	585	5,760	40,775	232,460
Change 2007-2011	-270	-1,070	-1,545	-14,240
% change 2007-2011	-31.6%	-15.7%	-3.7%	-5.8%

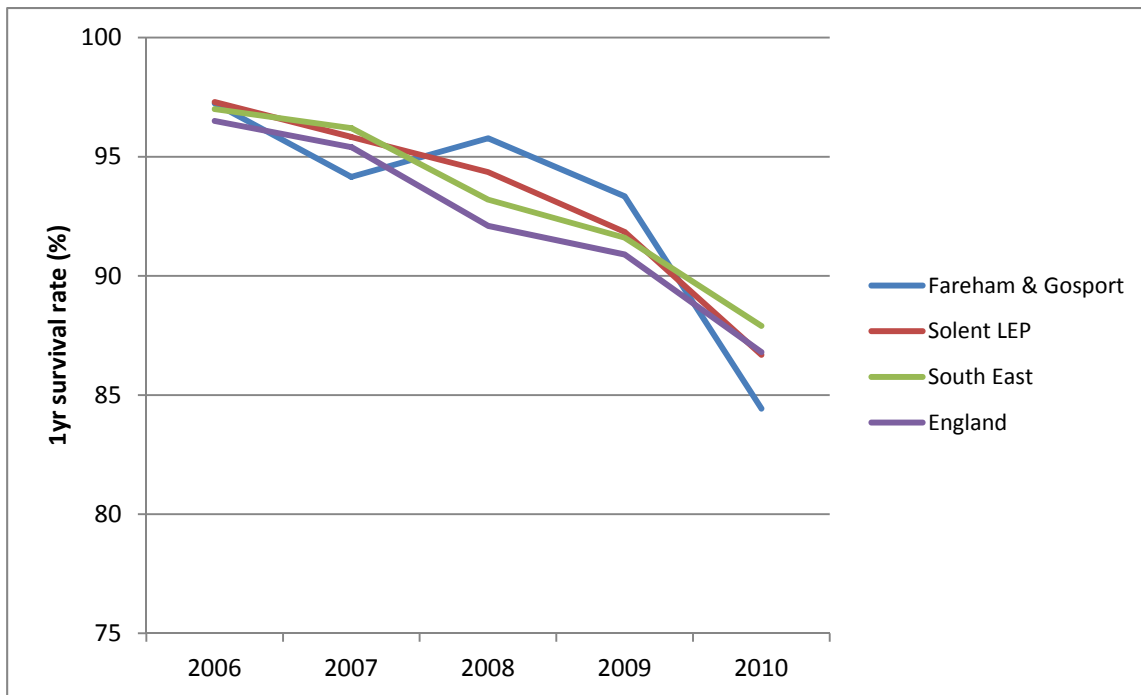
Source: ONS Business Demography 2011 (released December 2012)

The Annual Population Survey (APS) estimates that the number of self-employed people in the Solent LEP area rose by over 12% from the same point in 2008, double the level of increase seen for England as a whole. This could be suggestive of a certain entrepreneurial spirit among the local population, but the reasons for it are not clear. The rise could be due to a lack of other job opportunities. What is clear is that these nascent businesses have yet to grow to the point where they would need to return VAT/PAYE records and thus be counted in the overall business stock.

### 4.1.2 Business Survival Rates

It may also be interesting to examine whether there are any local factors that play a part in the success or otherwise of new businesses. Figure 2 shows that, although the recession has caused a significant drop in the survival rate of new businesses across the country, it appears that Fareham & Gosport has experienced a sharper than average fall between 2009 and 2010. For businesses started in 2010, only 84% were still active in 2011, a fall of almost 13 percentage points compared with businesses started in 2006.

**Figure 2: 1 year survival rate of new businesses, Fareham & Gosport vs Solent LEP, South East and England, 2006-2010**



Source: ONS Business Demography 2011 (released December 2012)

The Fareham & Gosport survival rate is around 2.5% lower than the national average and 3.5% lower than the average for the South East. However, it should again be borne in mind that this data excludes the smallest businesses.

Owing its significance, in terms of the context that it provides for the success of the Solent EZ, we propose to include data on business stock and business births within the Solent EZ Dashboard.

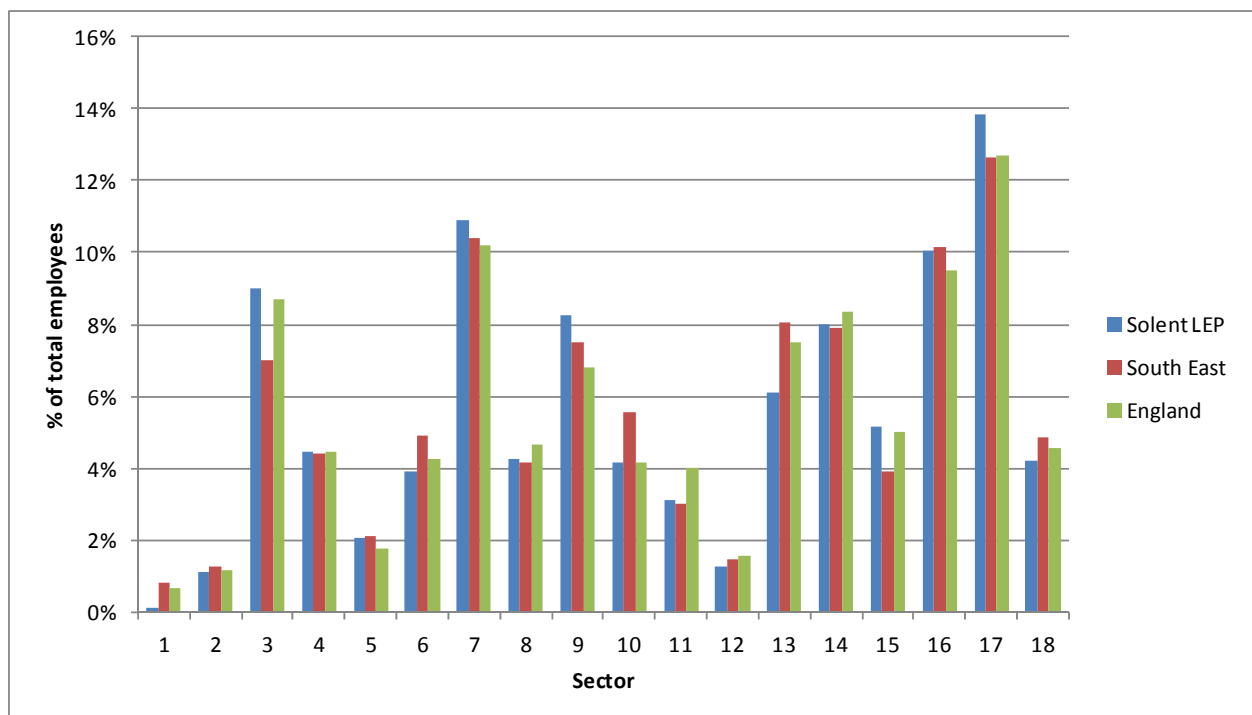
## 4.2 Industrial structure

Analysis of the industrial structure of the local economy in terms of employee jobs is a particularly useful measure of the quality of employment available.

#### 4.2.1 Industrial structure of Solent LEP area

Employment in the Solent LEP area broadly reflects the industrial pattern seen across the South East and England as a whole, albeit with some suggestion of local concentrations in certain sectors. In common with the regional and national averages, the three largest sectors locally in terms of employment are Health, Retail and Education. Figure 3 shows that compared with the rest of the South East, the Solent LEP has a particular concentration of employment in manufacturing, accounting for 9% of all employees (58,800 jobs), well above the regional average of 7%.

**Figure 3: Industrial Structure of Solent LEP area vs South East and England, 2011**



Source: BRES 2011, via Nomis. See sector key below.

Note: BRES does not include HM Forces employees, such as those at Portsmouth Naval Dockyard.

#### Key (SIC 2007 Groups)

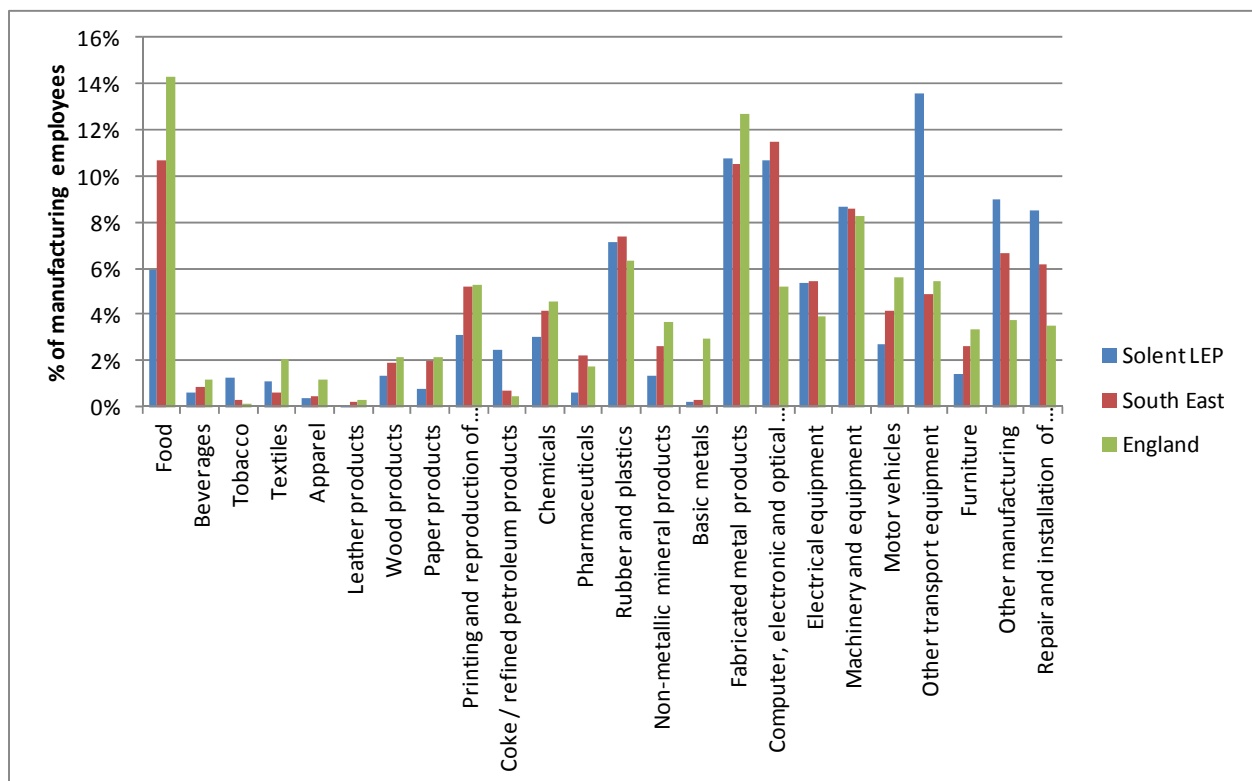
1 : Agriculture, forestry & fishing (A)	10 : Information & communication (J)
2 : Mining, quarrying & utilities (B,D & E)	11 : Financial & insurance (K)
3 : Manufacturing (C)	12 : Property (L)
4 : Construction (F)	13 : Professional, scientific & technical (M)
5 : Motor trades (Part G)	14 : Business administration & support services (N)
6 : Wholesale (Part G)	15 : Public administration & defence (O)
7 : Retail (Part G)	16 : Education (P)
8 : Transport & storage (inc postal) (H)	17 : Health (Q)
9 : Accommodation & food services (I)	18 : Arts, entertainment, recreation & other services (R,S,T & U)

Looking in more detail at the manufacturing sector, Figure 4 shows the clear concentration of employment in 'Other transport equipment', which includes aerospace/aviation and boat

building, which accounts for 14% of all manufacturing jobs in the area (around 8,000 jobs in total). This is more than double the concentration for either the South East or England, and provides a clear justification for the designation of these industries as key strategic sectors for the LEP's activities.

Compared with the average for England as a whole, the LEP also has a much higher concentration of employment in what is often defined as 'advanced manufacturing', particularly in the areas of computer, electronic and optical products, and electrical equipment. Further analysis of all the LEP's priority sectors is included in Section 5.

**Figure 4: Employment by Manufacturing sub-sector, Solent LEP area vs South East and England, 2011**



Source: BRES 2011, via Nomis.

Note: BRES does not include HM Forces employees, such as those at Portsmouth Naval Dockyard.

Over the last couple of years, the overall structure of the local economy has not altered radically, although some sectors have experienced significant changes in employment levels by sector.

Table 3 shows that the construction sector has been particularly hard hit locally, with a net loss of around 4,400 jobs between 2009 and 2011. This represents a loss of around 15% of all jobs, a decline around four times the level seen nationally.

Employment levels in retail have grown slightly locally compared with a national decline, but there have been some sectors that have shed significant numbers of jobs locally but have grown nationally, namely:

- Financial & insurance (1,400 jobs lost)
- Property (1,600 jobs lost)
- Health (1,000 jobs lost)

As public sector spending cuts have been implemented, 1,400 jobs have been lost in Public administration and defence, although the level of decline in the Solent LEP area (4.1%) has not been as severe as nationally (7.1%).

Interestingly, the manufacturing sector locally has grown by around 4,600 jobs from 2009 to 2011, a rise of almost 8%. This is in marked contrast to the national trend over the same period, and also the long-term trend for manufacturing, which has seen consistent decline in employment for much of the last two decades.

**Table 3: Employment change by Sector, Solent LEP vs England, 2009 - 2011**

Industrial Sector	Employee Jobs 2011	Change from 2009	% change 2009 - 2011	
			Solent LEP	England
Agriculture, forestry & fishing	*	*	*	*
Mining, quarrying & utilities	7,300	-400	-5.5%	9.0%
Manufacturing	58,800	4,600	7.8%	-1.2%
Construction	29,200	-4,400	-15.1%	-3.6%
Motor trades	13,400	1,900	14.2%	7.8%
Wholesale	25,600	2,400	9.4%	2.6%
Retail	71,400	900	1.3%	-1.4%
Transport & storage (inc postal)	27,900	1,100	3.9%	0.3%
Accommodation & food services	53,900	10,600	19.7%	3.8%
Information & communication	27,100	-100	-0.4%	8.6%
Financial & insurance	20,200	-1,400	-6.9%	1.9%
Property	8,200	-1,600	-19.5%	0.2%
Professional, scientific & technical	39,900	1,400	3.5%	6.2%
Business administration & support services	52,300	2,500	4.8%	7.8%
Public administration & defence	33,800	-1,400	-4.1%	-7.1%
Education	65,600	1,900	2.9%	1.2%
Health	90,600	-1,000	-1.1%	2.5%
Arts, entertainment, recreation & other services	27,400	0	0.0%	0.7%
<b>Total (all sectors)</b>	<b>653,600</b>	<b>16,500</b>	<b>2.5%</b>	<b>1.7%</b>

Source: BRES 2011, via Nomis. Figures are rounded to the nearest 100. Sectors experiencing decline are highlighted in red. Note: BRES does not include HM Forces employees, such as those at Portsmouth Naval Dockyard. Agriculture figures have been removed as BRES does not cover this sector completely.

#### 4.2.2 Industrial make up of Fareham & Gosport

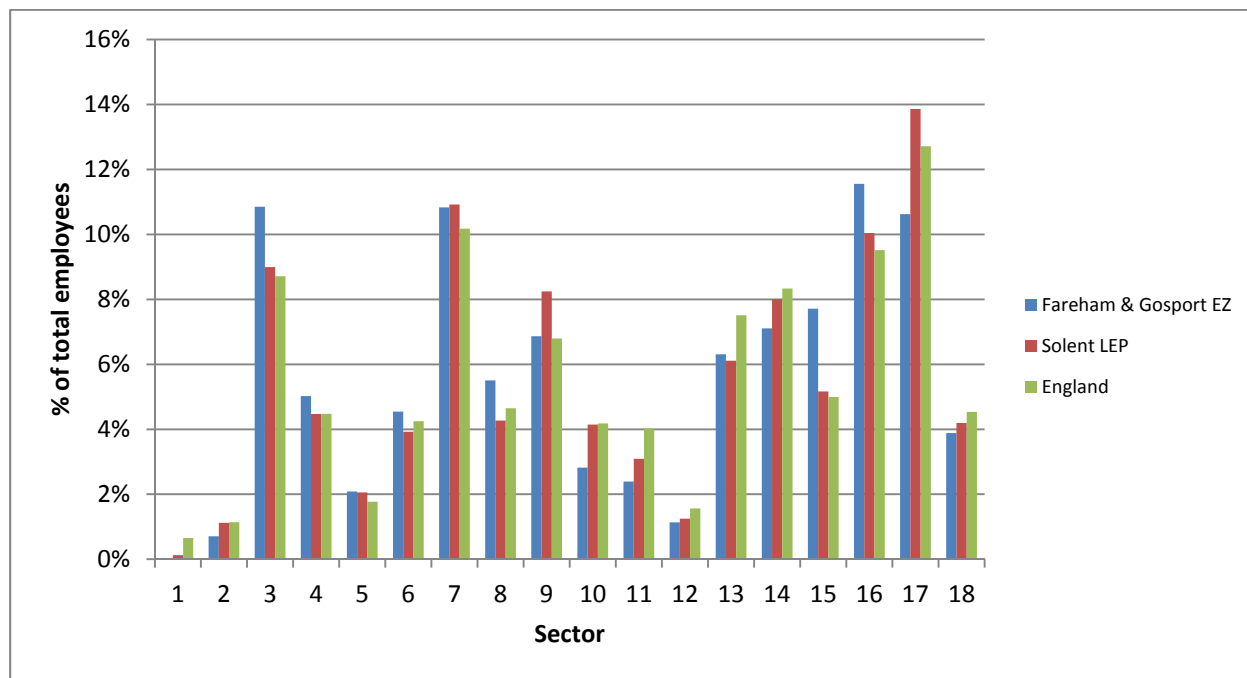
Using the same data to examine the industrial structure of the area immediately around the Solent EZ, Figure 5 shows that the area has an even greater concentration of manufacturing



employment than the LEP as a whole, accounting for 11% of all employees, or around 7,200 jobs.

Fareham & Gosport also has a particularly high level of employment in Public administration and defence, which accounts for 5,100 jobs (7.7% of the total). Over 1,100 of these are defence-related, 1.7% of all employment, which is around five times the national level.

**Figure 5: Industrial Structure of Fareham & Gosport EZ vs Solent LEP area and England, 2011**



Source: BRES 2011, via Nomis. See sector key above.

Within manufacturing, Fareham & Gosport has a particular concentration in 'Other transport equipment', which includes aerospace / aviation and boat building, which accounts for 18% of all manufacturing jobs in the area (around 1,300 jobs in total). Fareham & Gosport also has a high concentration of jobs in 'Repair and installation of machinery and equipment' covering 1,100 jobs (15% of the total in manufacturing). The vast majority of these (over 900) are in the 'Repair and maintenance of aircraft and spacecraft', confirming the importance of the aerospace/aviation sector to the area.

### 4.3 Skills shortages and skills gaps in Solent LEP (ESS 2011)

Employer surveys are the best source of intelligence on recruitment difficulties, skills shortages and gaps. The most recent large-scale survey was the Employer Skills Survey (ESS), conducted by the UK Commission for Employment and Skills (UKCES). Data from the survey is available down to LEP level, making some local analysis possible. A total of 1,846 employers within the Solent LEP area took part, giving a robust sample size for analysis when looking at the local economy as a whole, but detailed sector-by-sector analysis is not possible at a local level.

Although the methodology of the ESS is compatible with earlier surveys undertaken between 2003 and 2009, this is the first survey to use LEPs as a basis for local area analysis. Previous surveys used upper tier local authorities. As the Solent LEP area includes a number of Districts but not the entire County Council area, no direct comparison with earlier years is possible.

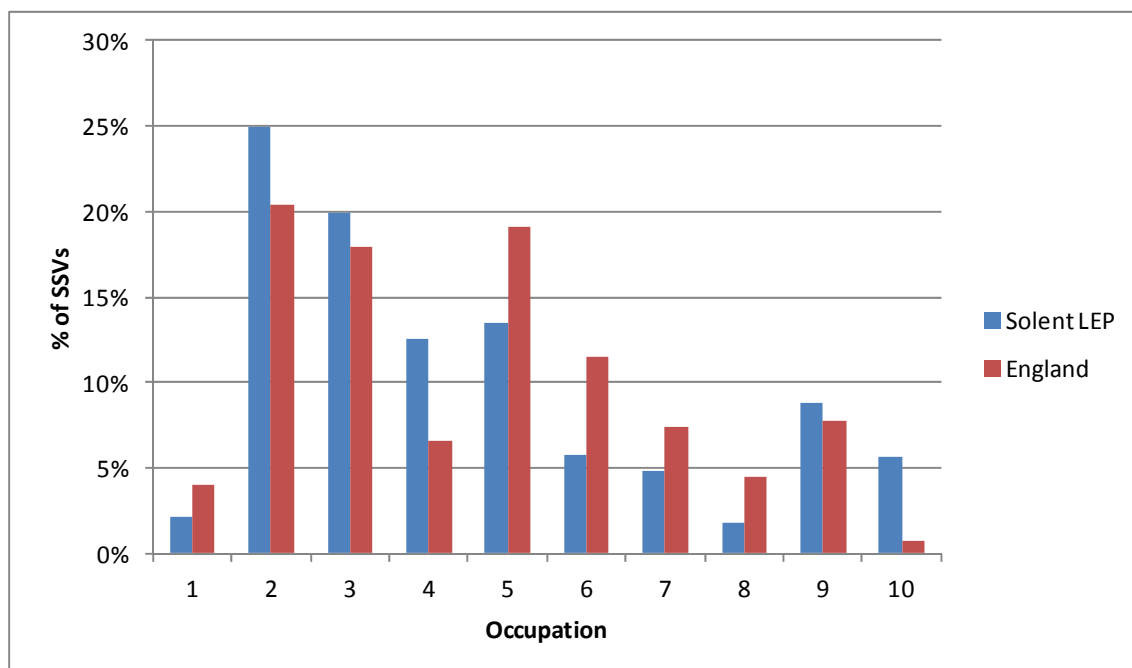
### 4.3.1 Skills shortage vacancies

Skills shortage vacancies (SSVs) are those hard-to-fill vacancies which employers identify as difficult to fill because applicants lack the level of skills, experience or qualifications needed to do the job. Around 2,500 local employers (4% of the total) had at least one vacancy that was hard to fill (HTF) - a total of 3,362 such vacancies. 22% of all vacancies locally were hard to fill.

Just over three quarters of all HTF vacancies reported in the Solent LEP area were difficult to fill due to a lack of skilled applicants (a total of just over 2,500 SSVs). This is slightly higher than the all England average of 71.6%, suggesting a slightly higher intensity of the skills shortage problem for the area.

Looking at the profile of SSVs by occupation, Figure 6 shows that the Solent LEP has higher-than-average proportions in both Professional and associate professional/technical jobs, which together account for 45% of all SSVs, compared with just 38% for England as a whole.

**Figure 6: Skill Shortage Vacancies (%) by Occupation, Solent LEP area vs England, 2011**



Source: UKCES Employer Skills Survey, 2011. See Occupational Key below.

#### Occupation

1 - Managers

2 - Professionals

3 - Associate professionals

4 - Administrative/clerical staff

6 - Caring, leisure and other services

7 - Sales and customer services

8 - Machine operatives

9 - Elementary staff

In terms of what is most commonly found lacking in applicants, the following skills were most frequently cited by Solent employers:

- Job specific skills (cited as lacking in 67.5% of SSVs)
- Technical or practical skills (47.7%)
- Customer handling skills (41.3%)
- Planning and Organisation skills (40.1%)
- Oral communication skills (34.9%)
- Team-working skills (32.7%)
- Problem-solving skills (31.8%)
- Strategic Management skills (30.6%)
- Written communication skills (30.1%)

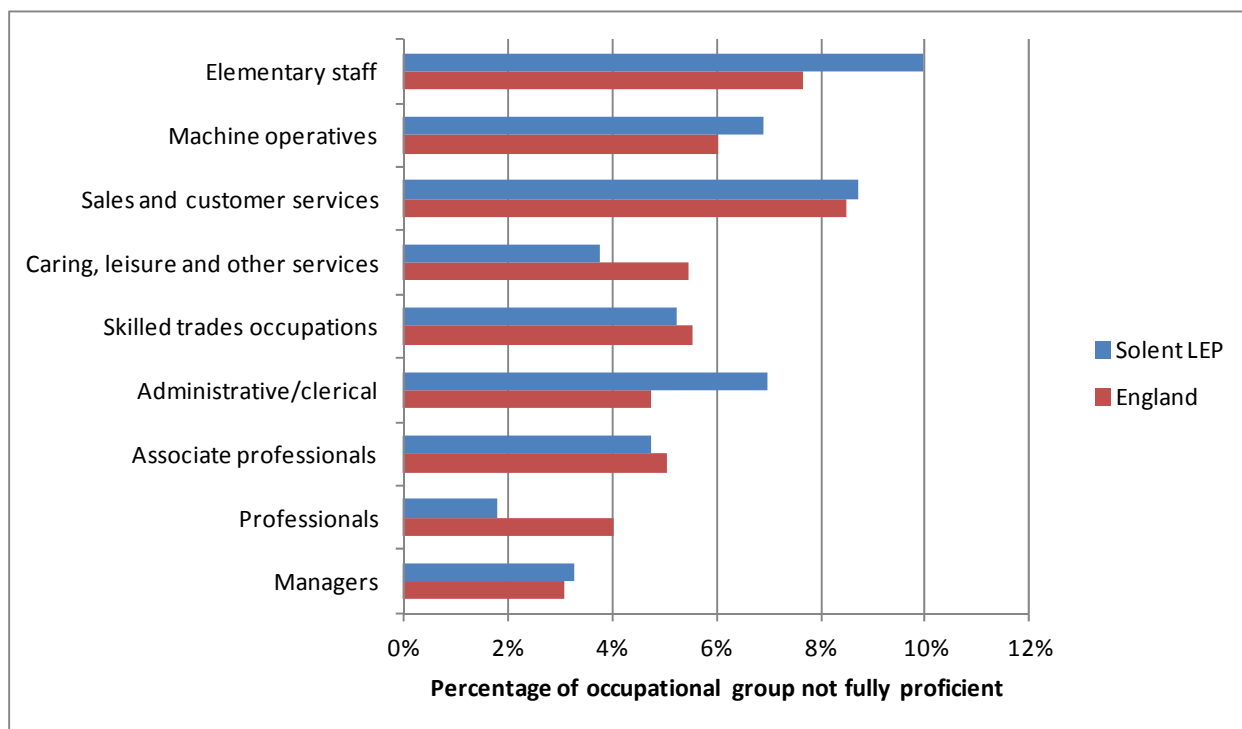
#### 4.3.2 Skills Gaps

Employers were also asked to report on internal skills gaps within their organisations, which look at skills deficiencies in existing employees rather than at vacancies. 16% of Solent LEP employers (9,500 employers) reported having a skills gap, with around 37,800 employees assessed as not being fully proficient in their job. This accounted for 5.9% of total employment, a slightly higher level than was reported by employers across England as whole (5.5% of employees).

Looking at the proportion of employees who are not fully proficient across different occupations, Figure 7 shows that the greatest concentrations of skills gaps are found in some of the least skilled occupations, such as Elementary occupations, Sales and customer service and machine operatives.

Higher-level (managerial, professional and technical) occupations have the lowest intensities of skills gaps (both locally and nationally), suggesting that, across all sectors, higher-level skills are not the main source of difficulty for employers in terms of being able to obtain the skilled labour they need.

**Figure 7: Skills Gaps by Occupation (% of employees not fully proficient), Solent LEP area vs England, 2011**



Source: UKCES Employer Skills Survey, 2011.

When describing the skills lacking among their staff, employers generally focus on technical, practical or job-specific skills: more than two-fifths (42.5%) of skills gaps were associated with a lack of these skills. Employers are also relatively likely to report skills gaps for team working, considered to be lacking in around 40% of cases.

Other soft, generic skills, such as oral communication, planning and organisation, problem-solving and customer-handling skills, were the next most commonly mentioned (all around 35 - 37% of skills gaps).

Less common, though still an issue in around 14% of cases where staff lacked proficiency, were insufficient strategic management skills, which have particular potential to impact on business performance and growth.

This feedback is consistent with that from EZ stakeholders and other evidence pointing to a shortage of technical and job-specific skills in the higher-level occupations existing alongside more generic skills shortages (e.g. problem-solving/team working) among those in lower level occupations. Stakeholders were very clear that Solent EZ Skills Plan should address both higher-level skills gaps and more generic skills gaps. These issues are discussed in more detail in the section on the EZ Priority sectors below.

## **4.4 Implications of Skills Gaps**

Around two-thirds of employers with skills gaps felt that they were having an impact on the performance of the organisation (6,300 employers locally), 18% feeling they had a major impact (around 1,700 employers).

An increased workload for other staff was by far the most common negative impact experienced as a result of staff having skills gaps (reported by over 80% of Solent LEP employers with skills gaps that have an impact on performance, equivalent to 9% of all employers in the area).

Increased operating costs, difficulties meeting quality standards, and difficulties introducing new working practices were the next most common impacts, each reported by 45% of employers with skills gaps that were having an impact.

### **4.4.1 Actions taken to alleviate the effects of skills gaps**

Just over three-quarters of employers with skills gaps (78%) have taken steps to overcome them. More than 80% of these have tried to overcome them by increasing training activity or spend, and this is by far the most common response to skills gaps. Around 60% are reacting by increasing staff supervision or providing more staff appraisal, the two next most common responses.

However, this leaves around 22% of employers with skills gaps (around 1,350 employers across the LEP area) taking no action to try to overcome their employees' lack of proficiency.

## 5. SOLENT EZ PRIORITY SECTORS – DATA ANALYSIS

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In this section, we look at the challenges facing each of the Solent EZ priority sectors, Advanced Engineering, Aerospace/Aviation and Marine.

The following data is provided for each sector:

- Trends in employment, turnover & number of enterprises.
- Projections of employment & occupational change.
- Key challenges & skills needs affecting each sector.
- Local priorities & developments.

### 5.1 Definitional Issues

Before progressing with this analysis, it is important to address some definitional issues.

#### 5.1.1 Engineering & Manufacturing

Advanced Engineering is not, in conventional terms, an economic sector. The term is generally used to describe areas of engineering that make intensive use of capital or knowledge; have high levels of R&D and technology expenditure; require strong specialist skills particularly in science and technology; and that are likely to compete nationally or internationally.

The Aerospace and Marine industries are sub-sectors of Advanced Engineering.

It is probably also useful to address the distinction between ‘engineering’ and ‘manufacturing’, not least because the sources that inform this section of the report refer variously to ‘engineering’, ‘advanced engineering’, ‘manufacturing’ and ‘advanced manufacturing’.

In definitional terms, ‘Engineering’ involves the application of scientific and mathematical principles to the design, manufacture, and operation of machines while ‘Manufacturing’ involves making or processing a raw material into a finished product, especially by means of a large-scale industrial operation. The boundary between the two is porous. Partners are clear that they wish to attract and grow advanced engineering within the EZ. However, ‘Advanced manufacturing’, particularly that which offers relatively high employment densities, would also appear to be welcome. There is much greater ambivalence about mass production, particularly that which offers lower employment densities and lower-skilled employment, but a sense that it may yet be appropriate to accommodate it at the former Daedalus airfield outside the area with EZ status. Decisions will need to be made on a case-by-case basis.

The porous nature of this distinction has led us to take a rather broad definition of 'Advanced Engineering' for our data analysis, including activities that could be considered 'advanced manufacturing' or even 'manufacturing', if they are not carried out using 'advanced' methods.

The important thing, from the perspective of this skills plan, is to ensure that all enterprises located at the Solent EZ can access the skills and support they required to engineer or manufacture increasingly sophisticated products, to move up the value chain, compete internationally, create jobs and re-balance the economy.

Enterprises engaged in the manufacture of weapons and munitions and military fighting vehicles have been included as a separate category, 'Defence'.

### **5.1.2 Aerospace and Aviation**

A further distinction needs to be made between 'aerospace' and 'aviation'. Both are priorities for Solent EZ and the distinction is, again, blurred. Classically, aviation concerns the design, development, production, operation, and use of all airborne craft, while Aerospace extends this definition to include craft that operate beyond the earth's atmosphere. In common use, 'aerospace' generally refers to the higher-end design, development, and production aspects of air and spacecraft, while 'aviation' references the transport of passengers and freight, leisure-based flying, aircraft servicing and maintenance. Using this distinction, of those enterprises already based at the Solent EZ, Phoenix Aviation (a flying school) and Sapphire Aviation (aircraft servicing) would be considered to be 'aviation' businesses, while Britten Norman (aircraft design & manufacture) would be considered to fall within 'aerospace'. The distinction has some significance in that, although both sectors are priorities for the EZ, the EZ has a particular emphasis on attracting and growing high value-added design, development and production businesses, most typically found within 'aerospace'. Again, the issue of which businesses should be located within and outside the EZ raises its head, and, again, decisions will need to be made on a case-by-case basis.

For the purposes of this analysis, the aerospace and aviation sectors have been kept separate.

### **5.1.3 Marine & Extended Marine**

Similarly, the marine sector includes manufacture and maintenance of ships and boats. Following discussion with Solent LEP, we have also included, within our data analysis, an 'extended marine' sector, covering a wider range of related activities, such as:

- Marine fishing/aquaculture
- Gas/Oil Extraction
- Sea/coastal passenger and freight water transport
- Processing/preserving and sale of fish, crustaceans and molluscs
- Renting and leasing of water transport equipment.

A complete list of the Standard Industrial Classifications (SICs) that define each priority sector is included in Annex 2.

## 5.2 Profile of Priority Sectors

This section covers data on the number of enterprises and levels of turnover, sourced from the Inter-Departmental Business Register (IDBR), for 2009 and 2012. Data on employment is from the Business Register Employment Survey (BRES). This is a more reliable source of employee numbers than the IDBR, but is only available for 2009 to 2011.

### 5.2.1 Number of Enterprises

Table 4 shows that in 2012, across the Solent LEP, there were 1,495 enterprises operating within the Solent EZ priority sectors, a fall from 1,630 (8%) since 2009. Well over half of this number (880) are in Advanced Engineering, but this is also the area which accounted for almost all the decline in the number of enterprises across all the priority sectors. By contrast, the number of Aerospace enterprises in the area has grown strongly from 55 to 90, and the number in Marine is also up slightly, by around 5%.

**Table 4: Number of Enterprises in Priority Sectors, Solent LEP, 2009 - 2012**

	<b>2009</b>	<b>2012</b>	<b>Change 2009-2012</b>	<b>% change 2009-2012</b>
Advanced Engineering	1,015	880	-135	-13.3
Aerospace	55	90	35	63.6
Aviation	70	65	-5	-7.1
Defence	5	5	0	0.0
Marine	215	225	10	4.7
Extended Marine	270	230	-40	-14.8
<b>Total</b>	<b>1,630</b>	<b>1,495</b>	<b>-135</b>	<b>-8.3</b>

Source: IDBR (March 2012 snapshot)

The Solent EZ Stakeholder Group has opted to monitor changes in the number of enterprises in each of the EZ priority sectors by including this as an indicator within the Solent EZ Dashboard.

### 5.2.2 Turnover

Table 5 shows that overall turnover in priority sectors grew by more than 20% between 2009 and 2012, to around £6.8 billion. There are some stark differences between the sectors, with Advanced Engineering falling by almost 12%, roughly in line with its fall in the number of enterprises. Aviation and Marine have seen falls in turnover of 33% and 26% respectively, despite neither seeing a significant change in the overall number of enterprises.



There have been two areas where the data suggests that there has been huge growth in turnover - Defence and Extended Marine. Defence shows what may be a 'spike' in output, due to BAE systems accelerating work on building the UK's two new aircraft carriers at Portsmouth Naval Base. The Extended Marine Sector shows growth of nearly 990%. This is due to a single enterprise engaged in Passenger and Water transport being included in the 2012 data for Southampton but not in the 2009 data, resulting from a change in their head office registered address, for example.

**Table 5: Turnover (£000) of Enterprises in Priority Sectors, Solent LEP, 2009 - 2012**

	<b>2009</b>	<b>2012</b>	<b>Change 2009-2012</b>	<b>% change 2009-2012</b>
Advanced Engineering	3,899,851	3,443,366	-456,485	-11.7
Aerospace	900,466	1,290,444	389,978	43.3
Aviation	192,366	128,991	-63,375	-32.9
Defence	21,704	236,736	215,032	990.7
Marine	292,814	215,863	-76,951	-26.3
Extended Marine	329,092	1,497,957	1,168,865	355.2
<b>Total</b>	<b>5,636,293</b>	<b>6,813,357</b>	<b>1,177,064</b>	<b>20.9</b>

Source: IDBR (March 2012 snapshot)

### 5.2.3 Employment

Using BRES rather than IDBR for employment figures allows us to drill down to Fareham & Gosport. Table 6 shows that there were 6,300 employees in priority sectors in Fareham & Gosport (representing 9.4% of all employment), and 42,100 across the LEP (6.4% of all employment).

Across all the priority sectors, employment levels in Fareham & Gosport have grown only slightly, by 0.1% (200 jobs), between 2009 and 2011, compared with 2.6% for the LEP (an increase of 4,800 jobs). However, there have been around 200 jobs lost in Advanced Engineering in that time, which have been offset by jobs growth in Aviation, Marine and Extended Marine. Across the whole LEP area, Advanced Engineering and Marine have both grown strongly, by 2,800 and 2,200 jobs respectively.

**Table 6: Employee Numbers in Priority Sectors, Fareham & Gosport vs Solent LEP, 2009 - 2011**

<b>Fareham &amp; Gosport</b>	<b>2009</b>	<b>2011</b>	<b>Change 2009-2011</b>	<b>% change 2009-2011</b>
Advanced Engineering	2,500	2,300	-200	-9.5
Aerospace	100	100	0	20.2
Aviation	1,800	2,000	200	12.2
Defence	1,500	1,500	0	-2.6
Marine	200	300	100	26.9
Extended Marine	0	100	100	25.0
<b>Priority Sectors Total</b>	<b>6,100</b>	<b>6,300</b>	<b>200</b>	<b>0.1</b>
<b>Priority Sectors as % of total employment</b>	<b>9.4%</b>	<b>9.4%</b>	<b>0%</b>	
<b>Solent LEP</b>	<b>2009</b>	<b>2011</b>	<b>Change 2009-2011</b>	<b>% change 2009-2011</b>
Advanced Engineering	20,300	23,100	2,800	13.8
Aerospace	1,000	1,000	0	2.3
Aviation	6,500	6,400	-100	-1.8
Defence	3,900	4,100	200	4.6
Marine	3,000	5,200	2,200	74.1
Extended Marine	2,600	2,300	-300	-10.6
<b>Priority Sectors Total</b>	<b>37,300</b>	<b>42,100</b>	<b>4,800</b>	<b>2.6</b>
<b>Priority Sectors as % of total employment</b>	<b>5.9%</b>	<b>6.4%</b>	<b>0.5%</b>	

Source: BRES 2009 & 2011 (via Nomis). Figures are rounded to nearest 100.

The Solent EZ Stakeholder Group has opted to monitor changes in the number of employees in each of the EZ priority sectors by including this as an indicator within the Solent EZ Dashboard.

## 5.2.4 Employment Projections

Determining future jobs and skills priorities requires an examination of predicted changes across different occupations and sectors. Forecasts provide some indication about likely shifts in employment structure and patterns. The latest Working Futures forecasts, covering the period from 2010-2020, develops its predictions based on past trends and provides the forecasting data used by government and other national agencies to predict future employment and thus trends in skills. As with all projections and forecasts, the results presented here should be regarded as **indicative of likely trends** and orders of magnitude given a continuation of past patterns of behaviour and performance, rather than precise forecasts of the future.

The Working Futures projections were developed during a period of considerable turbulence in world financial markets, with a current focus on problems of sovereign debt in areas of the Eurozone. At the time of writing, it remains unclear if these problems will trigger a further recession in Europe and the UK. The results presented here assume that such a crisis can be averted.

The baseline macroeconomic forecast underlying the results was developed in the first half of 2011. It assumes that a gradual recovery in confidence will bring about renewed growth in the UK economy, and that this will sustain employment growth in the longer term (2010-2020). This forecast could underestimate the possible short-term downturn that might affect the economy if the problems in the Eurozone are not resolved.

When looking at future demand for employment, it is important to note that two distinct features are in play:

- expansion demand - where new jobs are anticipated;
- replacement demand – which provides a more accurate picture of skills demand because it looks at that demand which arises due to retirement and thus which jobs and skills need to be replaced (because of retirement), even where the sector is not in expansion.

The level of sectoral detail in the forecasts is fairly broad, which is not ideal for examining prospects for the Solent LEP's priority sectors. The sectors that best match the LEP's priority sectors of advanced engineering, aerospace/aviation and marine are as follows:

- Engineering (covering SIC divisions 26-28)
- Rest of manufacturing (SIC divisions 13-25 and 29-33)
- Transport and storage (SIC divisions 49-53)

The engineering sector is a reasonably close match to the definition of Advanced Manufacturing used by the LEP, but the activities of the aviation and marine sectors are largely spread between 'rest of manufacturing' and 'transport and storage', making it impossible to differentiate prospects between the two, in terms of these forecasts at least.

### **5.2.5 Expansion demand**

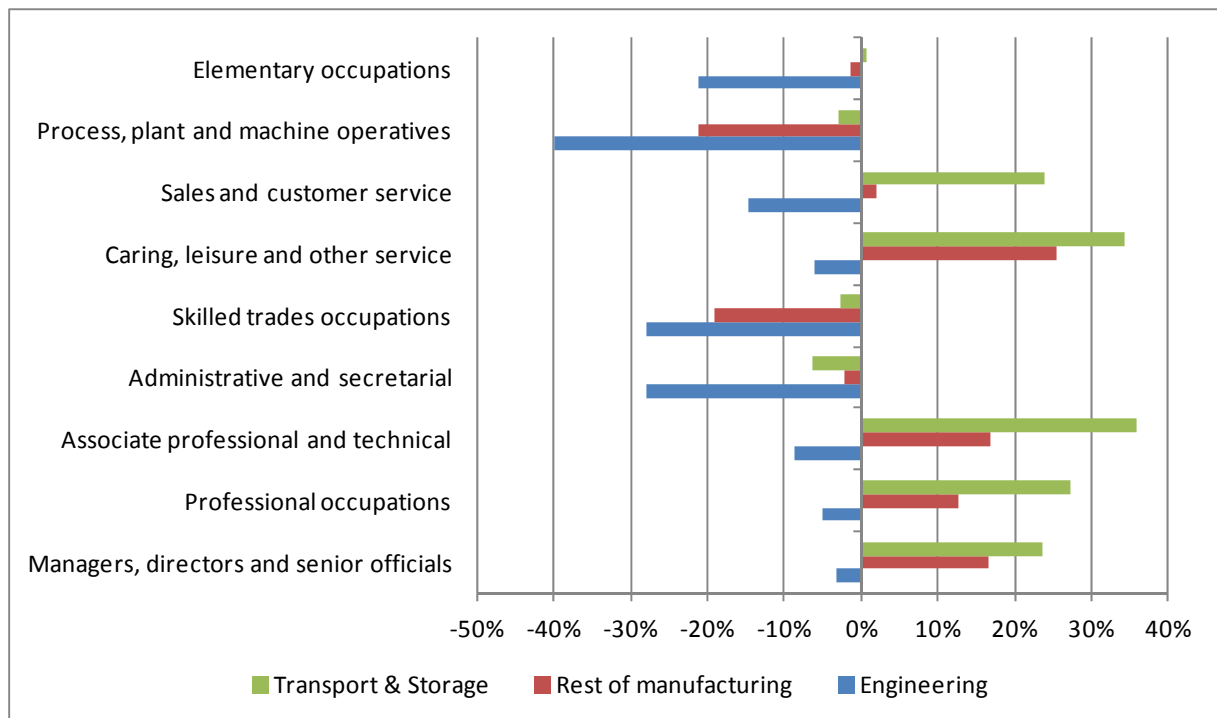
Working Futures data suggests that employment prospects for the Solent LEP are slightly better than the regional and national averages, with a projected increase of 6.2% in the total number of jobs between 2010 and 2020, an increase of 46,000 jobs. The projected change in employment levels in priority sectors locally is as follows:

- Engineering                                      decline of 2,300 jobs (-14.9%)
- Rest of manufacturing                        increase of 100 jobs (0.3%)
- Transport and storage                        increase of 2,500 jobs (8.2%)
- All sectors                                         increase of 46,000 jobs (6.2%)

These figures reflect the wider regional and national projections, which forecast similar levels of employment change in the sectors listed above, although Solent LEP is expected to fare slightly better than the national averages.

In the context of skills planning, of at least equal importance is how overall employment levels will be affected by changes in demand for different occupations. Figure 8 shows that there is a shift away from lower-skilled employment in process/machine operatives and elementary occupations, and strong increases in higher-level occupations i.e. managerial, professional and technical. The trend is similar within engineering, even though all occupations are expected to experience a net loss of jobs between 2010 and 2020.

**Figure 8: % change in employment by occupation, Solent LEP priority sectors, 2010 - 2020**



Source: *Working Futures, 2010 - 2020*

In terms of the absolute level of forecast change, the largest expansion will be in professional occupations, with a projected rise of 22,800 across all sectors (a net change of 1,000 in our approximation of local priority sectors). In the other higher-level occupations, an additional 17,500 jobs are forecast for senior managers (1,500 in priority sectors), and 15,300 in associate professional/technical occupations (1,600 in priority sectors).

**Table 7: Forecast change in employment by occupation, Solent LEP priority sectors, 2010 - 2020**

Occupation	Engineering	Rest of manufacturing	Transport & storage	All Sectors
Managers, directors & senior officials	-100	1,000	600	17,500
Professional occupations	-200	800	400	22,800
Associate professional and technical	-200	1,000	800	15,300
Administrative and secretarial	-300	-100	-200	-11,700
Skilled trades occupations	-800	-1,700	0	-7,900
Caring, leisure and other service	0	100	800	10,400
Sales and customer service	-100	0	300	-1,900
Process, plant & machine operatives	-400	-1,000	-300	-2,500
Elementary occupations	-100	0	0	4,000
<b>All Occupations</b>	<b>-2,300</b>	<b>100</b>	<b>2,500</b>	<b>46,000</b>

Source: Working Futures, 2010 - 2020. Figures rounded to nearest 100.

Research by BERR (now BIS) suggests that the future of advanced manufacturing and engineering will be shaped by five major dynamics, the most significant of which will be continued growth in the extent and complexity of global value chains. Allied to this, firms will focus on product differentiation and investment in: new technology; intangibles, such as design, branding and R&D; and in people and skills. Mass production is likely to continue to drift east to developing economies, particularly China and India.

In this context, a shift to higher level occupations offering higher levels of pay and requiring higher levels of skill may be regarded as a positive dynamic. Within manufacturing, a shift from Process, Plant and Machine Operative and Skilled Trades Occupations, towards Professional Occupations and Associate Professional and Technical occupations may be associated with investment in capital, R&D and industry generally taking higher-value added product market positions.

### 5.2.6 Replacement Demand

Replacement demand occurs where there is a need to recruit and train new entrants into jobs to replace those leaving. Where employment is projected to rise, such replacement demand will lead to even greater requirements. 'Replacement demand' is defined as the number of retirements, plus occupational mobility, plus migration. Net labour requirement is equal to expansion demand plus replacement demand.

It is important to note that net requirements are positive across all major groups, which shows that there is a continuing need for relevant skills provision, in even areas where overall employment levels may be falling. The overall requirement is skewed towards higher-level occupations, i.e. managers and senior officials, professional and associate professional and technical occupations, which is consistent with national trends and the shift towards a knowledge economy. Just over 50% of the net requirement across all sectors in the Solent LEP

will come from these three occupational groups, and is a cumulative effect of both expansion and replacement demand. Table 8 shows that this figure could be as high as 80% in the engineering sector.

**Table 8: Net Requirement for Jobs by Occupation, Priority Sectors vs All Sectors, Solent LEP, 2010 - 2020**

Occupation	Engineering	Rest of manufacturing	Transport & Storage	All sectors
Managers, directors and senior officials	1,000	3,500	1,700	52,900
Professional occupations	1,100	3,100	1,100	79,900
Associate professional and technical	700	3,300	1,700	52,300
Administrative and secretarial	200	1,300	1,200	31,300
Skilled trades occupations	300	1,700	600	23,900
Caring, leisure and other service	100	200	1,900	39,500
Sales and customer service	100	400	600	18,300
Process, plant and machine operatives	0	900	4,400	14,000
Elementary occupations	100	700	1,900	34,900
<b>All occupations</b>	<b>3,500</b>	<b>15,100</b>	<b>15,100</b>	<b>347,200</b>

Source: Working Futures, 2010 - 2020. Figures rounded to nearest 100.

### 5.3 Summary

The main conclusions emerging from the data analysis are:

- The overall number of businesses (VAT/PAYE registered) has fallen in recent years, to a greater extent locally than nationally. The number of new business registrations appears to have dipped sharply as well.
- An increasing number of local people have become self-employed in recent years, possibly setting up businesses that are too small to be VAT/PAYE registered.
- Survival rates for new businesses have plummeted during the economic downturn, although this is true of the nation as a whole.
- The Solent LEP has a particular concentration of employment in manufacturing, accounting for 9% of all employees (58,800 jobs). Within the manufacturing sector, there is a clear concentration of employment in 'Other transport equipment', which includes aerospace/aviation and boat-building, accounting for 14% of all manufacturing jobs in the area (around 8,000 jobs in total). This is more than double the concentration for either the South East or England.
- Compared with the average for England as a whole, the LEP also has a much higher concentration of employment in what is often defined as 'advanced manufacturing', particularly in the areas of computer, electronic and optical products, and electrical equipment.

- The Fareham & Gosport Enterprise Zone area has an even greater concentration of manufacturing employment than the LEP as a whole, accounting for 11% of all employees, around 7,200 jobs in all.
- In terms of broad indicators of employer demand for skills, 16% of Solent LEP employers (9,500 employers) reported having a skills gap, with around 37,800 employees assessed as not being fully proficient in their jobs. This accounted for 5.9% of total employment, a slightly higher level than was reported by employers across England as whole (5.5% of employees).
- The greatest concentrations of skills gaps are found in some of the least skilled occupations, such as Elementary occupations, Sales and customer service and machine operatives.
- Higher-level (managerial, professional and technical) occupations have the lowest intensities of skills gaps (both locally and nationally), suggesting that higher-level skills are not the main source of difficulty for employers in terms of being able to obtain the skilled labour they need.
- In terms of recent trends within the LEP's priority sectors, the overall number of active businesses has fallen by around 8%, with most of the fall being within advanced engineering. Turnover in that sector has fallen accordingly, but there have been significant increases in local turnover in defence and the extended marine sector.
- In terms of employment in priority sectors, there has been some growth across the LEP area, with around 4,800 more jobs in 2011 compared to 2009, but relatively little of that growth has been in Fareham & Gosport. Nevertheless, employment in priority sectors remains comparatively more important to Fareham & Gosport than elsewhere in the LEP, accounting for 9.4% of all employee jobs.
- Looking to the future, the LEP is forecast to lose a further 15% of its engineering employment (2,300 jobs) between 2010 and 2020, reflecting national-level forecasts. However, this change will affect different occupations to a differing extent, with a clear shift away from lower skilled employment in process/machine operatives and elementary occupations, and strong increases in higher-level occupations i.e. managerial, professional and technical.
- Taking into account the need to replace those in the workforce who will be leaving because of retirement (or other factors), there will be a net requirement for around 3,500 new recruits into the LEP's engineering sector from 2010 to 2020. Almost 80% of this requirement is expected to be in higher level occupations.

## 6. SOLENT EZ PRIORITY SECTORS – CHALLENGES

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In this section we outline some of the key challenges that employers in the Advanced Engineering, Aerospace and Marine sub-sectors have described as facing their sectors.

### 6.1 All Advanced Engineering

Perhaps the most important challenge faced by enterprises in Advanced Engineering, Aerospace and Marine alike is keeping up to date with technological developments – initiating the continuous improvements in products and production processes that are essential to the success of modern industry. For many enterprises, this requires continuous investment in research and development and taking time to understand how relationships with external partners, such as HEIs, might help them in developing new products and techniques.

Increasingly, enterprises do not undertake this activity alone. Managing supply chain relationships; negotiating and meeting continuously improving quality standards (e.g. no fault/just-in-time production); and fostering cultures of innovation across multiple enterprises, are all essential to the success of the sector. The success of initiatives, such as the Farnborough Aerospace Consortium, which brings companies together to this end, stands as testimony to this.

Small companies, which make up the majority of engineering enterprises, sometimes lack the strategic management skills required to prosper and grow. For some, the day-to-day practicalities of running a business make it difficult to take time out to look over the horizon at the changes taking place in their sector and to dedicate time to developing a strategic response. Delivering growth strategies requires leadership and expertise in a wide range of areas. It requires knowledge of how agencies such as the Manufacturing Advisory Service and UKTI might help with introducing lean production or gaining access to export markets. At some point, managers of growing enterprises need to move from a generalist to a specialist role, bringing in specific expertise in areas such as finance, human resources, R&D or marketing.

Maintaining competitiveness increasingly depends on making the most of all employees' skills and aptitudes. Employees are increasingly being asked to take on higher levels of responsibility and are being given greater autonomy. As we have highlighted, this dynamic, along with technological advances, is changing the occupational make-up of employment in the sector and driving up skills levels and requirements.

Workforce ageing, particularly the retirement of highly-skilled engineers, is generating a shortfall in the supply of technicians and engineers trained to Level 3/4. Within this, there are a variety of highly specific skills shortages, such as those in aerospace (highlighted below). Technician-level posts are typically filled via Apprenticeships. There is a need to ensure that sufficient Apprenticeship opportunities are available to meet the sector's needs. With skill levels rising, it



is increasingly important to ensure that clear progression routes exist from Advanced to Higher Apprenticeships and on to full degrees.

A significant gender bias is still seen in many occupations. As a result, the sector draws on a restricted labour pool. It should benefit from drawing upon a wider range of talent.

It has been estimated that 70% of engineers who are made redundant never work in engineering again. Enabling highly-skilled staff to remain in jobs within the sector is recognised as a clear challenge for the sector and one that has resulted in the development of a national Talent Retention Solution for Advanced Manufacturing and Engineering.

The sector will continue to require significant numbers of graduates and post-graduates with the specialist skills required by different areas of the industry. The rapid development of new techniques and processes is also generating a continuous need for the up-skilling of existing staff.

STEM skills (e.g. numeracy, problem-solving, scientific thinking etc.) are highly valued across much of the economy. The difficulty that manufacturers face in matching wages offered by competing sectors (e.g. financial services) results in a significant proportion of skilled graduates being lost to the sector. Engineering UK suggest that just over half of those qualifying in aerospace engineering (58%) go into an engineering and technology occupation, compared with nearly three quarters (72%) who graduated in civil engineering<sup>27</sup>. There is a need to take steps to ensure the sector can attract and retain the talent it needs.

Employers in engineering and manufacturing often identify young people as having a lack of general employability and business skills.

There remains a need to update both young people's and parents' perceptions of careers in engineering. Too often these remain rooted in the past, with the result that employment in the sector is viewed as noisy, dirty and precarious. It is important to address these misperceptions by exposing young people to the industry and by highlighting the excellent opportunities and careers that are available in the sector.

## 6.2 Aerospace and Aviation

According to Government figures, the UK has 17% of the global market for aerospace, which gives us the largest aerospace industry in Europe and globally second only to the United States<sup>28</sup>. The UK's 780 employers in the sector provide around 100,000 direct jobs, generating £24.2bn of UK revenue in 2011, of which 75% was exported. Aerospace employment is concentrated in large companies, with the 10% of enterprises with more than 200 employees accounting for 84% of all employment. 83% of the workforce is male.

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<sup>27</sup> Engineering UK, Annual Report, 2009/10, cited in Guest, J. Aerohub Skills Plan: Aerospace Sector Research, TBR 2012

<sup>28</sup> *Reach for the Skies. A Strategic Vision for UK Aerospace*, BIS, July 2012

The global civil aerospace market is anticipated to be entering a period of unparalleled demand, which will see the number of passenger aircraft in service more than double over the next 20 years. It is forecast that nearly 27,000 new large civil airliners (with a market value of \$3.2 trillion) will be needed by 2030 and by 2020 there will be a global market for around 9,500 civil helicopters (worth around \$50bn)<sup>29</sup>.

*Reach for the Skies*, which provides a Strategic Vision for UK Aerospace, suggests that, in the future, prime manufacturers will largely be integrators, who bring together pre-manufactured components and that 80% to 85% of value of the next all-new aerospace programme design will be bought-in. Working with their supply chains, aerospace companies will need to differentiate themselves from the competition by focusing on high-technology innovation and the skills required to deliver next-generation products, including composites and advanced lightweight metals.

To maintain competitiveness with lower wage economies, aerospace companies will need to make continued investments in building their technical capability and improving manufacturing processes and technologies. To help achieve this, *Reach for the Skies* argues that:

*it is critical that aerospace companies at all levels within the supply chain take full opportunity to benefit from the recent investment by Government and industry in the new network of High-Value Manufacturing Catapult centres, which includes facilities such as the National Composite Centre and the new Manufacturing Technology Centre. These provide opportunities to advance promising emerging manufacturing processes in the UK, such as Additive Layer Manufacturing.*

These centres are located across the UK, suggesting a role for signposting to organisations nationally, not just locally put in recommendations.

As avionics/aviation electronics (e.g. flight controls, system-monitoring, anti-collision systems) and pilot assistant (e.g. flight management, navigation, weather forecast) systems become steadily more complex, so the skills needed to operate and repair this type of equipment become increasingly IT-focused. The sector experiences an acute shortage of higher-level aerospace engineers with the required skills, to the extent that this issue has been recognised by the Migration Advisory Committee, which has included aerospace engineers at senior technician, graduate and post-graduate level on latest national 'Shortage Occupation List'. See Annex 3 for further details. Skills required for the design and planning of the manufacturing process are in short supply and there is a continuing need for Technician and craft skills in manufacturing and operations.

These skills shortages persist despite the fact that the sector has a good track record of recruiting young people directly from school, college and university, with 61% of employers recruiting directly from school or college (compared with 47% of employers across all sectors) and 62% recruiting directly from Universities (compared with 44% of employers). In 2009,

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<sup>29</sup> Ibid, p4.

around 20% of all establishments in Semta's aerospace sector had staff undertaking Apprenticeships, a figure significantly higher than the all-sector average<sup>30</sup>.

The Aerospace and Defence Sector Strategy Group (ADSSG), which has responsibility for developing and implementing a national skills strategy for the aerospace and defence sectors, has identified the following skills priorities:

1. Securing the sector's current and future skills requirements, through:
  - retaining skills and competencies;
  - ensuring individuals have the right skills, utilising the external support available to industry;
  - understanding the technology shifts taking place in the sector; and
  - identifying and quantifying industry's current and future skills needs based on existing and new technologies.
2. Securing the workforce of tomorrow by making aerospace and defence the industry of choice, through:
  - attracting, developing, promoting and retaining the necessary skills and competencies by promoting what the sector has to offer in terms of careers and benefits;
  - developing and deploying a schools engagement strategy that inspires future apprentices and engineers; and
  - promoting and increasing diversity within the sector.

## 6.3 Marine

The core concern for Solent EZ is to grow and attract companies that are engaged in the design, development and manufacture of equipment and craft operating in the naval, commercial, leisure, offshore oil and gas and marine renewable sub-sectors.

### 6.3.1 Sector Overview

The Marine Industries Leadership Council (MILC) estimates that the UK economy accounts for 3% of global marine business, generating £7.6 billion of sales per annum and employment for around 105,000 people.

They break the sector down into four sub-divisions:

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<sup>30</sup> Labour Market Intelligence Factsheet, Aerospace, SEMTA 2010.

1. **The leisure sector** - made up of around 4,200 businesses, mostly SMEs, employing around 34,300. Generating an estimated £1.3bn of exports, this rapidly expanding sector includes globally-recognised motor and sailing yacht manufacturers, associated supply networks, equipment manufacturers and marinas.
2. **The naval sector** - made up of a number of large companies supported by supply chains. Employing around 24,000 people, its fortunes are highly dependent on national defence strategy and reviews.
3. **The commercial sector** – covering: merchant shipbuilding, maintenance and repair; marine equipment; ship design, development and research. It has an annual turnover of around £1.6bn and employs around 36,000 people.
4. **Marine renewable energy** – covering offshore wind, wave and tidal energy. Although small at present, the expansion of tidal, wave and offshore wind energy is anticipated to generate major business opportunities in future, focused on: the design and manufacture of energy-generating devices; the design and manufacture of vessels required to install offshore systems; and marine-based service industries created around the coastline to service and maintain these systems.

Although the global marine sector is forecast to grow, competition for high value international markets is intensifying. Countries such as China, Brazil, India and Vietnam have made major strategic investments in the sector and are increasingly challenging for more knowledge-intensive segments of the market.

Rising fuel prices will create demand for more energy-efficient vessels, while legislation to improve ship recycling will also create demand for more innovative approaches to ship design, manufacture and disposal. Greater innovation, automation, improved productivity and an international outlook will be central to future growth and competitiveness.

Customers are increasingly buying on-going service support from suppliers, rather than just the ship or equipment. Knowledge-based businesses, providing consultancy and advice on matters such as safety, continuous performance improvement and emissions reduction are also likely to see continued growth.

As with other engineering sub-sectors, the skills required by the Marine sector are increasingly at the intermediate and higher level.

The existing workforce increasingly needs to up-skill and be able to adapt to rapidly changing technologies.

There is a concern about workforce ageing and the need to attract new younger employees into the industry, from school or from other sectors.

Research by the British Marine Federation suggests that 20% of employers in the sector have difficulties filling a vacancy, which they attribute to a lack of mobility and due to employees moving into other industries. The vacancies that are most difficult to fill are identified as being marine engineers. However, significant numbers of employers also have difficulty filling vacancies for ‘*electrical and electronic fitters, laminators, spray painters, commercial controllers, sales and marketing, apprentice and skippers*’<sup>31</sup>

In response to these challenges, the Marine Industries Strategic Framework argues that it is essential to:

*Engage at all levels within the education and training sectors to promote long term and exciting career opportunities in the marine industries, attracting increasing numbers of high-calibre graduates and apprentices to deliver the right people, with the right skills, at the right time*<sup>32</sup>.

## 6.4 Portsmouth Naval Base

The scale and significance of the Portsmouth Naval Base to both the Solent LEP and Fareham & Gosport area economies is such that it worth discussing it separately.

The Portsmouth Naval Base is estimated to generate £1.68 billion of output and to support, directly and indirectly, around 19,775 jobs, including 2,675 jobs in manufacturing. It is one of the Royal Navy’s three main fleet bases, alongside Plymouth and Clyde/Faslane. It is home to almost two-thirds of the Royal Navy’s surface ships, for which it delivers damage assessment, repair, upgrading, re-fitting, service and supply functions. It also services the helicopters that fly from these vessels.

Portsmouth Naval Base is part of a local defence cluster, which includes a myriad of commercial relations with supplier firms and major training bases, HMS Collingwood at Fareham and HMS Sultan at Gosport.

Chief amongst these is BAE Systems and its supply chain, which are currently building components of two new aircraft carriers at the site. These are due for completion in 2014/15, after which there is predicted to be a lull in naval shipbuilding. This has created considerable uncertainty, giving rise to concerns about a potential contraction in employment at the site.

The 2010 Strategic Defence Review has also committed the MOD to budget cuts of 8%, resulting in fewer surface warships and in sailor numbers falling from 35,000 in 2010 to 30,000 in 2015.

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<sup>31</sup> Industry Trends Results, British Marine Federation, November 2011 – May 2012

<sup>32</sup> UK Marine Industries Strategic Framework, Marine Industries Leadership Council, Department for Business, Innovation & Skills, March 2010, p. 12

A recent Socio-Economic Impact Assessment of Portsmouth Naval Base, commissioned by PUSH and Solent LEP<sup>33</sup>, reviewed three possible scenarios for the base, including one in which the reduction in shipbuilding activity is not offset by additional vessels moving to Portsmouth or by BAE Systems increasing the level of maintenance at the base. In this scenario, a 22% decrease in output and 20% decrease in employment were envisaged, leading to an overall loss of employment (including multiplier effects) of around 3,875 jobs, of which 2,400 are estimated to be in manufacturing.

Although much remains uncertain, any contraction within shipbuilding at the base could result in a significant flow of former employees onto the labour market, notably those who were previously employed as:

- Pipe-fitters (who make up 8.7% of employment in shipbuilding)
- Metal working production & maintenance fitters (7.3%)
- Sheet metal workers (6.8%)
- Electricians and electrical fitters (6.5%)
- Metal plate workers, shipwrights and riveters (4.0%)
- Engineering Technicians (3.2%)
- Mechanical engineers (2.5%)

In the event of a contraction, the challenge of absorbing and re-deploying the skills of people leaving shipbuilding will be a key challenge for the Solent LEP and an opportunity for local employers. The closure of Ford and the prevalence of employment in vulnerable sectors<sup>34</sup> within Gosport suggests that any skills strategy should include a focus on enabling the re-training, up-skilling and adaptation of the skills of vulnerable and redundant workers.

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<sup>33</sup> Socio-Economic Impact Assessment of Portsmouth Naval Base (2012), University of Portsmouth, 2012,

<sup>34</sup> Gosport is more dependent on businesses in vulnerable sectors than anywhere in England, according to Experien Resilience Tables, commissioned by the BBC in 2010. See <http://www.bbc.co.uk/news/uk-england-hampshire-11215629>

## 7. SUPPLY SIDE ANALYSIS

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In this section of the report, we turn our attention to the supply of skills that are currently available in the Solent LEP and immediate Fareham & Gosport labour markets. In particular, we look at: the jobs that people in the Solent LEP labour market perform; the structure of unemployment; the usual jobs held by people who are unemployed; and the skills levels of the local population.

### 7.1. Occupational structure of employment

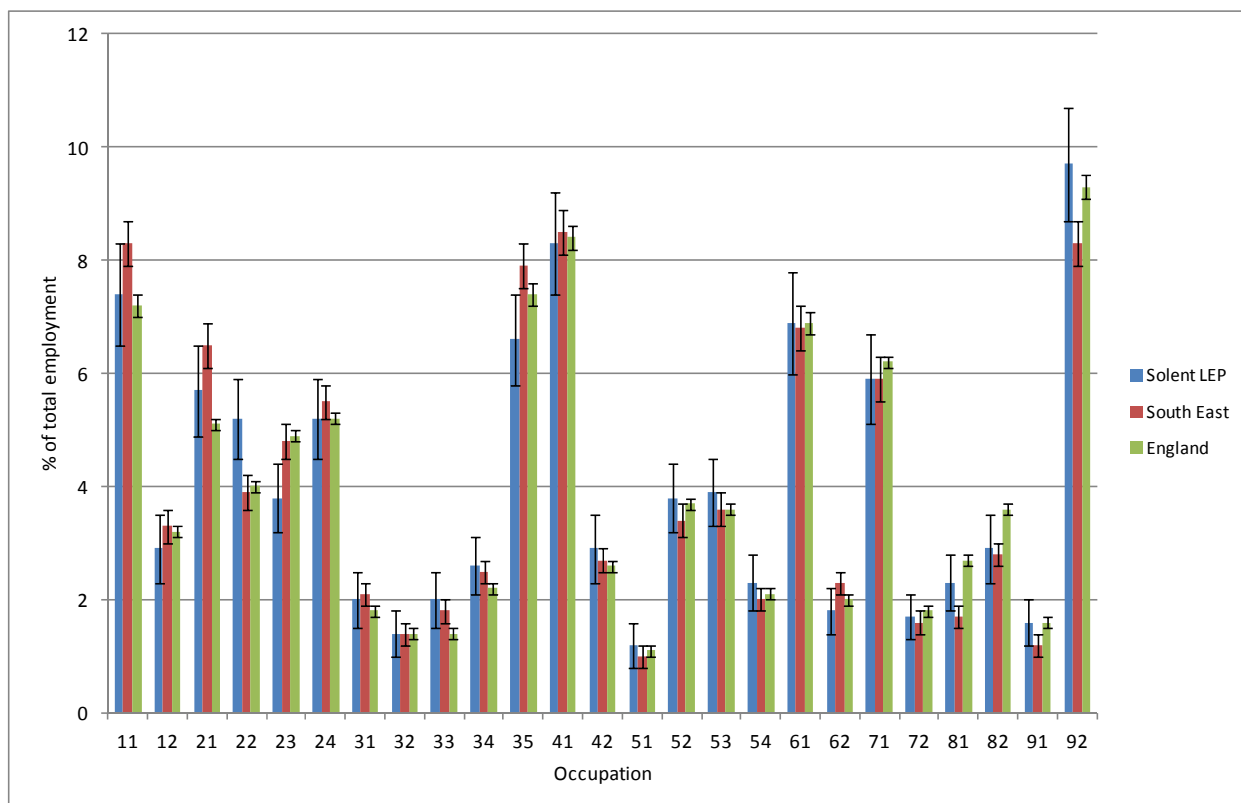
While employers are clear about the benefits gained from developing the skills of new recruits and existing staff, it would be naïve not to recognise that employers also need to draw on skills from the existing labour market, recruiting staff previously employed by other organisations. Indeed, it is generally accepted that a measure of staff turnover or churn is helpful in bringing fresh thinking to an enterprise or transferring new approaches across employers within a cluster. Data on the occupational structure of employment may also tell us something about the availability of skills in this labour market and also something about how knowledge intensive an economy or the industries within it may be.

Looking first at highly skilled jobs, the three most highly skilled occupational groups (Managers and Senior Officials, Professionals, and Associate Professional and Technical occupations) account for a slightly higher proportion of local employment in the Solent LEP area (45%) than they do across England (44%), but a lower proportion than that seen the South East (48%).

Taking into account the robustness of local level data, Figure 9 suggests that the LEP's manufacturing workforce may not be as skilled as might be expected. Confidence intervals notwithstanding, given the relative concentration of employment of manufacturing employment in Solent (see Figure 3), it is notable that the proportions of people working as 'science, research, engineering and technology professionals' and as 'science, engineering and technology associate professionals' are both lower than the South East average. The proportion working as 'process, plant and machine operatives' is higher.

In other words, the occupational profile of the area suggests that the existing manufacturing base in Solent, and by extension the skills held by those who work in it, may not be as advanced as in the surrounding area.

**Figure 9: Employment by occupation (%) Solent LEP vs South East and England, July 2011 to June 2012**



Source: Annual Population Survey (via Nomis). Note: error bars show 95% confidence intervals

**Key**

- 11: corporate managers and directors
- 12: other managers and proprietors
- 21: science, research, engineering and technology profs
- 22: health professionals
- 23: teaching and educational professionals
- 24: business, media and public service professionals
- 31: science, engineering and technology associate profs
- 32: health & social care assoc. professionals
- 33: protective service occupations
- 34: culture, media and sports occupations
- 35: business & public service assoc. professionals
- 41: administrative occupations
- 42: secretarial and related occupations
- 51: skilled agricultural and related trades
- 52: skilled metal, electrical and electronic trades
- 53: skilled construction and building trades
- 54: textiles, printing and other skilled trades
- 61: caring personal service occupations
- 62: leisure, travel and related personal service occs
- 71: sales occupations



- 72: customer service occupations
- 81: process, plant and machines operatives
- 82: transport & mobile machine drivers/operatives
- 91: elementary trades and related occupations
- 92: elementary administration & service occs

The Solent EZ Stakeholder Group has opted to monitor changes in the number of people working as 'science, research, engineering and technology professionals' and as 'science, engineering and technology associate professionals' within the Solent EZ Dashboard.

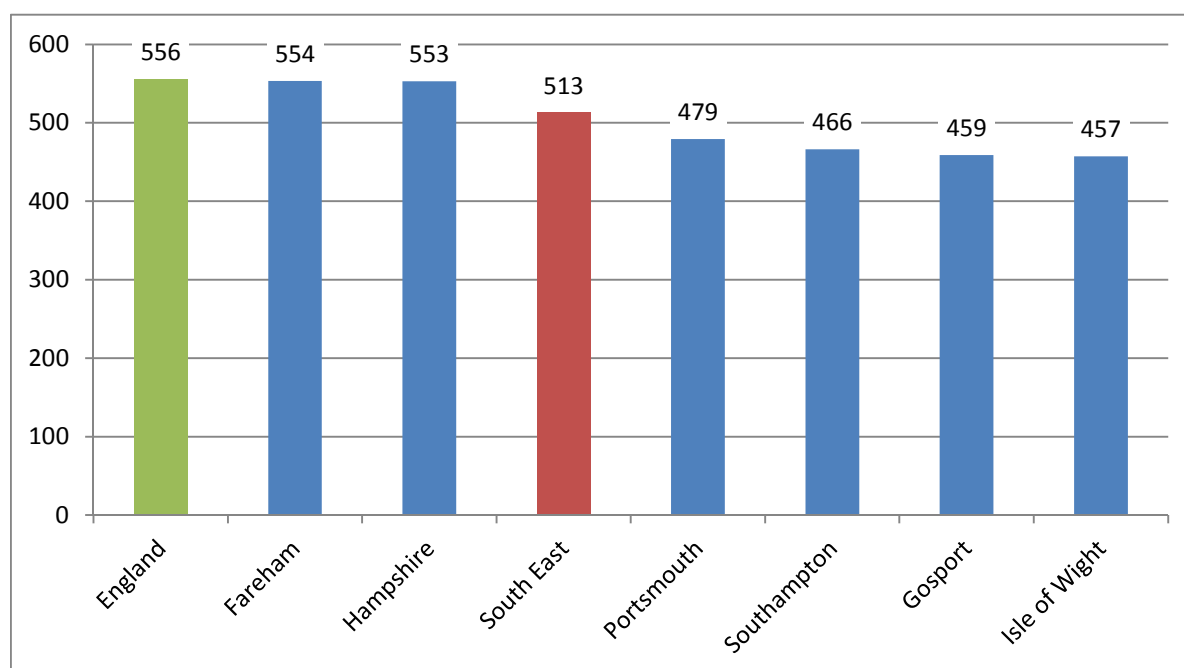
## 7.2 Wage Levels

The average wage of workers in an area is reflective of the industrial and occupational structure of employment in that area, as well as the skills levels of individuals. It is implicit that, in seeking to attract advanced engineering rather than manufacturing employment generally to Solent EZ, partners are seeking to raise incomes in the Solent EZ area.

Unfortunately, data on wages is not available for LEP areas. Data for District Authorities is also subject to very large confidence intervals and should be treated with considerable caution.

However, Figure 10 shows that the average wages for the Isle of Wight, Gosport, Southampton and Portsmouth were all significantly below both the South East and the England averages. Fareham and Hampshire, while above the regional average, also lie below the national average, which is inflated by the impact of high wages in London.

**Figure 10: Average (median) wages of full-time workers, 2012**



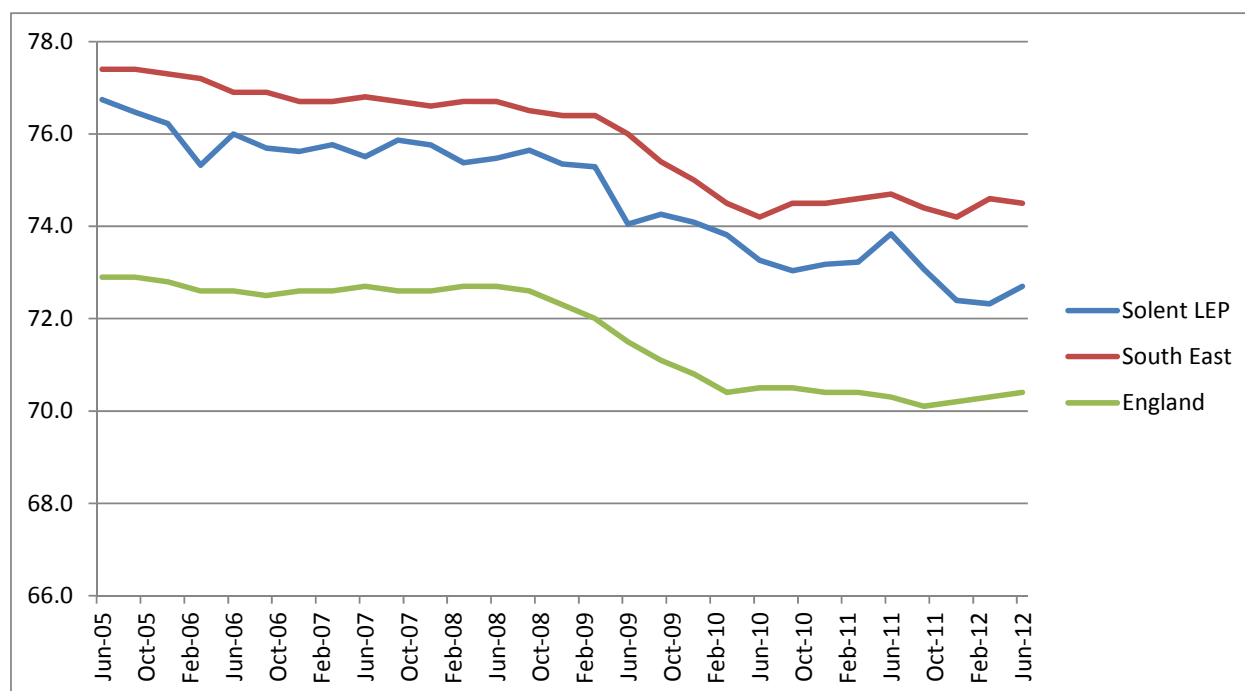
Source: Annual Survey of Hours and Earnings (ASHE)

### 7.3 Unemployment in Solent LEP and the area around Solent EZ

In the year to July 2012, 72.7% of people aged 16 to 64 in the Solent LEP area were in employment. This figure is slightly below the employment rate for the South East (74.5%), but higher than that for England as a whole (70.4%). Unfortunately, the confidence intervals at the District level (+/- 6%) are so large as to make figures for Fareham & Gosport meaningless.

Looking back over the last eight years, Figure 11 shows that employment rates have fallen in all areas. The 4% fall seen within the Solent LEP area was slightly greater than that seen in both the South East (2.9%) and across England (2.5%).

**Figure 11: % of population aged 16 to 64 in employment, June 2005 to June 2012**



Source: Annual Population Survey (NB data is for employment rates during the 12 month period leading up to the dates given in the Figure)

There are two measures of unemployment:

- the claimant count, a count of all individuals claiming benefits, and
- the ILO unemployment rate, a survey which identifies unemployed individuals as those who are not currently working, who have looked for work in the last four weeks, and are able to start a job in the next two weeks.

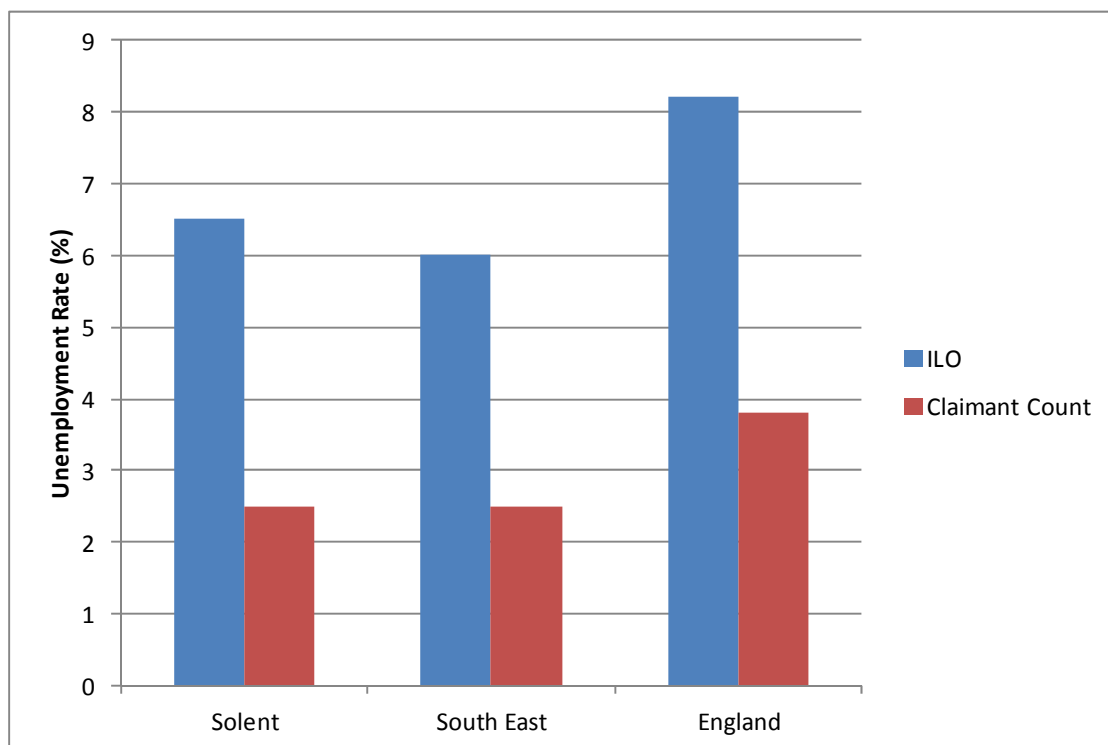
ILO unemployment is significantly higher than the claimant count and provides a better estimate of the 'real' level of unemployment, as it includes people who are out of work but do not claim benefits<sup>35</sup>. Unfortunately, however, due to the small sample sizes, the ILO measure cannot be

<sup>35</sup> People who are unemployed but who are not entitled to benefit payments, because they have savings or a partner who is working, for example, frequently do not register for Jobseekers Allowance.

used for small geographical areas (such as our 'Fareham & Gosport' area) or for looking at the duration of unemployment.

In October 2012, the claimant count unemployment rate for the Solent LEP was 2.5% (24,891 claimants), the same as for the South East, and well below the national average of 3.8% (Figure 12). The ILO measure (to June 2012) for the Solent LEP figure was 6.5% (49,200 unemployed).

**Figure 12: Unemployment rates, Claimant Count and ILO measures, Solent LEP vs South East and England, 2012**



Source: Annual Population Survey (July 2011 - June 2012) and Claimant Count (October 2012) - via Nomis

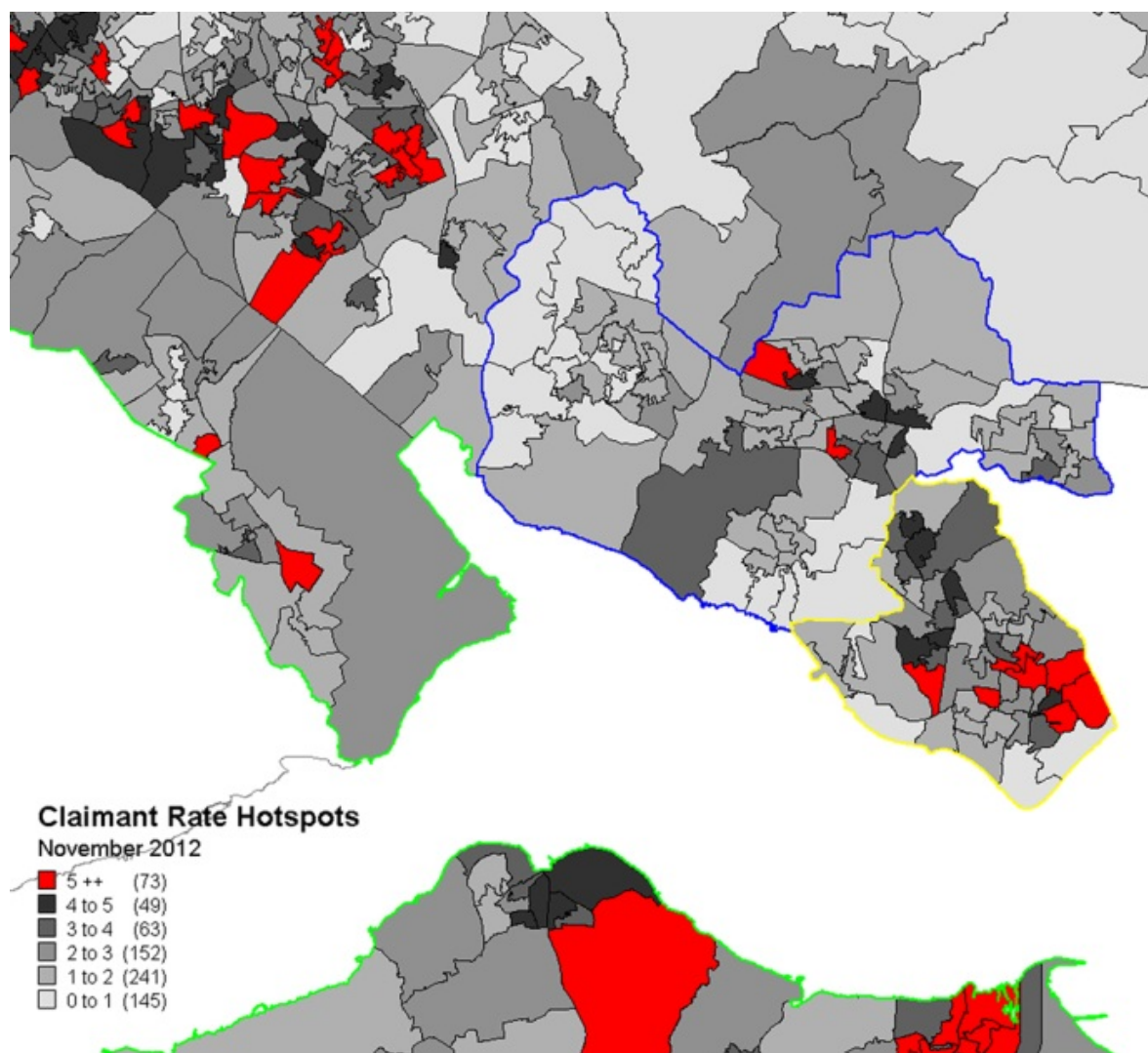
The claimant unemployment rate for Fareham & Gosport was 2.4% in October 2012 (2,834 claimants), just marginally lower than the LEP average. The rate for Gosport (3.1%) is, however, well above that of Fareham (1.8%) and, at ward level, there are variations in rates (see Figure 13). Some wards have unemployment rates below 1%, while six wards have rates higher than the national average (3.8%):

- Town 6.2%
- Grange 5.3%
- Leesland 4.7%
- Christchurch 4.1%
- Fareham South 4.0%
- Forton 4.0%

Within these wards lie pockets of severe deprivation, such as the Rowner Estate, which is located within a mile or so of the Solent EZ. Made up of former Ministry of Defence Housing, the 1,000 or so inhabitants of this estate experience extremely high levels of unemployment.

Figure 13 shows the geographical distribution of unemployment hotspots in Fareham & Gosport. It also shows that there were seven Lower Super Output Areas (LSOAs) in Gosport where more than 5% of the adult population was claiming Jobseekers' Allowance (JSA) and four LSOAs where the claimant rate was above 4%. Below it, Figure 14 shows the location of unemployment hotspots across the whole LEP area. This shows particular concentrations in Southampton, Portsmouth, the Isle of Wight as well as Gosport.

**Figure 13: Claimant unemployment rates by Lower Super Output Area, Fareham & Gosport area, November 2012**

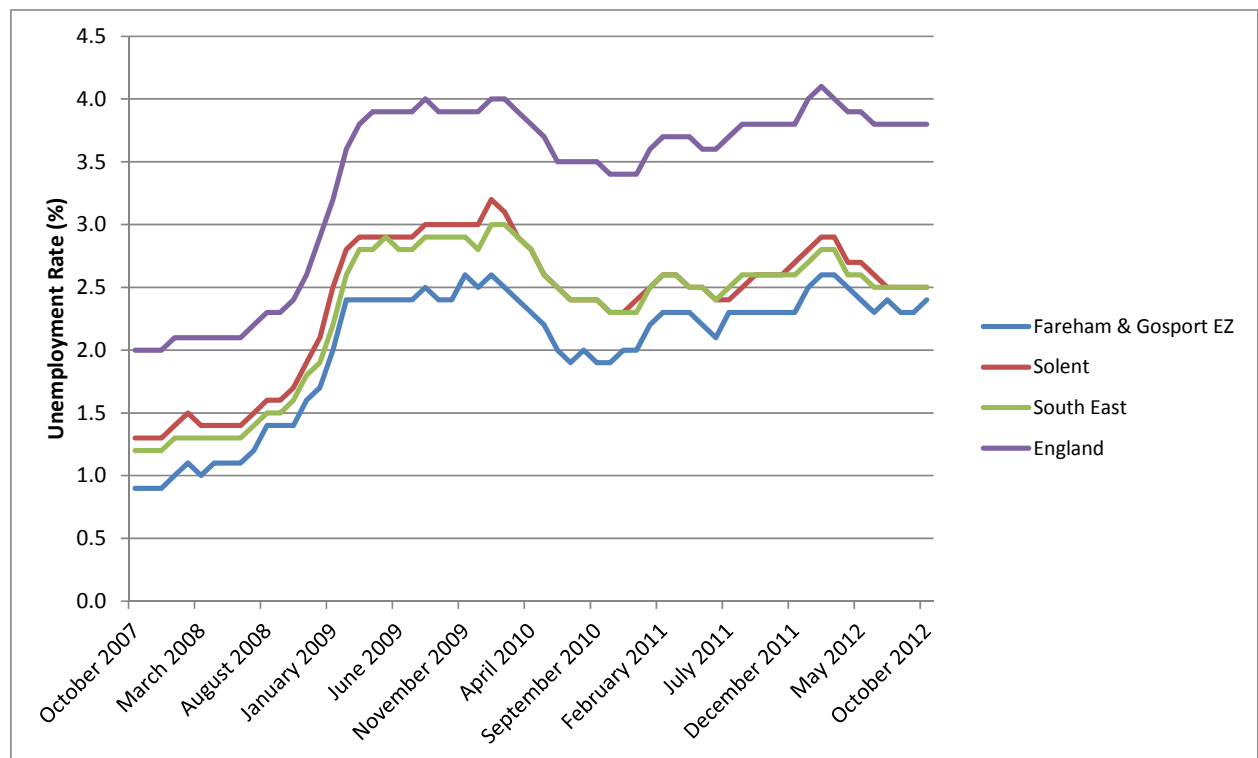


This work is based on data provided through EDINA UKBORDERS with the support of the ESRC and JISC and uses boundary material which is copyright of the Crown.

Source: Claimant Count (via Nomis)

Figure 14 shows the trend in the claimant count unemployment rate for Fareham & Gosport compared with LEP, regional and national averages from 2007 to 2012. Since 2007, unemployment locally has closely followed the wider trend, with a sharp rise in the early part of the recession through the second half of 2008, before falling through 2010 and starting to rise gradually again in 2011. In 2012, there has been a slight fall again, although rates remain much higher than their pre-recession levels.

**Figure 14: Claimant count unemployment rates, Fareham & Gosport vs Solent LEP, South East and England, 2007-2012**



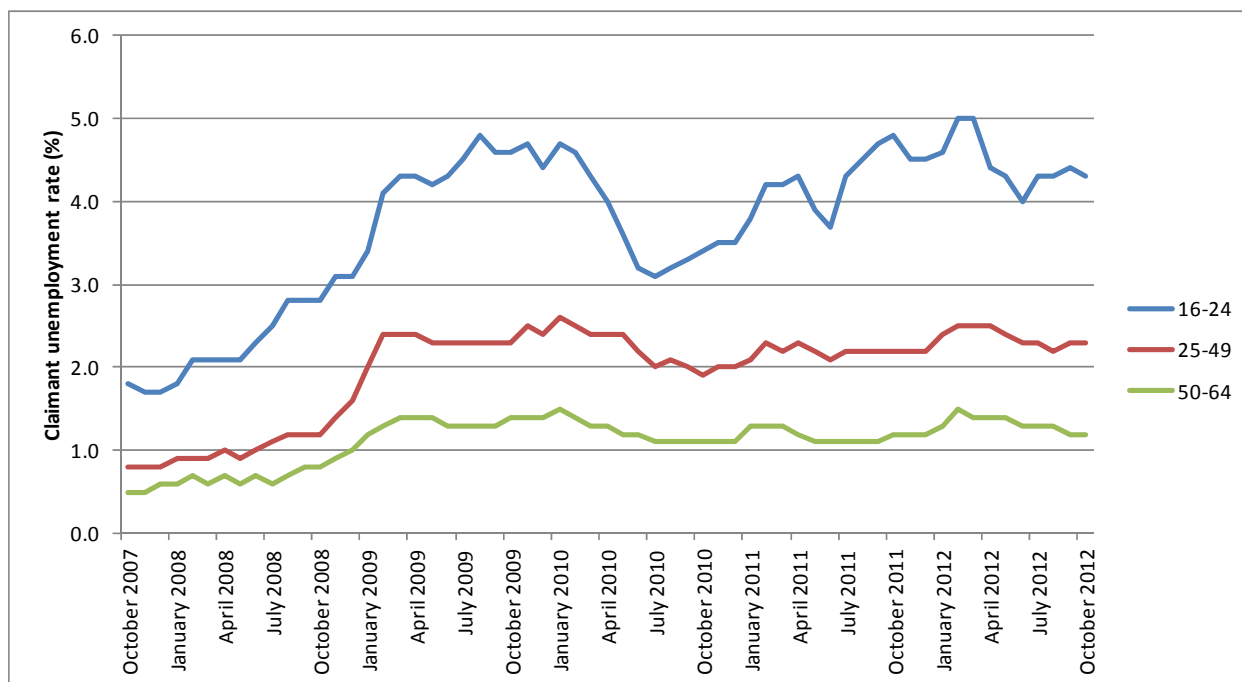
Source: Claimant Count (via Nomis)

### 7.3.1 Unemployment by Age

Figure 15 shows that the recent recession and sluggish economic recovery has had a particular impact on youth unemployment, which increased more sharply from the start of 2008, relative to other age groups. In Fareham & Gosport, claimant unemployment among 16-24 year olds rose from 1.8% in January 2008 (395 claimants) to its current (October 2012) level of 4.3% (930 claimants), a rise of 2.5 percentage points. This compares with a 1.4 percentage point increase for 25-49 year olds and 0.6 for 50-64 year olds.

The unemployment rate for 16-24 year olds in Fareham & Gosport (4.3%) is well above the LEP and South East averages of 3.5% and 3.7% respectively, but is significantly lower than the national average of 5.7%.

**Figure 15: Claimant count unemployment rates by age (% of age group claiming JSA), Fareham & Gosport, 2007-2012**



Source: Claimant Count (via Nomis)

Using the ILO measure of unemployment, youth unemployment is around three times the rate measured by the claimant count. Latest figures to June 2012 indicate that the unemployment rate for the Solent LEP was 16.5% (20,200 unemployed), slightly above the regional average but below the 21.2% observed nationally.

A clear priority for the Skills Plan will, therefore, be to try to link young people to the job opportunities generated at Solent EZ. A number of the recommendations around outreach to schools, raising interest in STEM education and participation in Apprenticeships focus on addressing youth unemployment as well as ensuring that employers have access to a continuous supply of skilled workers.

The Solent EZ Stakeholder Group has opted to monitor changes in youth unemployment within the Solent EZ Dashboard.

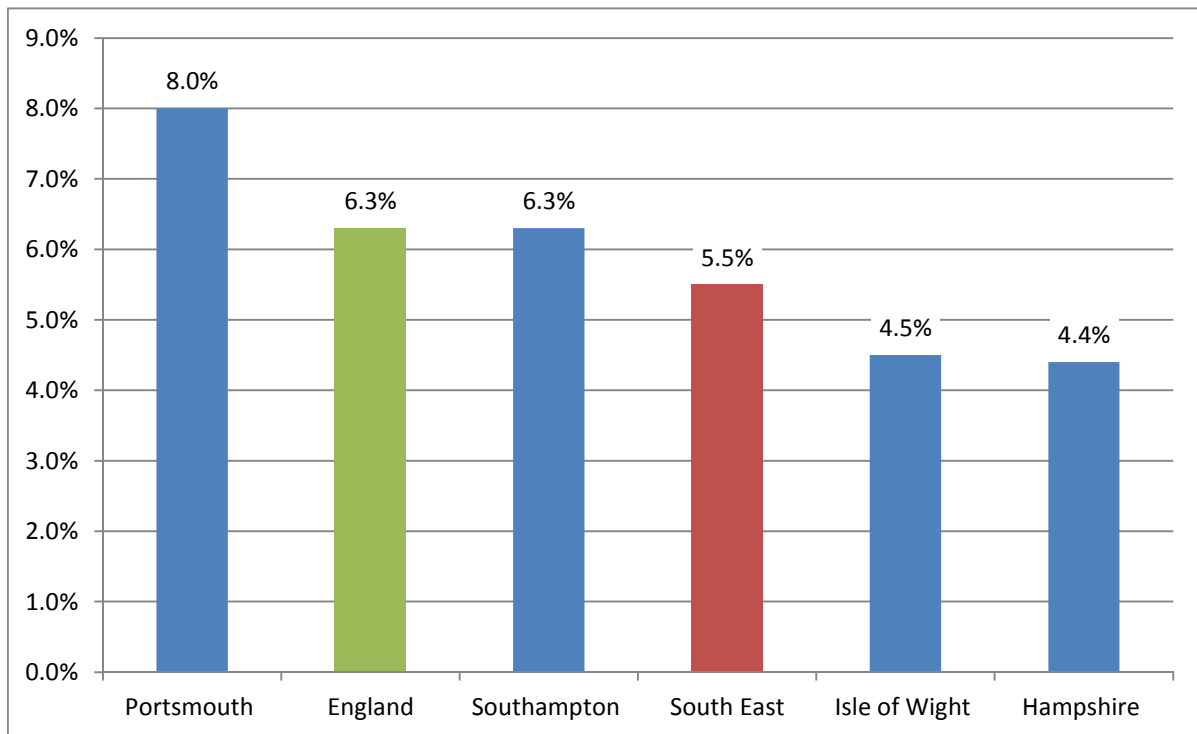
### 7.3.2 Young People Not in Education, Employment or Training (NEETs)

The ability of young people to make a successful transition from school to FE, employment or training has been identified as being a crucial safeguard against social exclusion in later life. Those who do not make this transition are frequently referred to as NEET (Not in Education, Employment or Training).

Upper tier Authority level estimates of the NEET population are derived from the Client Caseload Information System (CCIS).

According to the CCIS, an average of 8% of young people aged 16 to 18 in Portsmouth were NEET over the period between June and August 2012. This was higher than the national average (6.3%) or any of the other upper tier authorities in the Solent LEP area.

**Figure 16: % of 16 to 18 year olds Not in Education, Employment or Training (NEET), July to August 2012**



Source: NCCIS

Figure 17 compares changes in proportions of 16, 17 and 18 year olds who were NEET in the same period. It shows that, nationally, the chances of becoming NEET rise with age and are greatest at 18, due to a larger proportion of young people leaving education at this age. This pattern was repeated in Hampshire and Portsmouth, but not in Southampton where the proportion of young people who were NEET was relatively constant across all age cohorts.

**Figure 17: % of young people who were NEET by age, July to August 2012**

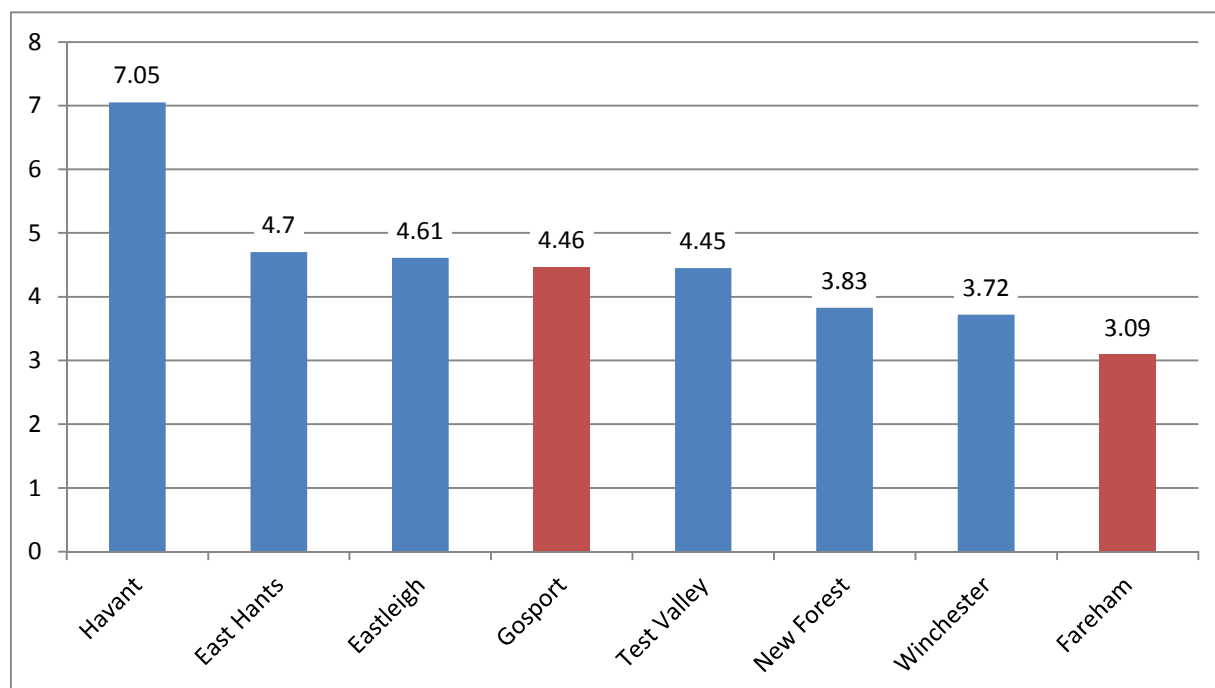


Source: NCCIS

Figure 18 shows that the proportion of young people who were NEET in Fareham (3.09%) was well below both the national (6.3%) and regional (5.5%) averages. The proportion of NEETs in Gosport (4.46%) was also lower than might be expected, given the relatively high unemployment rate within the local area.



**Figure 18: % of 16 to 18 year olds Not in Education Employment or Training (NEET) by District Authority, December 2012**



Source: Hampshire County Council

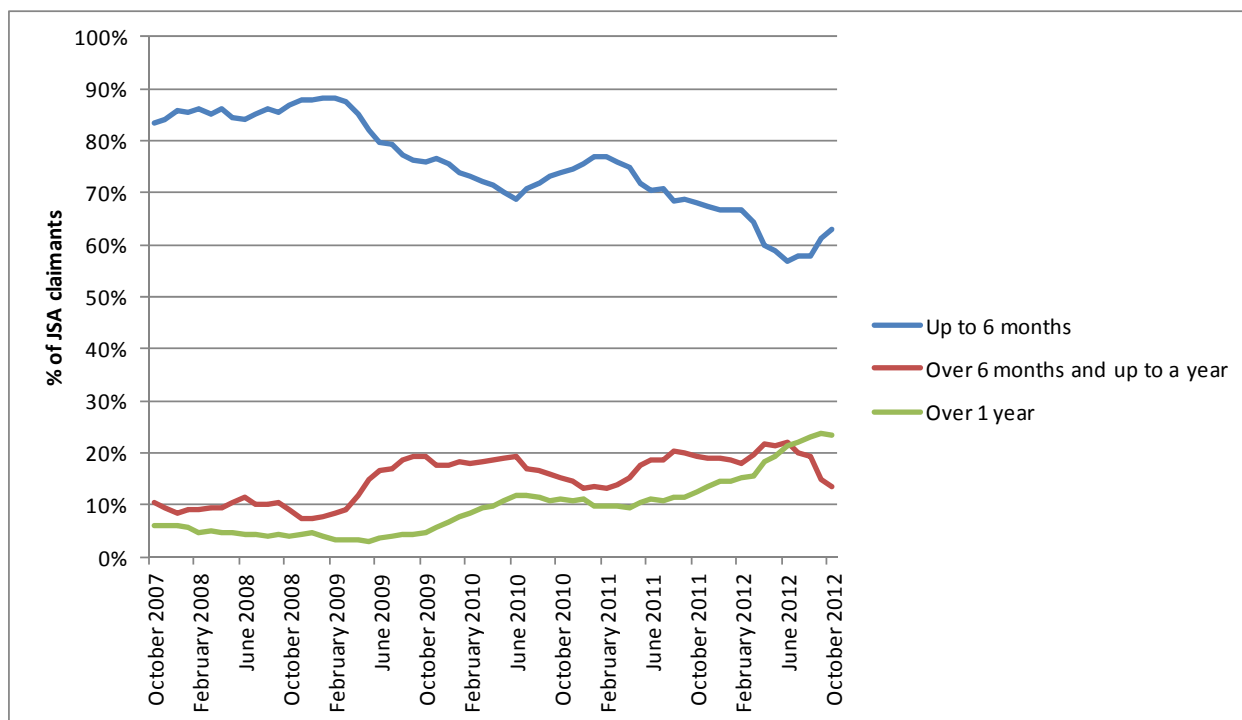
The Solent EZ Stakeholder Group has opted to monitor changes in the number of young people who are NEET within the Solent EZ Dashboard.

### 7.3.3 Long-term unemployment

In addition to the total numbers of claimant unemployed, an important characteristic is the duration of unemployment. It is thought that those who have been out of employment the longest are least likely to possess the skills and experience that employers are seeking.

In October 2012, 13.4% of the unemployed in Fareham & Gosport had been unemployed for 6-12 months, and 23.3% had been so for over 12 months (Figure 19). Nationally, 16.2% of the unemployed had been out of work for 6-12 months, and 29% for more than 12 months. Figure 19 also shows that the proportion of the unemployed who are long-term unemployed has been rising consistently since the onset of the recession, suggesting that they have found it very difficult to find work since first becoming unemployed. In absolute terms, the number of long-term unemployed locally has been rising fairly consistently over the last two years, rising from just 65 in October 2007, to 260 by October 2010 and peaking at its current level of 650.

**Figure 19: Unemployment by Duration (% of total unemployed), Fareham & Gosport, 2007-2012**



Source: Claimant Count (via Nomis)

### 7.3.4 Usual/jobs sought by claimants (JC+ / NOMIS)

This section looks at usual occupations of the local unemployed population. This tells us something about the immediate availability of labour and skills relevant to the focus of the Solent EZ, as well as the likelihood of the unemployed population finding work there.

Claimant Count data is available with a very detailed level of occupational detail, and the following occupations have been chosen as those most strongly linked to the LEP's priority sectors of engineering, aerospace and marine:

- 112 : Production Managers
- 211 : Science Professionals
- 212 : Engineering Professionals
- 213 : Information And Communication Technology Professionals
- 232 : Research Professionals
- 311 : Science And Engineering Technicians
- 312 : Draughtspersons And Building Inspectors
- 313 : IT Service Delivery Occupations
- 521 : Metal Forming, Welding And Related Trades
- 522 : Metal Machining, Fitting And Instrument Making Trades

- 524 : Electrical Trades
- 811 : Process Operatives
- 812 : Plant And Machine Operatives
- 813 : Assemblers And Routine Operatives

Table 9 shows that there were 135 unemployed claimants living in Fareham & Gosport whose usual occupations were in one of the above priority sector-related occupations, representing just 5% of all unemployed people. This is a fall from the same period in 2010, where it was 8% of the total (195 claimants). The low levels of unemployment among people who usually work in these occupations suggests that demand for these occupations is relatively buoyant. This is clearly a good thing. A successful EZ would generate a strong demand labour and skills in these areas.

It could be argued that employers would benefit from higher levels of unemployment in these occupations, or that low unemployment in these occupations is indicative of a skills shortage. There is probably some truth in both of these arguments. However, on balance, we do not want a situation where large numbers of people of people who have skills relevant to the EZ priority sectors are out of work or where there are large numbers of people being trained for jobs that do not exist.

However, it is also possible look at the volume of people in different occupations that leave the claimant count. This data also suggests strong local demand for these occupations. Between October 2010 and October 2012, 1,155 Fareham & Gosport residents whose usual occupations were priority sector-related left the claimant count.

Linking the available people to the available work, and ensuring that the skills these people have are those that are required by employers, are key goals for this plan. We therefore propose to include data on changes in the volume of unemployed people who usually work in engineering within the Solent EZ Dashboard.

**Table 9: Unemployed Claimant numbers by usual occupation, Fareham & Gosport, 2010-2012**

<b>Occupation</b>	<b>October 2010</b>	<b>October 2012</b>	<b>Change 2010-2012</b>	<b>% change 2010-2012</b>
112 : Production Managers	20	10	-10	-50.0%
211 : Science Professionals	5	0	-5	-100.0%
212 : Engineering Professionals	30	15	-15	-50.0%
213 : ICT Professionals	15	10	-5	-33.3%
232 : Research Professionals	0	0	0	-
311 : Science And Engineering Technicians	10	10	0	0.0%
312 : Draughtspersons And Building Inspectors	0	5	5	-
313 : IT Service Delivery Occupations	15	20	5	33.3%
521 : Metal Forming, Welding And Related Trades	20	10	-10	-50.0%
522 : Metal Machining, Fitting And Instrument Making Trades	20	10	-10	-50.0%
524 : Electrical Trades	30	15	-15	-50.0%
811 : Process Operatives	10	5	-5	-50.0%
812 : Plant And Machine Operatives	0	5	5	-
813 : Assemblers And Routine Operatives	20	20	0	0.0%
<b>All STEM-related occupations</b>	<b>195</b>	<b>135</b>	<b>-60</b>	<b>-30.8%</b>
<b>All occupations</b>	<b>2,340</b>	<b>2,790</b>	450	19.2%

*Source: Claimant Count (via Nomis). Data are rounded to the nearest 5.*

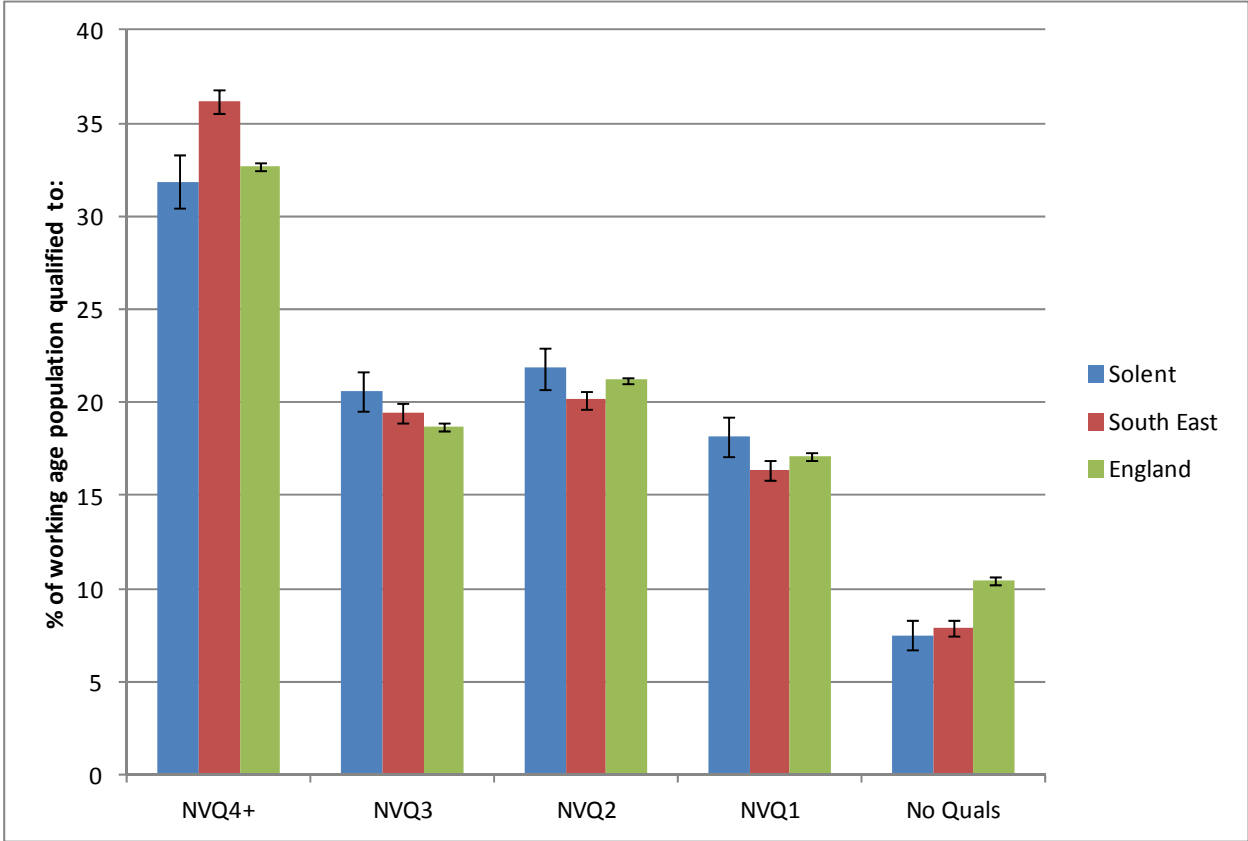
## 7.4. Skills levels in the Solent LEP area

### 7.4.1. Working age population

This section is concerned principally with characteristics of the pool of labour supply which can help to address issues relating to vacancies, skills shortage and other recruitment difficulties encountered by employers. This sector looks at the stock of qualifications (the best proxy for skills) within the local workforce, while Section 6 looks specifically at issues such as participation by young people in education and learning activities, and the level of qualifications they achieve. Together, they provide an indication of the health of the labour market and its capacity to meet the rising skills needs of employers. Unfortunately, the data is not reliable at local level and cannot be provided for Fareham & Gosport.

Figure 20 shows that a lower-than-average proportion of the Solent's LEP's workforce (32%) is qualified to Level 4 and above, with a higher proportion qualified to Level 3 (21%). On a positive note, a lower-than-average proportion (7.5%) have no qualifications at all, although a quarter of the working age population (26%) do not have a Level 2 qualification, which is generally regarded as the benchmark for employability.

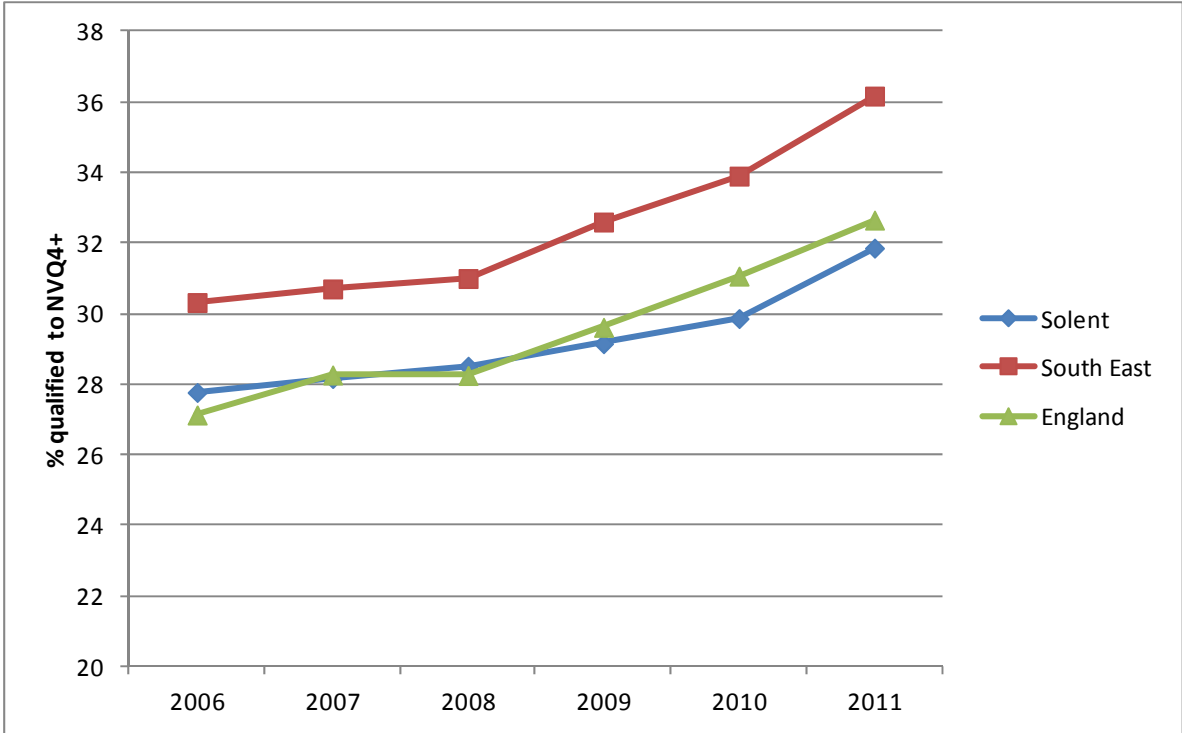
**Figure 20: Qualifications of the working age population (%), Solent LEP vs South East and England, Jan-Dec 2011**



Source: Annual Population Survey (via Nomis). Note: error bars show 95% confidence intervals

Over recent years there has been a steady and consistent trend in the achievement of qualifications at all levels. At the highest level (Level 4 and above), Figure 21 shows that the Solent area has broadly followed the wider trend, but at a slightly slower rate of increase. Between 2006 and 2011, the LEP area has fallen behind the national average on this measure, and the gap with the regional average has widened from 2.5 percentage points to 4.3.

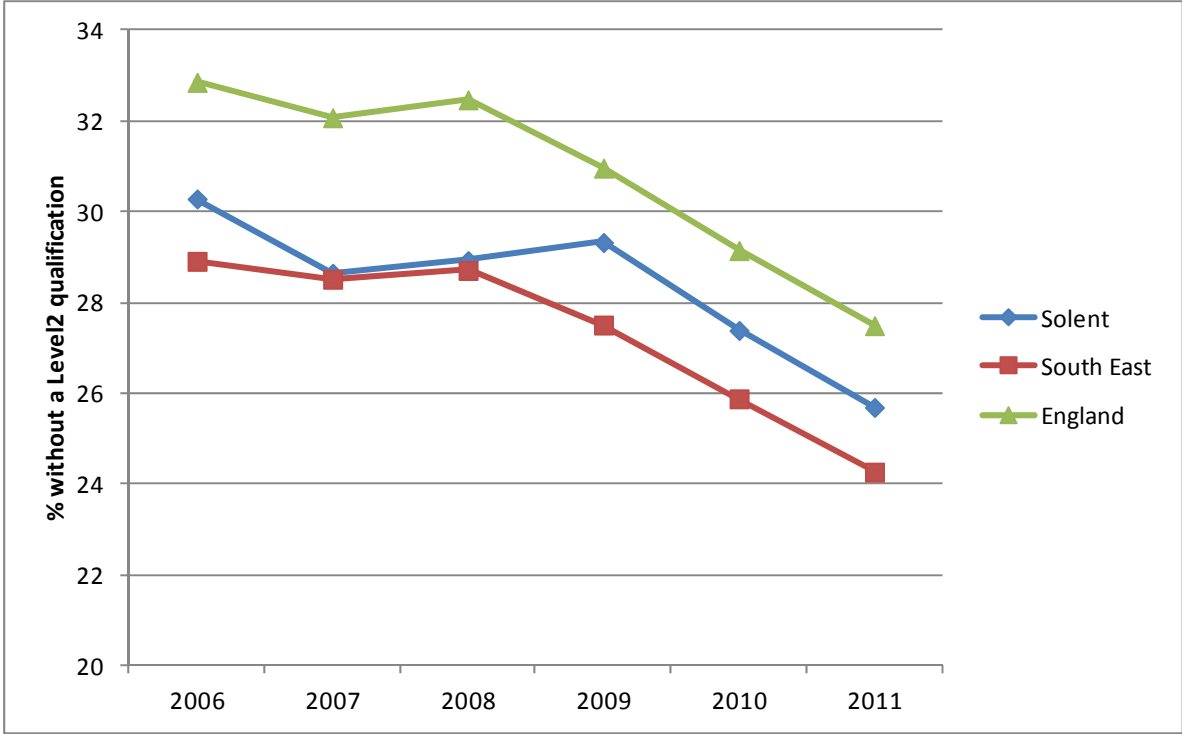
**Figure 21: Trend in Level 4+ qualifications (% of the working age population), Solent LEP vs South East and England, 2006 - 2011**



Source: Annual Population Survey (via Nomis).

Figure 22 shows that the proportion of the workforce without a Level 2 qualification has been falling over the same period, although the fall locally has been slightly slower than for England as a whole, resulting in a convergence with the national average compared with 2006 levels.

**Figure 22: Trend in those without a Level 2 qualification (% of the working age population), Solent LEP vs South East and England, 2006 - 2011**



Source: Annual Population Survey (via Nomis).

The Solent EZ Stakeholder Group has opted to monitor changes in the proportion of the population who are qualified to Level 4+, Level 3+ and the proportion who do not hold Level 2 qualifications as indicators within the Solent EZ Dashboard.

### 7.5 Summary

This section looked at the current supply of skilled labour in the local area, attempting to quantify what skills are available from the local population. The key points of note are:

- In terms of highly-skilled jobs, the three most highly skilled occupational groups (Managers and Senior Officials, Professionals, and Associate Professional and Technical occupations) account for 45% of local employment, slightly higher than the national average.
- The data indicates that the LEP's manufacturing workforce is not as skilled as might be expected, given its relatively high concentrations of employment. The proportion of people working in 'science, research, engineering and technology occupations' at

professional or associate professional level is lower than the South East average, while the proportion working as 'process, plant and machine operatives' is higher.

- Claimant count unemployment currently stands at 2.5% for the LEP (24,891 claimants), well below the national average of 3.8%. However, the 'real' unemployment rate is much higher (as measured by the ILO), currently estimated at 6.5% (49,200 unemployed) for the LEP.
- The claimant unemployment rate for Fareham & Gosport is 2.4%, with some local 'hotspots'. Six wards in the area had unemployment rates higher than the national average.
- The sharp rise in unemployment since the recession started has particularly affected young people, although the proportion of 16-24 year olds out of work is not as high as nationally. With a stuttering economic recovery and a slow increase in the number of job opportunities being created, the number of long-term unemployed has been rising consistently over recent years.
- In terms of their usual occupation, just 5% of the unemployed currently work in occupations that would most commonly be found within the LEP's priority sectors. The number of claimants usually in these occupations has been falling in the last two years, suggesting a reasonably good match between employer demand for these kinds of labour and the skills local people can offer.
- A lower than average proportion of the Solent's LEP's workforce (32%) is qualified to Level 4 and above, with a higher proportion qualified to Level 3 (21%). A quarter of the working age population (26%) do not have a Level 2 qualification, which is generally regarded as the benchmark for employability.



## 8. SUPPLY SIDE ANALYSIS – THE FLOW OF SKILLS

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This section brings together data on young people's attainment levels and subject choices from age 11 through to HE. In particular, it looks at local pupils' engagement with STEM subjects.

Successive governments have been keen to increase the number of people with STEM-related skills and qualifications as a means of promoting economic growth and prosperity. For example, a recent NAO report observed:

*A strong supply of people with science, technology, engineering and maths skills is important to promote innovation, exploit new technologies, produce world-class scientists and for the UK to compete internationally. The starting point is a good education for children and young people in science and maths.*<sup>36</sup>

By supporting STEM education and ultimately the supply of STEM skills, the Government hopes to stimulate the renaissance in British manufacturing and engineering needed to rebalance the economy and, in particular, increase goods exports and reduce the trade deficit<sup>37</sup>.

The political will to support STEM education is underpinned by positive public attitudes to investment in science. For example, four-fifths of respondents to a recent BIS-sponsored survey exploring public attitudes to science<sup>38</sup> agreed that 'the UK needs to develop its science and technology sector in order to enhance its international competitiveness' while three-quarters agreed that 'scientific research makes a direct contribution to economic growth in the UK'. Almost nine in ten thought that 'young people's interest in science is essential for our future prosperity' and six in ten (62%) agreed that 'because of science and technology there will be more work opportunities for the next generation'.

### 8.1. The skills of young people

#### 8.1.1. Key Stage 2

At the end of this stage, pupils aged 11 (in Year 6) are tested as part of the national programme of National Curriculum Tests, colloquially known as SATs. These tests cover English and Mathematics. There are also teacher assessments that allow us to analyse progress in Science. Data is available at Local Education Authority level, meaning we can observe trends in each of the authorities that are part of the LEP area, but not for the exact geography of the LEP itself (which comprises both Upper-tier and District-level authorities). An average for the four upper-tier authorities is, however, provided and termed 'Solent LEP' in just this section of this report.

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<sup>36</sup> Educating the next generation of scientists, National Audit Office (2010)

<sup>37</sup> The STEM subject push, Civitas (2011)

<sup>38</sup> Manufacturing in the UK: An economic analysis of the sector, BIS Occasional Paper No. 10A, December 2010

At Key Stage 2 in Maths, the Solent LEP’s performance is slightly higher than for England as a whole. In 2012, (see Table 10) 85% of pupils achieved level 4 or above, while 42% achieved level 5 or above. At a more local level, Hampshire’s results at both levels 4 and 5 were significantly better than the other areas that are part of the LEP.

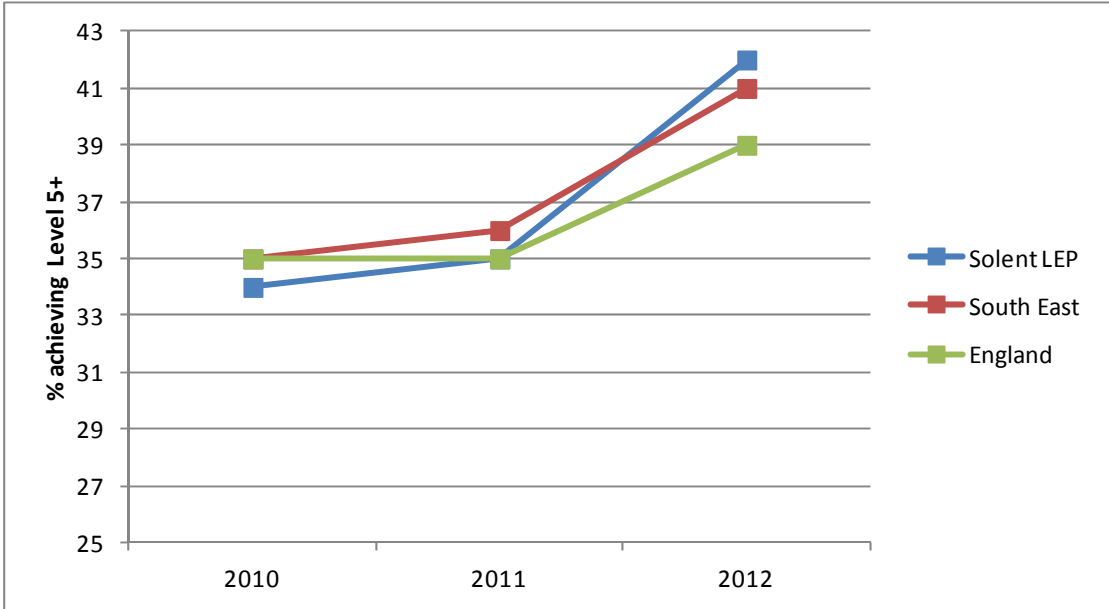
**Table 10: Key Stage 2 Results for Mathematics, Solent LEP, vs South East and England, 2012**

	Level 4+ (%)	Level 5+ (%)
Hampshire	87	45
Isle of Wight	79	31
Portsmouth	80	34
Southampton	82	37
<b>Solent LEP*</b>	<b>85</b>	<b>42</b>
South East	84	41
ENGLAND (all schools)	84	39

Source: DfE, SFR 25/2012. \* Solent figure is based on results of the 4 LEAs that are part of the LEP area.

Over recent years, the Solent LEP’s position in the achievement of level 5 (higher achievers) has risen faster than for England as a whole. Between 2010 and 2012, there was a sharp increase of eight percentage points, twice the national level, as shown in Figure 23.

**Figure 23: Percentage achieving Level 5 in Key Stage 2 Maths, 2010-2012, Solent LEP vs South East and England**



Source: DfE, SFRs

In Science, achievement of level 4 is slightly higher than in Maths, with 87% of Solent LEP pupils reaching the expected level in 2012 (up from 86% the previous year), the same as nationally (see Table 11).

**Table 11: Key Stage 2 Results for Science, Solent LEP, vs South East and England, 2012**

	Level 4+ (%)	Level 5+ (%)
Hampshire	89	40
Isle of Wight	85	31
Portsmouth	82	32
Southampton	84	33
<b>Solent LEP*</b>	<b>87</b>	<b>38</b>
South East	87	37
ENGLAND (all schools)	87	36

Source: DfE, SFR 25/2012. \* Solent figure is based on results of the 4 LEAs that are part of the LEP area.

The proportion achieving level 5 or above has not increased significantly in recent years, either locally or nationally.

### 8.1.2. Key Stage 3

At the end of this stage, pupils aged 14 (in Year 9) are assessed as part of the national programme of National Curriculum assessment. Until 2008, this involved a series of externally-marked tests. However, from 2009, these have been based on on-going teacher assessment.

At Key Stage 3 in Maths, the Solent LEP's performance is slightly lower than for England as a whole. In 2012 (see Table 10), 85% of pupils achieved level 5 or above, while 59% achieved level 6 or above. More locally, as with Key Stage 2, Hampshire's results at both levels were significantly better than the other areas that form part of the LEP, and are in line with the national averages.

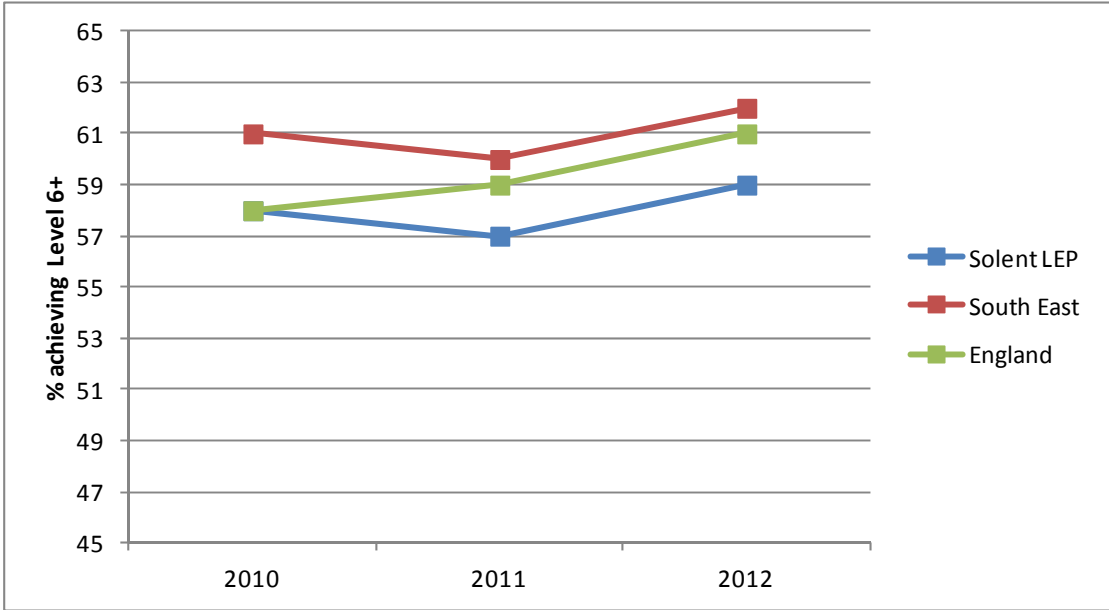
**Table 12: Key Stage 3 Results for Mathematics, Solent LEP, vs South East and England, 2012**

	Level 5+ (%)	Level 6+ (%)
Hampshire	82	62
Isle of Wight	78	57
Portsmouth	79	49
Southampton	75	51
<b>Solent LEP*</b>	<b>81</b>	<b>59</b>
South East	83	61
ENGLAND (all schools)	83	62

Source: DfE, SFR 25/2012. \* Solent figure is based on results of the 4 LEAs that are part of the LEP area.

Over recent years, the Solent LEP's position in the achievement of level 6 (higher achievers) has deteriorated slightly relative to England as a whole. Between 2010 and 2012, there has only been a one percentage point rise (with a slight fall in 2011), while the national level has continued to rise (see Figure 24).

**Figure 24: Percentage achieving level 6 in Key Stage 3 Maths, 2010-2012, Solent LEP vs South East and England**



Source: DfE, SFRs

In Science, achievement of level 5 is again slightly higher than in Maths, with 85% of Solent LEP pupils reaching this level in 2012 (up from 83% the previous year), the same as nationally (see Table 13).

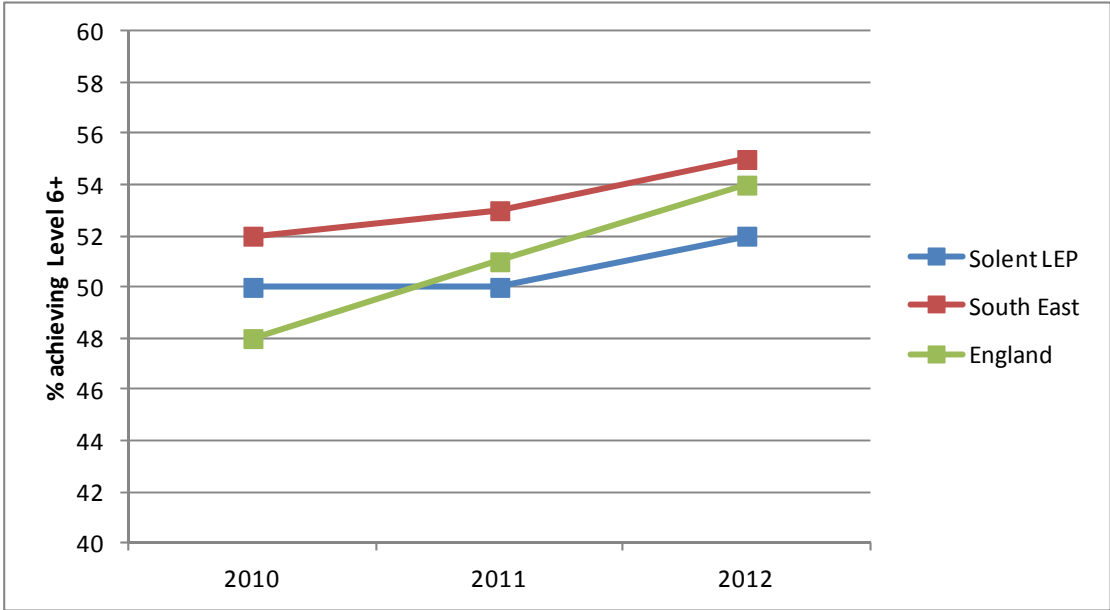
**Table 13: Key Stage 3 Results for Science, Solent LEP, vs South East and England, 2012**

	Level 5+ (%)	Level 6+ (%)
Hampshire	86	54
Isle of Wight	80	51
Portsmouth	83	43
Southampton	81	52
<b>Solent LEP*</b>	<b>85</b>	<b>52</b>
South East	85	55
ENGLAND (all schools)	85	54

Source: DfE, SFR 25/2012. \* Solent figure is based on results of the 4 LEAs that are part of the LEP area.

The proportion achieving level 6 or above locally rose to 52% from 50% in 2010 and 2011, but this relatively slow rate of increased achievement has seen the LEP area position dip slightly below the national average in 2012 (Figure 25).

**Figure 25: Percentage achieving level 6 in Key Stage 3 Science, 2010-2012, Solent LEP vs South East and England**



Source: DfE, SFRs

Employers in the advanced manufacturing, aerospace and marine sectors are clear: a firm foundation in Maths is an essential pre-requisite for much employment in their sector. Poor Maths skills can act as a barrier to progression in training and employment for too many members of staff. As the sector becomes increasingly advanced and automated and the balance of employment gradually shifts towards associate professional, technical and professional employment, higher-level Maths and Science skills will become increasingly important.

Although ‘catch-up’ provision has an important role in addressing this issue, the problem is perceived to start at school. The UK is dramatically behind many other countries in the study of Mathematics after sixteen. England, Wales and Northern Ireland have lower levels of participation in upper secondary Mathematics than any other country in a recent study of 24 countries. They were the only countries in which fewer than 20% of students went on to study Mathematics after the age of 16<sup>39</sup>. The correlation between high levels of attainment in Maths at Key Stage 3, attainment at GCSE and progression to study A Level Maths, is such that employers feel that it is imperative to raise attainment from an early age.

The fact that attainment in both Maths and Science Subjects falls, from being above the national average at Key Stage 2 to being below the national average at Key Stage 3, is disappointing.

<sup>39</sup> Hodgen, J., et al (2010) Is the UK an outlier? An International Comparison of Upper Secondary Mathematics Education, London: Nuffield Foundation, cited in Society Counts - Quantitative Skills in the Social Sciences, The British Academy, October 2012

### 8.1.3. GCSE Attainment

Having established that there appears to be a relative drop in achievement levels between Key Stages 2 and 3 in both Maths and Science, the next stage is to examine levels of achievement in STEM subjects at GCSE level, and levels of engagement in optional subjects.

In this analysis, we are able to make use of detailed school-level data that has recently been published by the Department for Education (DfE), from which we can examine the relative performance of those secondary schools within the defined Fareham & Gosport area, rather than just at Local Education Authority level. This detailed data has only been published for 2010 and 2011, meaning we cannot identify any firm trends in subject choices or achievement levels. The following Fareham and Gosport schools have been included in the Fareham & Gosport totals:

- Portchester Community School
- Brookfield Community School and Language College
- The Henry Cort Community College
- The Neville Lovett Community School
- Bridgemary School
- Brune Park Community College
- Crofton School
- Bay House School
- Cams Hill School
- Meoncross School
- Wykeham House School

In total, there were almost 30 different subject options related to the STEM agenda. To make analysis easier to present, some of these subjects have been merged into slightly broader headings, resulting in the following subject list:

- Core Science
- Biology
- Chemistry
- Physics
- Additional Science options - including Additional Science, Additional Applied Science, Astronomy, Geology, Environmental Science
- Manufacturing / Engineering
- Maths

- Additional Maths options - including Additional Mathematics, Statistics, Applications of Mathematics, Methods in Mathematics
- Design & Technology - includes Electronic Products, Food Technology, Graphic Products, Product Design, Resistant Materials, Systems & Control, Textiles Technology
- Information & Communication Technologies (ICT).

With Core Science and Maths being compulsory parts of the National Curriculum up until the end of Key Stage 4 (GCSE), levels of engagement with STEM subjects could perhaps best be measured by focusing on numbers of pupils studying Design & Technology, Manufacturing / Engineering and additional subjects in Science and Maths.

In 2011, almost 40% of all GCSE entries in Fareham & Gosport schools were in STEM subjects. This was higher than the averages for the LEP area and England, which were both around 38% (Figure 14). This equates to a ratio of 3.6 STEM subject entries per pupil in Fareham & Gosport, compared with 3.3 for the Solent LEP and 3.2 for England.

An encouraging sign is the higher-than-average levels of entries in additional Science and Maths options (6% and 2.5% respectively), while entries in Design and Technology options were higher than the LEP average, but in line with nation levels. There were no entries from Fareham & Gosport schools in Manufacturing or Engineering, but 2011 was the first year of grades for these new subjects, which were introduced from September 2009.

It is also interesting to note that there were lower-than-average proportions of entries in Biology, Chemistry and Physics as separate GCSEs (just over 2% of all entries for each), with a higher-than-average proportion studying for the combined Core Science GCSE (8%), although this is often supplemented by one of the additional science options.

**Table 14: GCSE Entries in STEM subjects, Fareham & Gosport vs Solent LEP and England, 2011**

STEM Subject	Fareham & Gosport		Solent	England
	Number	% of total	% of total	% of total
Core Science	1,527	8.0%	6.8%	6.8%
Biology	423	2.2%	2.7%	2.6%
Chemistry	407	2.1%	2.6%	2.6%
Physics	416	2.2%	2.5%	2.6%
Additional Science options	1,148	6.0%	5.6%	5.6%
Manufacturing / Engineering	0	0.0%	0.0%	0.0%
Maths	2,135	11.3%	11.0%	11.3%
Additional Maths options	469	2.5%	1.9%	1.4%
All Design & Technology	871	4.6%	4.3%	4.6%
ICT	102	0.5%	0.7%	0.7%
<b>STEM Total</b>	<b>7,498</b>	<b>39.5%</b>	<b>38.0%</b>	<b>38.3%</b>
All GCSE entries	18,977	-	182,234	5,067,100

Source: DfE, SFR 02/2012

This is positive for employers in the Solent EZ priority sectors and bodes well for the success of the site. It is likely that it owes something to the traditional identity of the Gosport peninsula and its historical strengths in manufacturing and production. Solent EZ seeks to build on this.

The Solent EZ Stakeholder Group has therefore opted to monitor changes in the number of young people entering STEM-related GCSEs as an indicator within the Solent EZ Dashboard.

Table 15 points to a trend of falling numbers of STEM subject GCSE entries, with a 3.0% drop in entries between 2010 and 2011 nationally and a 2.7% drop in entries in the Solent LEP. Although a decline in STEM entries was also seen in Fareham & Gosport, the drop of 2.2% was lower than that observed for the LEP and England as a whole, and needs to be placed in the context of a 1.5% fall in entries across all subjects. The proportion of GCSE entries in STEM subjects has remained around 40% in both years.

Within individual subjects, there has been something of a shift in Fareham & Gosport schools towards taking Biology, Chemistry and Physics as separate GCSEs, with a corresponding fall in Core Science and Additional Science options. This, again, is positive, as taking 'triple science' is positively correlated with the uptake of science at A level.

The number of entries in ICT and Design & Technology options have fallen sharply, in line with the wider trend across England. The low and declining level of learning in ICT is a major concern for both employers and policy-makers nationally. Education Secretary Michael Gove recently described the ICT curriculum as a 'mess' and 'demotivating and dull' in a speech setting out plans for a new flexible curriculum in Computer Science and Programming, that would create young people "able to work at the forefront of technological change".<sup>40</sup>

<sup>40</sup> School ICT to be replaced by Computer Science programme, BBC, 11<sup>th</sup> January 2012, <http://www.bbc.co.uk/news/education-16493929>



**Table 15: Change in GCSE Entries in STEM subjects, Fareham & Gosport vs Solent LEP and England, 2010-11**

STEM Subject	Fareham & Gosport		Solent	England
	Change 2010-11	% change	% change	% change
Core Science	-112	-6.8%	-8.1%	-13.7%
Biology	94	28.6%	7.7%	15.5%
Chemistry	146	55.9%	9.9%	16.0%
Physics	151	57.0%	9.4%	16.5%
Additional Science options	-224	-16.3%	-1.9%	-2.9%
Manufacturing / Engineering	0	-	-	-
Maths	24	1.1%	-2.4%	-0.9%
Additional Maths options	-38	-7.5%	6.1%	-12.3%
All Design & Technology	-153	-14.9%	-15.7%	-11.5%
ICT	-54	-34.6%	-3.5%	-17.0%
<b>STEM Total</b>	<b>-166</b>	<b>-2.2%</b>	<b>-2.7%</b>	<b>-3.0%</b>
All GCSE entries	-291	-1.5%	-3.4%	-2.5%

Source: DfE SFRs

#### 8.1.4 GCSE Achievements

This section focuses on the achievement of good grades (A\* - C) at GCSE level, as an indicator of likely progression to further learning in STEM subjects. Table 16 shows that the overall proportion of good grades achieved in STEM subjects was 69% in Fareham & Gosport schools, more than three percentage points lower than the LEP and national averages.

**Table 16: Good GCSE grades (A\*-C) in STEM subjects, Fareham & Gosport vs Solent LEP and England, 2011**

STEM Subject	Fareham & Gosport		Solent	England
	Number	% of total	% of total	% of total
Core Science	848	55.5%	62.9%	63.7%
Biology	415	98.1%	96.2%	94.5%
Chemistry	399	98.0%	95.7%	93.5%
Physics	412	99.0%	96.8%	94.1%
Additional Science options	720	62.7%	64.8%	66.2%
Manufacturing / Engineering	0	-	56.0%	40.4%
Maths	1,417	66.4%	67.9%	68.1%
Additional Maths options	448	95.5%	82.6%	76.5%
All Design & Technology	451	51.8%	61.4%	62.7%
ICT	62	60.8%	83.9%	78.7%
<b>All STEM Subjects</b>	<b>5,172</b>	<b>69.0%</b>	<b>72.6%</b>	<b>72.2%</b>

Source: DfE, SFR 02/2012

In individual subjects, there are some areas where achievement levels in Fareham & Gosport are well below average, including Core Science, Design & Technology and ICT. The proportion of good Maths grades is only slightly lower than average, although achievement levels are very high in additional Maths options (95.5%). Good levels of achievement are also very high (almost 100%) among those taking the three sciences separately, although as mentioned above, the proportion of pupils taking these GCSEs is lower than average.

In terms of any changes in the proportion of good grades achieved, the indications are fairly mixed, although we have only two years of data to examine, making it impossible to identify any clear trends. Table 17 shows that there appears to have been a sharp fall in the proportion of A\*-Cs achieved in:

- ICT -19.3 percentage point fall
- Design & Technology -10 point fall
- Core Science -9.0 point fall

There have also been some positive movements, with a strong rise in Biology achievements, and a 3.6 percentage point increase in Maths achievements, twice the national increase.

**Table 17: Change in good GCSE grades (A\*-C) in STEM subjects, Fareham & Gosport vs Solent LEP and England, 2010-11**

STEM Subject	Change in % of entries resulting in grades A* - C, 2010-2011		
	Fareham & Gosport	Solent	England
Core Science	-9.0	-0.9	2.1
Biology	15.4	1.2	0.0
Chemistry	0.3	-0.5	-0.6
Physics	3.2	0.3	-0.1
Additional Science options	-6.7	-4.1	-2.2
Manufacturing / Engineering	-	-	-
Maths	3.6	1.1	1.8
Additional Maths options	3.0	-1.9	1.0
All Design & Technology	-10.0	-2.9	-1.2
ICT	-19.3	1.3	2.5
<b>STEM Total</b>	<b>-0.8</b>	<b>0.0</b>	<b>1.4</b>

Source: DfE SFRs

There are a number of schools in the area immediately around the Solent EZ where attainment levels are well below the national average.

In 2011, 47% of students at Brune Park School attained five GCSE passes at grade A\* to C, with 58% making the expected progress in Maths.

At Bridgemary School, just 31% of students attained five GCSE passes at grade A\* to C in 2011, with 30% making the expected progress in Maths. Results for 2012 appear to have improved significantly at the school, which is now a Sponsored Academy. In 2012<sup>41</sup>, 40% of students attained five GCSE passes at grade A\* to C in 2011 and 42% made the expected progress in maths.

<sup>41</sup> 2012 results are from the Bridgemary Schools Website, as these were not available via DfE or the ONS website at the time of writing.

### 8.1.5 A Levels

This section looks at progression onto AS and A Levels in STEM subjects. Within Fareham & Gosport, there are three mainstream providers of A Levels:

- Bay House School – a former Grammar school, requiring six Grade B's at GCSE to gain entry and offering academic/A Level provision.
- Fareham College – a broadly based College of Further Education, offering both vocational and academic provision.
- St Vincent College – a 6<sup>th</sup> Form College, offering A Levels, vocational education such as BTECs at Levels 2 and 3, and opportunities to progress up to Level 5 provision and Foundation Degrees.

Table 18 shows that there were 600 A or AS Level entries (including Double Awards) in STEM subjects in Fareham & Gosport-based providers. This represented just 24% of all entries, compared with 27.9% for the Solent LEP and 30.5% for England. Maths is by far the largest subject area being studied locally, accounting for 10.8% of all entries (higher than the LEP and national averages), with higher-than-average proportions in ICT. There were very few entries in Design & Technology options (0.6% - less than half the proportion for England), and entries in Biology, Chemistry and Physics were all significantly lower than average.

**Table 18: A & AS Level Entries in STEM subjects, Fareham & Gosport vs Solent LEP and England, 2011**

STEM Subject	Fareham & Gosport		Solent	England
	Number	% of total	% of total	% of total
Biology	72	2.9%	5.7%	6.6%
Chemistry	73	2.9%	4.1%	5.1%
Physics	63	2.5%	3.3%	3.7%
Applied Science	10	0.4%	0.3%	0.3%
Environmental Science	0	0.0%	0.7%	0.2%
Applied Engineering	0	0.0%	0.0%	0.0%
Electronics	11	0.4%	0.3%	0.1%
Mathematics	221	8.8%	7.7%	8.3%
Mathematics (Further)	51	2.0%	1.4%	1.3%
Mathematics (Pure)	0	0.0%	0.0%	0.0%
Mathematics (Statistics)	1	0.0%	0.0%	0.1%
Use of Mathematics	0	0.0%	0.6%	0.1%
Additional Mathematics	0	0.0%	0.0%	0.0%
ICT	29	1.2%	1.0%	1.1%
Applied ICT	19	0.8%	0.7%	1.2%
Computer Studies/Computing	36	1.4%	0.9%	0.5%
D&T Food Technology	0	0.0%	0.0%	0.2%
D&T Product Design	14	0.6%	1.1%	1.3%
D&T Systems & Control	0	0.0%	0.0%	0.0%
D&T Textiles Technology	0	0.0%	0.0%	0.3%
<b>STEM Total</b>	<b>600</b>	<b>24.0%</b>	<b>27.9%</b>	<b>30.5%</b>
All Subjects	2,499	100%	100%	100%

*DfE, SFR 01/2012 underlying data*

Although engagement with STEM subjects at A Level appears to be relatively low in Fareham & Gosport, it should be emphasised that this alone does not cover all aspects of post-16 education and training - FE, Apprenticeships and workplace learning are all highly valued by employers and are covered in Section 6.2.

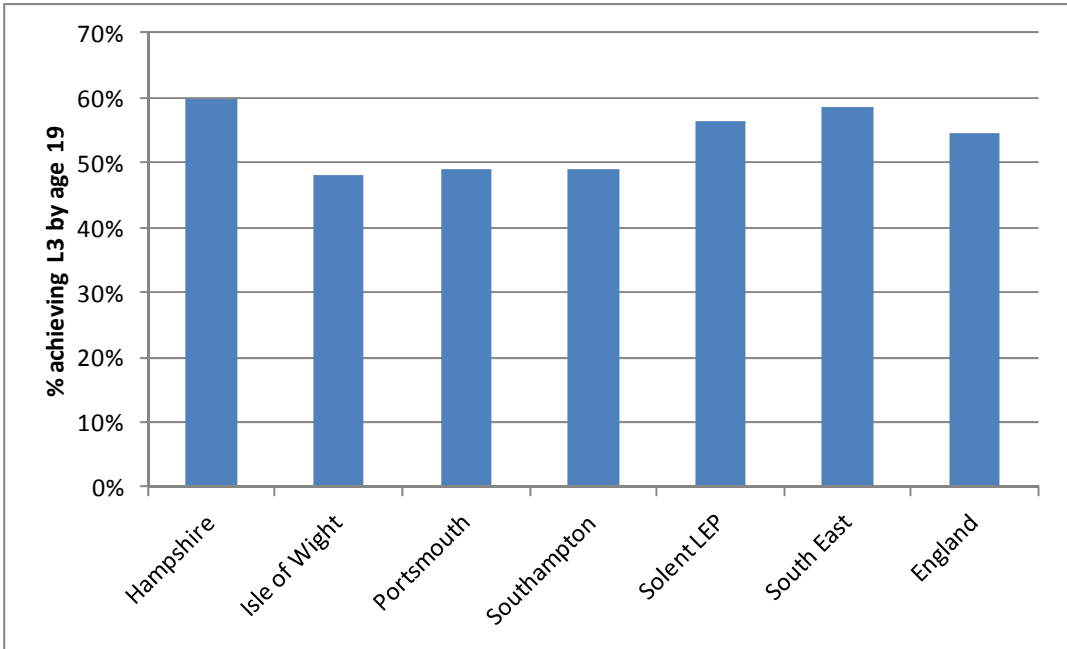
Nonetheless, STEM qualifications at A Level are valuable to employers in advanced engineering. They are also an essential stepping stone towards studying engineering-related qualifications within HE. We therefore propose to include the number of A and AS Level entries in STEM subjects as an indicator within the Solent EZ Dashboard.

**8.1.6 Achievement of Level 3 by age 19**

The achievement of a Level 3 qualification by age 19 is a key indicator for the DfE. Although we cannot drill down to the level of establishing the extent to which these qualifications may be in STEM-related subjects and thus most relevant to the priority sectors for the Solent EZ, the data still provides a useful indicator, as it is representative of the skills of all young people as they enter the workforce.

The proportion of 19 year olds achieving a Level 3 qualification in the Solent LEP was 56.5% in 2010/11, slightly below the regional average but above the national average of 54.5%. Within the LEP, Hampshire had by far the highest level (60%), while Southampton, Portsmouth and the Isle of Wight were all below 50%.

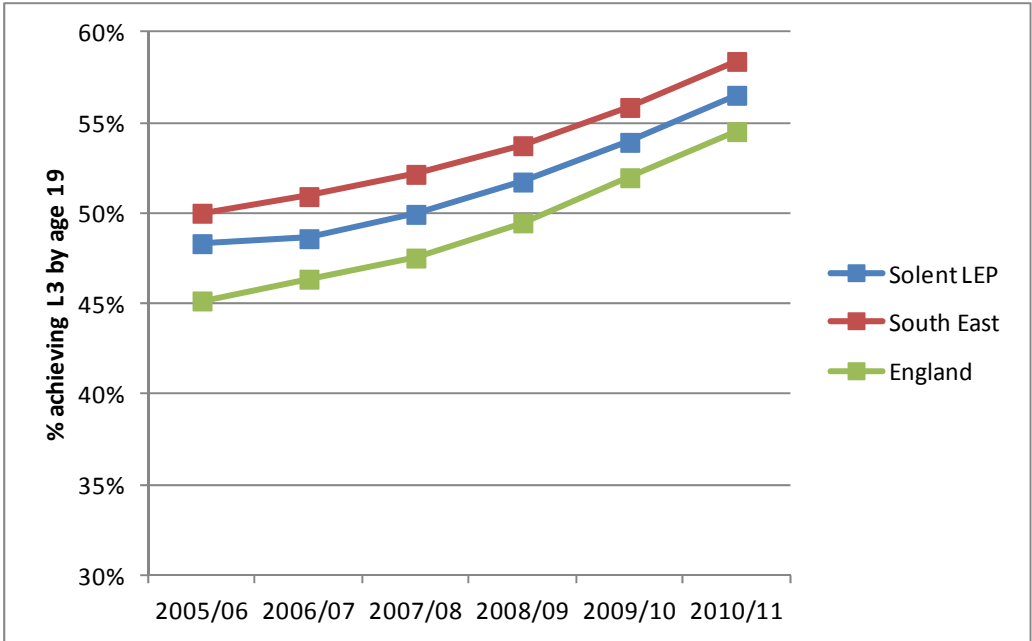
**Figure 26: Attainment of Level 3 at age 19, 2010/11, Solent LEP vs South East and England**



Source: DfE, SFR 05/2012

The proportion of 19 year olds achieving Level 3 has increased significantly and consistently over recent years, by eight percentage points between 2005/06 and 2010/11. Figure 27 shows that progress locally on this measure has almost identically mirrored the national trend.

**Figure 27: Change in Attainment of Level 3 at age 19, 2005/06 - 2010/11, Solent LEP vs South East and England**



Source: DfE, SFR 05/2012

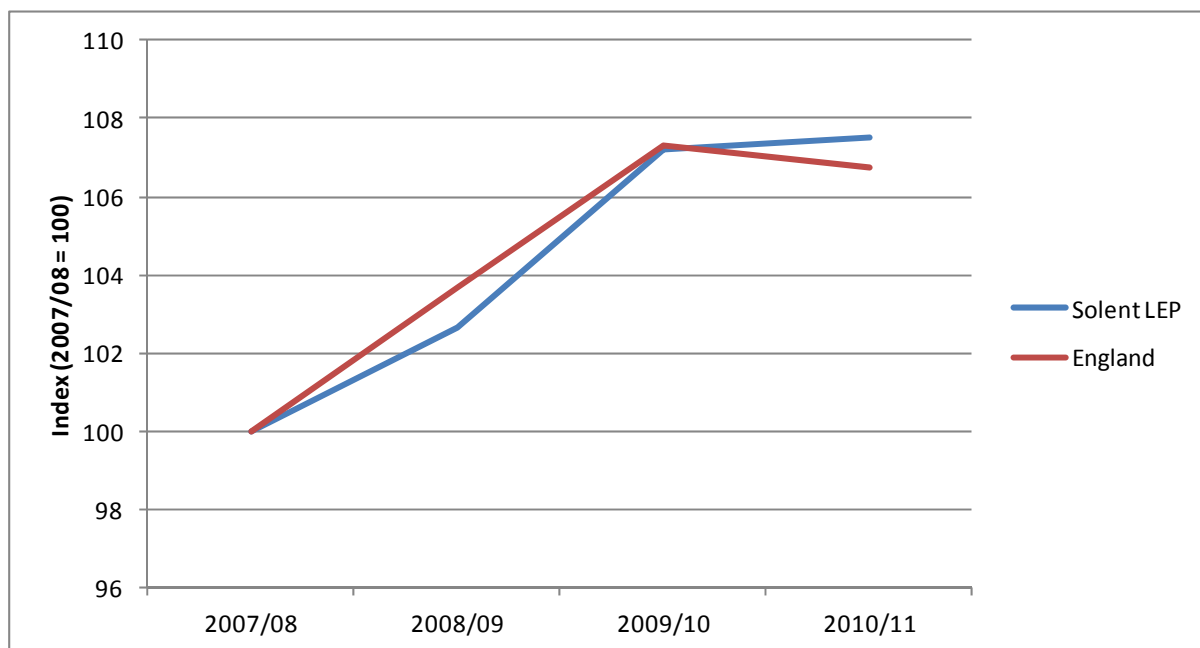
The Solent EZ Stakeholder Group has opted to monitor changes in the proportion of people attaining Level 3 at age 19 as an indicator within the Solent EZ Dashboard.

**8.1.7 Progression to HE**

In 2010/11, 54,540 people from the Solent LEP were participating in HE. Figure 28 shows that the recent trend has been for rising participation, with a levelling off in the last year. Despite this levelling off, the overall number of HE students from the area was 7.5% higher than in 2007/08.

Solent LEP has followed the broader national trend, although for England as a whole, participation actually fell slightly between 2010/11. The introduction of tuition fees may have some impact on student numbers in the future, although in terms of local HEIs, in 2011/12, only Southampton University saw a fall in the total number of UCAS applications.

**Figure 28: Participation in HE by students from the Solent LEP, 2007/08 - 2010/11 (Index 2007/08 = 100)**



Source: HESA

Table 19 shows that just 30% of HE students from the Solent LEP area were attending one of the four HEIs within the LEP area (Southampton, Portsmouth, Winchester and Southampton Solent Universities). The proportion of local people in HE attending local HEIs has been falling each year for the last three years.

**Table 19: Solent LEP students attending Solent LEP HEIs, 2007/08 - 2010/11**

	Total Students from Solent LEP	Number attending local HEIs	% LEP students attending a local HEI
2007/08	50,735	17,120	33.7
2008/09	52,075	17,250	33.1
2009/10	54,385	17,410	32.0
2010/11	54,540	16,525	30.3
Change 2007/08-2010-11	3,805	-595	-3.4
% change 2007/08-2010-11	7.5%	-3.5%	

Source: HESA

Table 20 shows the percentage of all students who entered an A Level or equivalent qualification who progressed to an HEI and, within that, elite Universities. It shows that the proportion of students who completed A Levels or equivalents and who progressed to HEIs and elite HEIs was lower than the national average, across all Upper-tier Authorities within the Solent LEP area.

**Table 20: % of Solent LEP students attending HEIs, 2009/10**

	England	Hampshire	IoW	Portsmouth	So'ton
Higher Education Institution	52	44	47	35	36
Oxford or Cambridge	1	1	#	#	0
Other Russell Group	8	8	6	1	5

Source: DfE analysis of National Pupil Dataset

More detailed analysis of local HE provision by subject area can be found in Section 6.3.

**8.2. Further Education & Apprenticeships**

This section focuses on the take-up of vocational learning at FE and Apprenticeship level.

In Fareham & Gosport, there are a range of options available to young people who choose not to pursue A Levels and academic pathways. The two largest providers of vocational training in the local area are:

- Fareham College, the provider of the CEMAST, which has over 2,000 students and offers college-based and work-based learning from Foundation Level to Level 4 HNCs in topics such as Aeronautical Engineering, Electronic and Mechanical Engineering.
- St Vincent College, which has a strong maritime tradition and is working with Mabway Training to develop the Gosport Marine Skills Centre.

In addition, a variety of training providers operate in the area. Examples cited in stakeholder interviews included:

- Babcock Training Academy at HMS Sultan, a residential facility that provides up to 400 Advanced Apprenticeships in engineering and engineering maintenance per annum, largely for corporate clients such as EDF Energy, Network Rail and BAE Systems.
- PETA Ltd, which has a strong focus on engineering and delivers Apprenticeships to employers such as Eaton Aerospace; and
- Paragon Training, which delivers Apprenticeships, including marine engineering, across Dorset, Hampshire and Somerset.

Young people do, of course, also travel to other parts of the LEP area to pursue vocational courses, while providers who are not based in Fareham and Gosport may also deliver Apprenticeships in the area.

The data presented below is based on statistics published via The Data Service<sup>42</sup>.

The sector qualification footprints selected for analysis here are those that are the closest match to the LEP's priority sectors, namely:

- Freight Logistics & Wholesale
- Maritime
- Passenger Transport
- Process & Manufacturing
- Science, Engineering & Manufacturing Technologies

The analysis here is presented in two ways:

1. based on the learner's postcode - this allows us to look at the choices made by Fareham & Gosport residents;
2. based on the delivery postcode - this allows us to look at what provision is actually being delivered by providers in Fareham & Gosport area.

### **8.2.1 Further Education**

Looking first at the FE sector, Table 21 shows that there were 830 enrolments in STEM-related subjects in 2010/11, where the provision was being delivered in Fareham & Gosport. This could be at institutions located locally or, in the case of workplace learning, at local employers' premises. This represented 4% of all FE enrolments in the area, compared with 3.1% for the Solent LEP and 3.8% for England.

It would appear that Gosport peninsula's historical manufacturing strengths are reflected in the pattern of local provision, which, as a result, is weighted towards the needs of the Solent EZ priority sectors.

STEM-related enrolments have grown strongly compared with all sectors, having risen by 17% in the last two years, with particularly strong growth in the area of process and manufacturing.

The data for 2010/11 suggests that there were no entries to maritime-related FE courses within Fareham & Gosport and 80 enrolments across the LEP area as a whole. It should, however, be noted that a Gosport Marine Skills Centre is currently being developed by St Vincent College and Mabway Training. This facility will be in full use by the end of 2012. Its provision will include Level 3 courses in Marine Engineering, supplementing the existing Marine Engineering provision at Levels 1 and 2. This should appear in the data in future years.

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<sup>42</sup> The data is based on sector qualification footprints agreed with Sector Skills Councils (SSCs) and Standard Setting Bodies (SSBs) using these qualification footprints as a proxy for sectors. The Sector Qualification Footprint covers 70% of all currently accredited qualifications, but GCSEs, A-Levels, Access to HE, Preparation for Work, Skills for Life qualifications are not assigned to an SSC or SSB footprint. These are deemed as non-vocational and therefore not subject to SSC involvement in the same way as NVQs and other vocational provision



**Table 21: Enrolments in STEM-related FE provision (based on delivery postcode), Fareham & Gosport, 2008/09 - 2010/11**

Enrolments	2008/09	2010/11	Change	% change
Freight Logistics & Wholesale	70	10	-60	-85.7
Maritime	0	0	0	-
Passenger Transport	340	170	-170	-50.0
Process & Manufacturing	20	350	330	1,650.0
Science, Engineering & Manufacturing Technologies	280	300	20	7.1
<b>STEM Total</b>	<b>710</b>	<b>830</b>	<b>120</b>	<b>16.9</b>
All Sectors	19,420	20,730	1,310	6.7
% of provision in STEM subjects	3.7%	4.0%	0.3%	

Source: The Data Service MI Library. Note - all data around to the nearest 10

Looking next at the FE enrolments of Fareham & Gosport residents (as defined by their home postcode), Table 22 shows that there were 1,040 enrolments in STEM subjects, regardless of the location of provision. With 830 enrolments on locally-delivered provision, this suggests that at least 20% of Fareham & Gosport residents who take up STEM options are travelling outside the immediate area to access that learning provision.

**Table 22: Enrolments in STEM-related FE provision (based on learner home postcode), Fareham & Gosport, 2008/09 - 2010/11**

Enrolments	2008/09	2010/11	Change	% change
Freight Logistics & Wholesale	70	100	30	42.9
Maritime	60	10	-50	-83.3
Passenger Transport	420	160	-260	-61.9
Process & Manufacturing	30	420	390	1,300.0
Science, Engineering & Manufacturing Technologies	450	350	-100	-22.2
<b>STEM Total</b>	<b>1,030</b>	<b>1,040</b>	<b>10</b>	<b>1.0</b>
All Sectors	29,740	31,350	1,610	5.4
% of provision in STEM subjects	3.5%	3.3%	-0.1%	

Source: The Data Service MI Library. Note - all data around to the nearest 10

The importance of growing local FE provision to meet the needs of the Solent EZ is evident in the decision to establish the Centre for Engineering and Manufacturing Advanced Skills Training (CEMAST) at the site (see Section 8.2 for details). The development of this facility should result in significant growth in the volume of STEM provision being delivered on the doorstep of employers locating at Solent EZ. An expansion in the volume and range of high-quality provision through CEMAST should make it less necessary for local residents to travel beyond Fareham & Gosport to learn STEM Subjects.

The Solent EZ Stakeholder Group has opted to monitor changes in the number of STEM related FE enrolments as an indicator within the Solent EZ Dashboard.

## 8.2.2. Apprenticeships

Applying the same analysis to Apprenticeship delivery, Table 23 shows that, in 2010/11, there were a total of 3,580 framework enrolments in STEM-related subjects with employers in Fareham & Gosport. With the necessity of employer involvement in Apprenticeships, it is perhaps unsurprising that local delivery is much more heavily weighted towards the LEP's priority sectors, given their prevalence within Fareham & Gosport. STEM subjects accounted for 63% of all Apprenticeship enrolments locally, more than double the level across the LEP and around six times higher than nationally, suggesting that providers have managed a high rate of penetration among local employers in these key sectors.

**Table 23: Enrolments in STEM-related Apprenticeships (based on delivery postcode), Fareham & Gosport, 2008/09 - 2010/11**

Enrolments	2008/09	2010/11	Change	% change
Freight Logistics & Wholesale	0	0	0	-
Maritime	90	70	-20	-22.2
Passenger Transport	10	0	-10	-100.0
Process & Manufacturing	0	0	0	-
Science, Engineering & Manufacturing Technologies	2,900	3,510	610	21.0
<b>STEM Total</b>	<b>3,000</b>	<b>3,580</b>	<b>580</b>	<b>19.3</b>
All Sectors	5,100	5,650	550	10.8
% of provision in STEM subjects	58.8%	63.4%	4.5%	

Source: The Data Service MI Library. Note - all data around to the nearest 10

Clearly, partners would like to see the aspiration of attracting advanced manufacturing employers to the Solent EZ matched by further growth in the number of STEM Apprenticeships delivered in the area.

The Solent EZ Stakeholder Group has therefore opted to monitor changes in the number of enrolments in STEM-related Apprenticeships as an indicator within the Solent EZ Dashboard.

Looking at Apprenticeship take-up among Fareham & Gosport residents (Table 24), it is interesting to note that the volume of STEM-related Apprenticeship enrolments (2,670 in 2010/11) is well below that of the actual number of STEM Apprenticeships being delivered locally (3,580). One possible inference that might be drawn from this data is that the level of demand for STEM Apprentices among local employers is sufficient to accommodate a greater number of local young people who might wish to undertake one, assuming they have adequate employability skills and meet the employers' recruitment criteria.

**Table 24: Enrolments in STEM-related Apprenticeships (based on learner home postcode), Fareham & Gosport, 2008/09 - 2010/11**

Enrolments	2008/09	2010/11	Change	% change
Freight Logistics & Wholesale	0	10	10	-
Maritime	40	30	-10	-25.0
Passenger Transport	10	10	0	0.0
Process & Manufacturing	0	0	0	-
Science, Engineering & Manufacturing Technologies	2,250	2,620	370	16.4
<b>STEM Total</b>	<b>2,300</b>	<b>2,670</b>	<b>370</b>	<b>16.1</b>
All Sectors	4,620	5,310	690	14.9
% of provision in STEM subjects	49.8%	50.3%	0.5%	

Source: The Data Service MI Library. Note - all data around to the nearest 10

### 8.3 Higher Education

Although there are no HEIs in Fareham & Gosport itself, the Solent LEP benefits from being home to four<sup>43</sup>, namely:

- University of Portsmouth
- University of Southampton
- Southampton Solent University
- University of Winchester

A brief description of the education and other services offered by these institutions that is most relevant to employers at Solent EZ is provided below. Additional information is provided at Annex 4.

#### 8.3.1 University of Portsmouth

The University of Portsmouth offers a wide range of undergraduate and MSc courses in subjects relevant to the Solent EZ priority sectors, such as: Electronic Systems Engineering; Engineering and Technology; Mechanical and Manufacturing Engineering and Advanced Manufacturing Technology.

Employers are encouraged to engage with the University's 'Purple Door', through which they can:

- recruit students and graduates, on a permanent or project basis;
- hire facilities;

<sup>43</sup> The Isle of Wight Campus of Chichester University is located within the LEP area, but the data does not allow its provision to be disaggregated from the rest of the University. Therefore, it has been excluded from this analysis.

- develop partnership-based R&D projects, focused on technology development, product design, manufacturing efficiency, and measurement & testing, for example:
- or access workforce training.

The University also works with schools, colleges and businesses to encourage young people to seek careers in the engineering and manufacturing sectors.

### **8.3.2 Southampton Solent University**

Southampton Solent University (SSU) has some 17,000 students. It provides HND, HNC and degree-level provision in Electronic Engineering, Engineering with Business, Mechanical Design and Manufacturing. It has a commitment to working with employers and enabling employer training to be accredited by the University and has a strong tradition of delivering part-time education and training to people who are already in the industry.

SSU has partnerships with a number of 'feeder' colleges, whose students complete Engineering HNCs at college before progressing to complete a full HND at SSU. It also hosts the Warsash Maritime Academy, which provides training, consultancy and research to the shipping and offshore oil industries. Training includes certified programmes for deck and engineer officers, from cadet level to Chief Engineer, and professional development modules, Foundation Degree and Degree-level courses in subjects such as Marine Engineering, Marine Operations and Yacht and Powercraft Design.

SSU also provides enterprises with access to equipment, including an FRP Composite Workshop, a wave generator, towing tank and equipment used for 3D scanning, product design and rapid prototyping.

### **8.3.3 University of Southampton**

The University of Southampton is a member of the Russell Group of research-intensive universities. It has over 17,000 undergraduate and 7,000 postgraduate students on a wide range of courses, including undergraduate and postgraduate programmes focused on Aerospace Engineering, Mechanical Engineering and Ship Science. Its science and engineering provision is highly ranked, with Mechanical Engineering deemed to be No.1 in the UK by the Guardian University Guide.

The University identifies itself as being: *'one of the world's leading entrepreneurial universities, with an impressive track record as a partner to business and the public sector and as a source of invention and innovation'*. Employers are encouraged to register on an Employer Portal, where they can upload vacancies and indicate their interest in participating in careers fairs, Knowledge Transfer Projects and other University initiatives.

Access to expertise at the University is channelled through a series of 'Enterprise Units', a number of which focus on supporting the advanced engineering, aviation and marine industries. The University hosts specialist Centres for Marine Technology and Industrial Aerodynamics and the Airbus Noise Technology Centre (ANTC). It also includes Research groups on Aerodynamics and Flight Mechanics; Computational Engineering and Design; Electro-Mechanical Engineering; Engineering Material; Advanced Tribology and Innovative Manufacturing in Photonics.

The University of Southampton is also developing a Maritime Centre of Excellence at the Boldrewood Campus, which will be occupied from 2014.

#### **8.3.4 University of Winchester**

The University of Winchester focuses on the Arts, Education, Humanities and Social Sciences. Its provision is not particularly relevant to the Solent EZ priority sectors.

#### **8.3.5 Higher Level STEM**

A recent report from UKES reviewing the demand and supply of high-level STEM skills suggests that the: *'supply of high-level STEM skills in the UK has improved and is now among the best internationally'*. It goes on to suggest that the proportion of people with high-level STEM skills in the workforce and the proportion of jobs requiring such skills are broadly matched and that the debate now needs to focus on particular sub-sectors and subjects<sup>44</sup>.

Closer examination of HESA statistics, however, suggests that a significant proportion of the growth in HE has come from overseas students, particularly from non-EU countries, and that overseas STEM students disproportionately attend Britain's top universities<sup>45</sup>. The paper concludes:

*The Government's plan to 'rebalance' the economy through an increase in manufacturing output will fail if there are not sufficient numbers of STEM graduates who remain in the UK. Furthermore, and most worryingly, the number of British engineering and technology students fell during the period [1996/7 to 2006/07].*

Furthermore, a study by the Royal Society<sup>46</sup> warns that *'with insufficient numbers of STEM graduates for the needs of both higher education and employment, a seemingly self-perpetuating cycle has been established, with too few scientists and mathematicians being produced to help inspire and educate the next generations'*.

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<sup>44</sup> The supply of and demand for high-level STEM skills, UK Commission for Employment and Skills, 2011

<sup>45</sup> The STEM subject push, Civitas, 2011

<sup>46</sup> Increasing the size of the pool, Royal Society, 2011

In this section, we look at: the pattern of STEM learning at local HEIs; and the pattern of STEM learning by local people, regardless of where they actually study.

The data does not allow us to drill down as far as Fareham & Gosport, so this analysis will use Hampshire, Portsmouth, Southampton and the Isle of Wight as an approximation of the LEP area as the basis for examining local residents' HE choices.

The section first looks at engagement with STEM subjects at a fairly broad level, and then drills down into a small number of subject areas that could be deemed to be of most interest to the LEP's priority sectors. The broad subject headings included in our definition of STEM are:

- Medicine & dentistry
- Subjects allied to medicine
- Biological sciences
- Veterinary science
- Agriculture & related subjects
- Physical sciences
- Mathematical sciences
- Computer science
- Engineering & technology
- Architecture, building & planning

## 8.2.4 Local provision

Looking first at provision being delivered by the four local HEIs, Table 25 shows that there were 27,810 students in STEM subjects in 2010/11, representing 42% of all students. While STEM subjects as a whole have grown by over 9% since 2007/08, there has been particularly strong growth in Mathematical Sciences (40% rise in student numbers), Physical sciences (29%) and Engineering & technology (28%).

**Table 25: STEM students at Solent LEP HEIs, 2007/08 - 2010/11**

STEM Subject	2007/08	2010/11	% change 2007/08 - 2010/11
(1) Medicine & dentistry	1,430	1,530	7.0
(2) Subjects allied to medicine	6,195	5,150	-16.9
(3) Biological sciences	4,330	4,710	8.8
(4) Veterinary science	0	0	-
(5) Agriculture & related subjects	10	15	50.0
(6) Physical sciences	2,715	3,505	29.1
(7) Mathematical sciences	880	1,235	40.3
(8) Computer science	2,695	2,910	8.0
(9) Engineering & technology	5,390	6,880	27.6
(A) Architecture, building & planning	1,800	1,875	4.2
<b>STEM Total</b>	<b>25,445</b>	<b>27,810</b>	<b>9.3</b>
All Subjects	59,430	65,900	10.9
STEM as % of total	42.8%	42.2%	

Source: HESA

There are some significant differences between the HEIs as to the proportion of their provision that is STEM-related. The University of Southampton has the highest proportion of STEM students (57% in 2010/11), and has significant student numbers across most STEM subjects, while the University of Winchester has the lowest at 12%, and only has significant numbers of students in Subjects allied to medicine and Biological sciences. The equivalent figures for the University of Portsmouth and Southampton Solent University were 43% and 29% respectively.

The following specific subject areas were chosen for a more detailed analysis of provision that might be of particular interest to employers in priority sectors:

- (H0) Broadly-based programmes within engineering & technology
- (H1) General engineering
- (H2) Civil engineering
- (H3) Mechanical engineering
- (H4) Aerospace engineering
- (H5) Naval architecture

- (H6) Electronic & electrical engineering
- (H7) Production & manufacturing engineering
- (H8) Chemical, process & energy engineering
- (H9) Others in engineering
- (J4) Polymers & textiles
- (J5) Materials technology not otherwise specified
- (J6) Maritime technology

Table 26 shows that there were over 6,500 students in these 'priority sector subjects' in 2010/11, and that these subjects have grown strongly since 2007/08, by almost 27%. The largest areas of provision are:

(H6) Electronic & electrical engineering	1,550 students
(H3) Mechanical engineering	1,200 students
(H2) Civil engineering	1,155 students

The strongest rates of growth have been in Other engineering (over 75% increase in student numbers), Naval architecture, Maritime technology and Mechanical engineering (all around 40% increase).

**Table 26: 'Priority Sector' students at Solent LEP HEIs, 2007/08 - 2010/11**

Subject	2007/08	2010/11	% change 2007/08 - 2010/11
(H1) General engineering	360	350	-2.8
(H2) Civil engineering	920	1,155	25.5
(H3) Mechanical engineering	855	1,200	40.4
(H4) Aerospace engineering	365	390	6.8
(H5) Naval architecture	235	325	38.3
(H6) Electronic & electrical engineering	1,360	1,550	14.0
(H7) Production & manufacturing engineering	220	265	20.5
(H8) Chemical, process & energy engineering	0	25	-
(H9) Others in engineering	255	450	76.5
(J4) Polymers & textiles	0	0	-
(J5) Materials technology not otherwise specified	0	0	-
(J6) Maritime technology	585	820	40.2
<b>Priority Sector Total</b>	<b>5,155</b>	<b>6,530</b>	<b>26.7</b>

Source: HESA

As with STEM subjects generally, there is significant variation between the local HEIs as to the specific areas of provision on offer - the University of Winchester does not offer any provision in these subject areas. Table 27 shows that the University of Southampton is the only HEI offering



Aerospace engineering, while Southampton Solent University is the sole provider of learning related to Naval architecture, and is the largest provider in Maritime technology. The University of Portsmouth is the largest local provider of Production & manufacturing engineering courses, and the only provider of opportunities in Chemical, process & energy engineering, although student numbers are currently small.

**Table 27: 'Priority Sector' students by Solent LEP HEI, 2010/11**

<b>Subject</b>	<b>The University of Portsmouth</b>	<b>Southampton Solent University</b>	<b>The University of Southampton</b>	<b>Total</b>
(H1) General engineering	0	200	150	350
(H2) Civil engineering	460	70	625	1,155
(H3) Mechanical engineering	435	65	700	1,200
(H4) Aerospace engineering	0	0	390	390
(H5) Naval architecture	0	325	0	325
(H6) Electronic & electrical engineering	610	195	745	1,550
(H7) Production & manufacturing engineering	200	65	0	265
(H8) Chemical, process & energy engineering	25	0	0	25
(H9) Others in engineering	450	0	0	450
(J4) Polymers & textiles	0	0	0	0
(J5) Materials technology not otherwise specified	0	0	0	0
(J6) Maritime technology	0	595	225	820
<b>Priority Sector Total</b>	<b>2,180</b>	<b>1,515</b>	<b>2,835</b>	<b>6,530</b>

Source: HESA

Looking at the STEM choices of local (i.e. Hampshire) residents, Table 28 shows that there were just over 2,700 students from the LEP area who were studying one of the subjects closely related to the priority sectors. It shows that there has been strong growth in student numbers in most of these subject areas, with a slight fall in Electronic & electrical engineering.

**Table 28: 'Priority Sector' students at from the Solent LEP, 2007/08 - 2010/11**

Subject	2007/08	2010/11	% change 2007/08 - 2010/11
(H1) General engineering	390	485	24.4
(H2) Civil engineering	340	440	29.4
(H3) Mechanical engineering	385	525	36.4
(H4) Aerospace engineering	175	200	14.3
(H5) Naval architecture	30	35	16.7
(H6) Electronic & electrical engineering	490	475	-3.1
(H7) Production & manufacturing engineering	95	125	31.6
(H8) Chemical, process & energy engineering	75	90	20.0
(H9) Others in engineering	125	150	20.0
(J4) Polymers & textiles	20	20	0.0
(J5) Materials technology not otherwise specified	10	15	50.0
(J6) Maritime technology	105	145	38.1
<b>Priority Sector Total</b>	<b>2,240</b>	<b>2,705</b>	<b>20.8</b>

Source: HESA

## 8.4 Employer-sponsored learning

### 8.4.1 Staff development issues

Turning to issues around workforce development, it may be informative to look at overall levels of training being arranged and/or funded by employers. Table 29 shows that Solent compares favourably with the all-England average, with 66% of employers having funded or arranged training for staff in the 12 months prior to the survey, compared with just 62% nationally. The data suggests that local employers are also more likely to have offered off-the-job training, which is defined as:

- training away from the individual's immediate work position, whether on their premises or elsewhere.

On-the-job training is:

- informal training or development, activities which take place at the individual's immediate work position which would be recognised as training by recipients.

**Table 29: Proportion of employers offering training, Solent LEP vs England, 2011**

Type of training	Solent LEP (%)	England (%)
Off-job and on-job training	32	30
Off-job training only	15	13
On-job training only	19	19
Do not train	34	38
Any Training	66	62

Source: UKCES Employer Skills Survey, 2011.

National data suggests that there has been a slight fall in the incidence of training since the 2009 survey, particularly in the level of off-the-job training being arranged. The fall has been most prominently in the smallest establishments employing 2-4 people (falling from 55% in 2009 to 52% in 2011) suggesting that the impact of the recession on training has hit smallest establishments the hardest.

The survey estimates that a total of 370,300 employees in the Solent LEP had received training in the last year, equating to 56% of the workforce. Again, this compares well with the national average, where 54.7% of the workforce received training. Approximately 81,300 (22%) of these studied towards a nationally-recognised qualification, just below the national average of 23%.

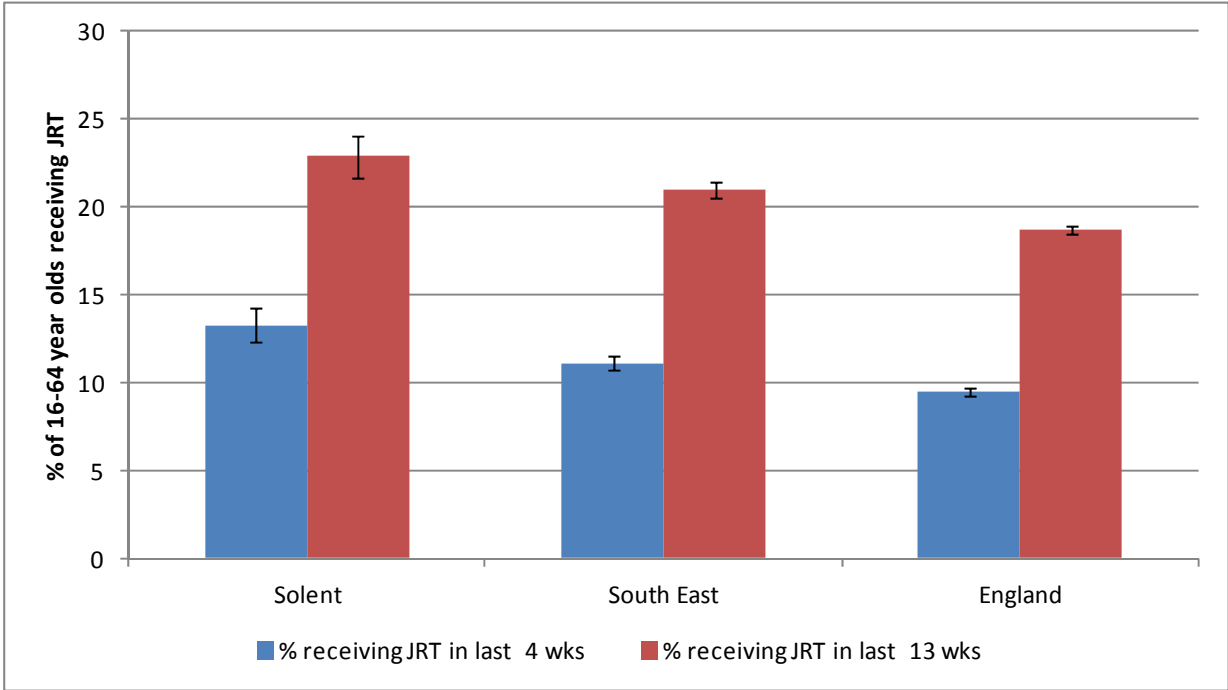
In terms of employers having staff development policies in place, Solent LEP is generally in line with the levels when compared with England as a whole, with just over 60% of employers having a current business plan in place, 36% having a training plan, and just 30% having a training budget. Almost 20% have all three of these, while almost a third have none at all.

Although it would be highly desirable to include indicators on the proportion of employers offering training to staff; and the proportion who have systems to support staff development, the data is only available every two years. As a result, these will be omitted from the Dashboard.

**8.3.2 Job-related training**

The Annual Population Survey (APS) also allows us to look at the proportion of the workforce who have recently undertaken job-related training, although this is not necessarily funded or arranged by the employer. Figure 29 shows that levels of job-related training are relatively high in the Solent LEP area compared with regional and national averages, with 13% of 16-64 year olds in the area having undertaken training the last four weeks, and 23% having done so in the last 13 weeks.

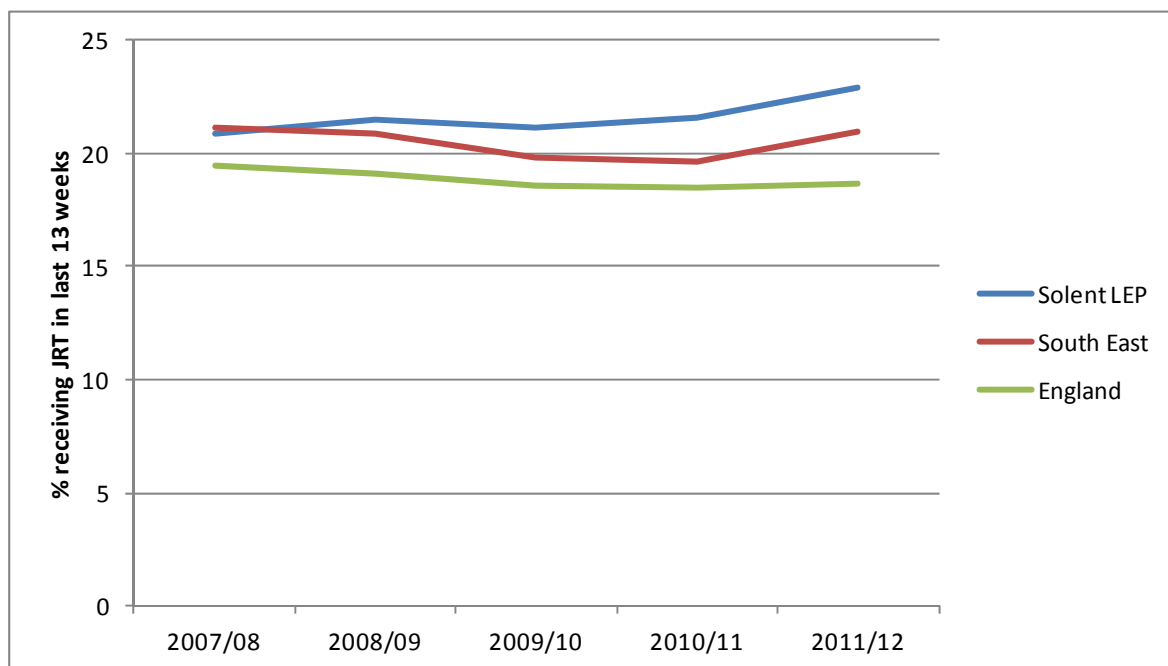
**Figure 29: Proportion of working age population receiving work-related training in past 4 & 13 weeks, Solent LEP vs South East and England, 2012**



Source: Annual Population Survey (July 2011 - June 2012). Error bars show 95% confidence intervals

Over recent years, the regional and national levels of job-related training undertaken have dipped slightly, before recovering slightly in the last year. Encouragingly, the data suggests that the Solent LEP area has managed to maintain, and even increase, its levels of job-related training throughout the economic downturn, suggesting a higher level of recognition among local employers and individuals regarding the importance of skills and training.

**Figure 30: Proportion of working age population receiving work-related training in past 13 weeks, Solent LEP vs South East and England, 2012**



Source: Annual Population Survey (July - June each year).

## Summary

- This section has examined various aspects of the local education and training infrastructure to look particularly at its engagement with STEM subjects, as these may be the most important areas of skills for employers within the LEP's priority sectors. The main points are as follows:
- Achievement levels at Key Stage 2 (11 year olds) in Maths and Science are generally above average, while at Key Stage 3 (14 year olds), they fall below average. At both levels, schools in Hampshire generally perform better than their counterparts in Portsmouth, Southampton and the Isle of Wight.
- Engagement with STEM subjects is fairly high locally at GCSE level, with 40% of entries in related subjects. An encouraging sign is the higher-than-average levels of entries in additional Science and Maths options.
- From 2010 to 2011, there was something of a shift in Fareham & Gosport schools towards taking Biology, Chemistry and Physics as separate GCSEs, with a corresponding fall in Core Science and Additional Science options. The number of entries in ICT and Design & technology options have fallen quite sharply, in line with the wider trend across England.
- At A Level, STEM subjects accounted for 24% of all Fareham & Gosport entries in 2011, lower than LEP and national averages. There were very few entries in Design &

technology options (0.6% - a third of the proportion for England), and entries in Biology, Chemistry and Physics were all significantly lower than average.

- In 2010/11, 54,540 people from the Solent LEP were participating in HE. The recent trend has been for rising participation, with a levelling off in the last year. Despite this, the overall number of HE students from the area was 7.5% higher than in 2007/08.
- Just 30% of HE students from the Solent LEP area were attending one of the four HEIs within the LEP area (Southampton, Portsmouth, Winchester and Southampton Solent Universities), a proportion which has fallen for each of the last three years.
- In terms of FE (excluding A Levels), local provision appears to be more weighted towards priority sectors, with enrolments in STEM-related provision growing strongly in recent years.
- Comparing locally delivered provision with local residents' take-up, the data suggests that there is particular demand from local people for provision in Freight Logistics & Wholesale and Maritime that is not being met within Fareham & Gosport itself.
- Local Apprenticeship delivery is much more heavily weighted towards the LEP's priority sectors, where STEM subjects accounted for 63% of all Apprenticeship enrolments, more than double the level across the LEP and around six times higher than nationally. This suggests that providers have managed a high rate of penetration among local employers in these key sectors.
- In terms of local HE provision that might be most useful to employers in priority sectors, there were over 6,500 students in these 'priority sector subjects' in 2010/11, and these subjects have grown strongly since 2007/08, by almost 27%. The largest areas of provision are Electronic & electrical engineering, Mechanical engineering and Civil engineering.
- The University of Southampton is the only local HEI offering Aerospace engineering, while Southampton Solent University is the sole provider of learning related to Naval architecture, and is the largest provider in Maritime technology. The University of Portsmouth is the largest local provider of Production & manufacturing engineering courses, and the only provider of courses in Chemical, process & energy engineering.
- In terms of training being arranged and/or funded by employers, the Solent LEP compares favourably with the all-England average, with 66% of employers having funded or arranged training for staff in the last year.
- Further data suggests that levels of job-related training (whether employer-funded or not) are relatively high in the Solent LEP area compared with regional and national averages, with 13% of 16-64 year olds in the area having undertaken training the last four weeks, and 23% having done so in the last 13 weeks. Encouragingly, the data suggests that the Solent LEP area has managed to maintain, and even increase, its levels of job-related training throughout the economic downturn.

## 9. LOCAL CONTEXT

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### 9.1 Support measures at Solent EZ

Alongside the core EZ offer, Solent LEP and local partners have taken a number of additional measures to kick-start the development of Solent EZ.

The two local planning authorities have made a resolution to grant outline planning consents for the development of over one million square feet of commercial floor-space at the site, which, in total, contains 82 hectares of development land, available for new build and the conversion of existing buildings. Development Orders are being considered to simplify the planning regime further.

Solent LEP, the Homes and Communities Agency and Hampshire County Council, will be investing over £15 million in a phase one development of the EZ, to unlock 21.6 acres of land for new commercial space (including 25,000 square feet of new advanced manufacturing business space), as well as off-site access improvements to the road network leading from Fareham and the M27 to the site.

Solent LEP has secured £5 million from Round 2 of the RGF, £2.94 million of which is being used for an 'Expansion Fund' providing grants of between £50,000 and £200,000 to small and medium-sized businesses that move to, or that are already based on, the site. This is a competitive grant fund, to accelerate business growth at the Solent EZ and to safeguard existing jobs within a) companies already located on the site or b) businesses moving onto the site engaged in advanced manufacturing (with a focus on marine, aviation, and aerospace or similar advanced engineering businesses). Bidders to this Fund are required to invest at least 80% of the capital requirement for the project as a whole. An additional £1.5 million of RGF has been secured by the Homes and Communities Agency to improve the infrastructure.

Solent LEP has also been advised that they have been awarded £13m from Round 3 of the RGF for the Solent Futures project. This provides £13m of investment, of which £10m will be allocated to support the defence sector in the Solent and it is intended that £3m will be used to contribute to the development of CEMAST - a Centre for Engineering Manufacturing and Engineering Skills Training at the Solent EZ.

### 9.2 The Centre for Engineering and Manufacturing Advanced Skills Training (CEMAST)

The Centre for Engineering Manufacturing and Engineering Skills training (CEMAST) is envisaged as 'a *world-class employer-led training hub*', delivering training and support to businesses sited on or around the EZ, focused on manufacturing, engineering, marine and aerospace.



Initiated by Fareham College, CEMAST will be positioned in a prime location on the site and is designed to act as a catalyst for attracting manufacturing employers to the EZ.

It is proposed to secure £13 million of investment from the following partner contributions:

- £3m from Hampshire County Council;
- £3m from the LEP Growing Places bid;
- £3m from the LEP's RGF 'Solent Futures' bid;
- £3m of capital development funding from the Skills Funding Agency; and
- £1m from Fareham College.

Hampshire County Council, which does not have a statutory responsibility for post-16 education, has linked their funding to providing opportunities to local people to train and gain employment on the site and broadening the range of training opportunities available to young people, particularly in the context of the rising in the participation age<sup>47</sup>.

The Centre, which will be open by September 2014, will accommodate all of Fareham College's engineering provision alongside St Vincent College's marine engineering provision. It is anticipated that total provision will build to around 600 learners over four years, of which 200 are expected to be Apprenticeships. With the majority of learners on part-time courses, it is expected that there will be about 250 people at the facility at any one time.

Partners, including those investing in CEMAST, are clear that it needs to be much more than a single provider training centre. It needs to be a hub to which employers are drawn and through which they can access solutions to all their skills needs, including those at higher level. It needs, therefore, to be a centre of partnership working, to which schools may send pupils doing Engineering GCSEs, through which bespoke progression involving multiple providers are crafted. It should act as a point of access to HE as well as business advice and support.

With this in mind, the Centre is being designed to include conference and training spaces that employers may use to deliver their own training programmes. It will house a café and meeting rooms.

Ideally, if aspirations are realised, CEMAST should offer local manufacturers the opportunity to:

- network with peers from other businesses;
- attend workshops and presentations on the latest industrial techniques or protecting intellectual property, for example;
- find out about the facilities and equipment available to hire from universities, locally and nationally;

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<sup>47</sup> This will increase the age to which all young people in England must continue in education or training, requiring them to continue until the end of the academic year in which they turn 17 from 2013 and until their 18th birthday from 2015.

- discuss their recruitment needs and how these might be met through Apprenticeships, Student Placements or Graduate Internships;
- develop bespoke provision in collaboration with more than one provider, which may or may not draw down public funds linked to qualifications;
- access information about business advice and the support available from organisations such as the Manufacturing Advisory Service or UK Trade & Investment;
- learn about the support available for innovation, such as Knowledge Transfer Partnerships, of who they should contact to discuss joint research and development opportunities in their area;
- discuss the advantages of offering work experience or acting as STEM ambassadors

To achieve this, it will be essential that enterprises are able go to CEMAST confident that they can access the latest technologies, and staff development designed to meet their specific needs supported by expert knowledge and high-quality teaching.

## 10. SKILLS PLAN

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This section sets out a series of actions that Solent LEP and its partners could take to ensure that employers on the Solent EZ have access to the skills they require to grow and thrive. Although our primary focus is on skills, a number of the actions relate to wider forms of business support. The recommendations are drawn from interviews with employers and public sector stakeholders, feedback from the Solent EZ Stakeholders' forum, as well as our analysis of the data and review of the wider literature, at local and national level.

### 10.1 Careers in Engineering

A clear point to emerge from both the literature and interviews conducted for this report, concerns the need to raise young people's interest in careers in engineering and science-related industries. Employers continue to feel that there is a need to address out-dated perceptions of their industry, that high end technical apprenticeships are still not being promoted by schools and colleges, with the result that young people are still thinking that university is the best route for anyone with the results required to go.

They feel there is a need: to make people aware of the 'exciting products that people in our industry create'; to 'inspire people to think about careers in our sector'; to 'make champions out of people'; and to show 'how interesting careers in engineering can be'.

A second, related, point which was frequently stressed was the importance of fostering links between employers on the site and local schools and populations, so that young people could better understand and take advantage of growing engineering employment opportunities.

Employers locating or growing on the Solent EZ have an important role to play in leading this work - promoting interest in engineering, aerospace and marine-focused careers and in encouraging the acquisition of the STEM skills their industry requires.

Research suggests that:

- There is a significant positive relationship between the number of employer contacts an individual has in school (such as career talks or work experience) and their confidence at ages 19-24 in progressing towards their career goals; their not being NEET<sup>48</sup>; and their earnings.
- Young people are 'especially attentive' to the views of professionals they come into contact with in educational settings and overwhelmingly agree that contacts help in career making<sup>49</sup>.

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<sup>48</sup> NEET = Not in Education, Employment or Training

<sup>49</sup> Good Timing Implementing STEM careers strategy in secondary schools, Isinglass Consultancy Ltd, 2011

- Careers IAG within schools is of variable quality, with only 18% of surveyed students being satisfied with the STEM-related IAG and half reporting that they were not aware of having received any IAG at all<sup>50</sup>.
- The relationship between careers provision and individual subject departments is often weak or non-existent<sup>51</sup>.
- While the majority of children enjoy science at school, *'most young people's science aspirations and views of science are formed during the primary years and have solidified by age 14, by which point the idea of science as 'not for me' becomes very difficult to change'*<sup>52</sup>.

There is a need to develop programmes to address the gender imbalance in the sector and raise the number of young women who have an interest in careers in engineering. Making STEM education interesting, fun and relevant to the lives and aspirations of young people, both male and female, must also start at an early age.

### **Recommendation 1**

We therefore recommend that employers (and employees) in the advanced engineering, aerospace and marine sectors should be encouraged to:

- support schools and colleges' Careers Information Advice and Guidance (IAG) activities;
- provide workplace visits and work experience for young people;
- act as STEM Ambassadors;
- encourage more girls and young women to consider engineering and STEM careers;
- support STEM enhancement & enrichment activities;
- support Continuing Professional Development for teachers and technicians.

There are many ways that employers at Solent EZ (and across the LEP area as a whole) can play this role and many existing programmes in which they can become involved.

They could, for example:

- provide careers talks highlighting the career opportunities in their business/sector and the 'real-life' application of science;
- develop case studies of jobs that they and other employers at Solent EZ offer;
- work with schools to develop industry-led projects that fit with the curriculum;

<sup>50</sup> Educating the next generation of scientists, National Audit Office, 2010

<sup>51</sup> Good Timing Implementing STEM careers strategy in secondary schools, Isinglass Consultancy Ltd, 2011

<sup>52</sup> Ten Science Facts and Fictions, Aspire Project, Kings College London, 2012.

- sponsor or participate in after-school STEM clubs organised by individual schools;
- encourage staff to act as STEM Ambassadors;
- offer site visits for young people and their teachers;
- participate in initiatives such as *See Inside Manufacturing*;
- provide work experience and work placements for young people;
- participate in events, such as the 2013 Portsmouth STEM Fair, which is being held on the Solent EZ;
- participate in schemes such as:
  - The Nuffield Bursary programme, providing students with £80 a week (to cover travel allowances and other expenses) to work with a scientist, engineer, or technologist who supervises a four to six-week project over the summer holiday; or
  - The Industrial Trust's placement programme, which organises 'in-company' experiences for young people within STEM-related sectors;
  - The National Science and Engineering Competition, e.g. by participating in judging<sup>53</sup>.

Given the significant influence that parents and families can also have on pupils' careers choices, we would suggest that employers should be encouraged to include adults in some of this activity and to increase the wider community's awareness of the opportunities available at Solent EZ, as it develops. The importance of building on and bringing up to date an existing tradition and positive perspective of engineering on the Gosport peninsular was stressed by a number of interviewees.

The range of projects and programmes focused on promoting STEM learning is extremely broad. There are also many ways in which employers can get involved with local schools and colleges, outside the structured programmes listed above. Large employers, such as BAE Systems, appreciate the importance of this agenda and already work with schools on a range of early stage careers activities. These range from relatively straightforward activities, such as providing talks on their industry or arranging employer visits, to more sophisticated interventions, such as developing areas of the curriculum and focusing these on the activities of their industry, for example. However, more needs to be done, more employers need to be engaged and it is a potentially complex environment to understand and engage with, especially for SMEs.

Interviewees were clear that CEMAST needs to act as a focal point and a hub for engaging employers on the site in a wide range of skills development activities.

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<sup>53</sup> <http://regional.thebigbangfair.co.uk/nsec/>

## Recommendation 2

Public sector partners (such as STEMNET Hampshire and the Portsmouth EBP) should work together to provide a coherent package of information and support for employers at Solent EZ and across the LEP area, demonstrating the benefits and opportunities that exist for employers wishing to be active in improving the flow of skills into their sector.

## 10.2 Science and Maths teaching

Employers and interviewees repeatedly expressed concerns about the adequacy of young people's maths, pointing out that low-level Maths skills too often created a barrier to progression to the increasing number of higher-level technical jobs in the sector. The data presented earlier in this report confirms that the level of Maths attainment in Fareham & Gosport lags behind the regional and national averages. Although there have been improvements in recent years, far too many young people leaving schools in the immediate vicinity of the Solent EZ still lack the essential Maths and Science skills required for intermediate and higher-level jobs in the industry. Employers and post-16 education and training providers are finding that significant effort is needed to top up or make good deficits arising in earlier-stage education.

Education providers in the Gosport and Fareham area have recognised this deficit in Maths skills and are developing a consortium to build capacity in Maths teaching. Local initiatives are being put in place to address this, such as buying out the time of experienced Maths teachers who work peripatetically, supporting improved Maths teaching in neighbouring schools. Teachers could also be encouraged to access support from initiatives such as the national network of Science Learning Centres<sup>54</sup>, the Stimulating Physics Network and the National Centre for Excellence in the Teaching of Mathematics<sup>55</sup>.

Employers can make an important contribution to the CPD of teachers and technicians, particularly in vocational education. Curriculum enrichment projects that deliver the Science and Maths curriculum through projects jointly designed with industry, making the learning relevant to local employment, can help to engage young people in subjects and skills that might otherwise appear 'academic' or irrelevant. Teacher Professional Development Placements, organised by Education Business Partnerships on behalf the Royal Academy of Engineering, give teachers the opportunity to visit a company, meet people who work in industry and provide a 'real-world' context to their teaching practice. The Industrial Trust also provides in-company experiences for teachers<sup>56</sup>.

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<sup>54</sup> The National and regional network of Science Learning Centres aim to help teachers, schools and colleges to continuously improve teaching and learning and to inspire pupils by providing them with a more exciting, intellectually stimulating and relevant science education, thus enabling them to gain the knowledge and the understanding they need - both as the citizens and as the scientists of the future.

<sup>55</sup> [www.ncetm.org.uk](http://www.ncetm.org.uk).

<sup>56</sup> <http://www.industrialtrust.org.uk/teachers.html>

Employers are being encouraged to develop qualifications that meet the needs of their industry. This could extend to the development of a qualification focused on the specific functional maths skills needed in the aerospace sector; a suggestion made by Solent EZ partners during a consultation workshop.

### **Recommendation 3**

Solent LEP should support initiatives to improve Maths and Science teaching in Fareham & Gosport, focusing on schools that need particular support. Employers locating at the Solent EZ should be encouraged to support this agenda. They should be provided with clear information on how they can get involved, and be supported through the EBP and other partners where necessary. Resources could be provided for jointly-developed curriculum enrichment projects and the scope for developing qualifications appropriate to the needs of specific industries could be further explored.

## **10.3 The availability and take-up of science subjects at GCSE**

Engineering employers are clear about the value of STEM skills and, increasingly, higher-level STEM skills, to their industry. Research<sup>57</sup> shows that pupils who study three physical sciences separately ('Triple Science') at GCSE are more likely to choose and to succeed at Science subjects at A level and Degree level. In response to DfE policy, which is to ensure that all pupils (who would benefit) have the opportunity to study Triple Science, the proportion of young people attempting Triple Science has been rising, from around one-in-ten in 2007/08 to one-fifth in 2010/1. In 2010, around 70% of schools were offering Triple Science, though schools in most deprived areas are less like to offer it. At the same time, the range of STEM-related qualifications offered appears to have been growing and this widening provision does offer more choice and flexibility.

### **Recommendation 4**

Alongside raising interest in STEM study (Recommendations 1 & 2) and improving STEM teaching (Recommendation 3), larger employers based at Solent EZ could be encouraged to become involved in the governance of local schools and colleges, as a route to ensuring that the provision and skills that they deliver meet local employer needs.

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<sup>57</sup> Educating the next generation of scientists, National Audit Office, 2010

## 10.4 Equipment and facilities

A report by the NAO<sup>58</sup> suggests that the availability and quality of teaching equipment plays an influential role in young people's education but raises concerns that, at the current rate of progress, the 2010 target for all school laboratories to be of excellent standard would not be met until at least 2021. There are further concerns that cuts in the education budget may disproportionately affect sciences, engineering and design and technology courses, because they require experiments, which require expensive consumable items.

Partners are clear that the success of CEMAST will depend on the curriculum and facilities it offers. Both the building and the equipment it contains need to be state of the art, reflecting the latest industry standards and techniques. They should stand as a visual challenge to out-dated and pre-conceived ideas of the sector, making it immediately apparent that the sector is a gateway to high-skilled careers, working with cutting-edge products.

Employers have a role in donating or sponsoring the purchase of equipment which could be used directly for the delivery of training that meets the needs of their organisations. A car manufacturer has recently offered CEMAST two of their latest vehicles, to support their automotive training. Phoenix Aviation has indicated a willingness to partner the College, enabling aviation students to have access to their light aircraft while developing their servicing and maintenance skills. BAE Systems is in discussions with Fareham College to shape the facilities and curriculum that CEMAST is able to offer to their staff. Fareham College has been talking with Virgin Airlines about the possibility of delivering aircraft technician training for the Group at the EZ. While these discussions are on-going and it is not currently possible to assess what the outcomes will be, any agreement to deliver significant volumes of training for Virgin at Solent EZ would be a major boost for both the site and CEMAST. Solent LEP should clearly work to support this partnership and towards securing appropriate equipment, e.g. aircraft/components required to 'Type Training' appropriate for the Virgin fleet.

Many partners interviewed for this report suggested that, over time, CEMAST will need the facilities (e.g. an autoclave/composites oven) to deliver training in working with composite materials. While the presence of a cutting-edge facility might attract employers to the EZ, there is a danger that, without adequate employer support, such a facility could become underutilised. A composites workshop already exists at Southampton Solent University.

Interviewees also argued for the presence of equipment for materials resilience and strength testing; for high-spec CNC equipment that reflects workplace requirements; and for auto-welders, plasma welding and cutting.

There is a strong case, recognised by all partners, for equipment sharing and for institutions to be able to deliver elements of their provision in other organisations' premises, where the appropriate equipment is located. The proposed co-location of St Vincent College's Marine Engineering provision and associated equipment is a good example. Employers also understand that enabling others outside their organisation to train on the equipment that they use as a company is advantageous to their organisation, as well as their industry in general.

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<sup>58</sup> Educating the next generation of scientists, National Audit Office, 2011



There is a balance that must be struck in assessing when public sector investment in new facilities is appropriate. Employer willingness to co-fund any investment or willingness to buy into an agreed volume of training that uses new capital equipment will be the best measure of 'market readiness'.

It may also be appropriate to ask capital goods manufacturers, who wish their equipment to become industry standard, to make equipment donations.

#### **Recommendation 5**

Solent LEP, working with employers, should take steps to ensure that facilities at CEMAST keep pace with the latest industry standards. Employers should be encouraged to donate or contribute towards the cost of equipment that is required to meet their training needs. Solent LEP should make it clear that it is willing to seek public sector co-financing for the acquisition of equipment where there is adequate employer support, drawing down public resources through sources such as the Employer Ownership of Skills pilot or the European Regional Development Fund. Initiatives that reach out into supply chains, drawing in smaller companies to support collaborative employer-led projects focused on up-skilling in key areas, should be supported.

## **10.5 Apprenticeships**

Partners interviewed as part of this study are clear that Apprenticeships must be a clear focus of the Solent EZ skills plan. Apprenticeships are recognised as having a critical function, both in enabling employers to deliver the skills required by their businesses and for providing entry into employment for young people locally.

Although the area has a strong tradition of STEM Apprenticeship, partners continue to highlight a shortfall in the supply of engineers and technicians. Perspectives of where the difficulties lie vary<sup>59</sup>, with employers citing recruitment difficulties and skills shortages both at:

- Level 3/4 – where posts might typically be filled by those trained as craft/Advanced Apprenticeships; and at
- Level 4/5 – posts for which training to technician/Higher Apprenticeship level with progression to University would be more appropriate.

Ensuring that engineering employers offer sufficient Apprenticeships (including sufficient Advanced and Higher Apprenticeships) to meet the needs, not just of their own organisation but of the sector as a whole, is a clear priority. There is a need to spread the load, to engage more enterprises in Apprenticeship delivery and to make it easier for small companies to get involved.

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<sup>59</sup> This is not surprising and is likely to be a reflection of the different products and production techniques deployed.

Alongside this, employers need to work together to raise awareness of the opportunities that Apprenticeships provide, for rewarding careers and progression in an exciting industry.

#### **Recommendation 6**

Solent LEP should work with local employers to understand and overcome specific barriers to delivering greater volumes of Apprenticeships better.

Financial incentives should be considered, such as awarding grants to priority sector employers who offer Apprenticeships, Advanced or Higher Level Apprenticeships for the first time (or for the first x number of Apprenticeship offered).

The scope for extending existing Apprenticeship brokerage services for employers at the site should also be examined. Although this may be complex, given the competitive nature of Apprenticeship delivery, it is important that employers have a clear route through which they can: link to young people; establish their entry requirements; identify the content of pre-Apprenticeship training; set up screening processes and job trials; and source impartial advice and training from the organisation best suited to their needs.

## **10.6 Progression Routes & Brokerage**

Many employers, particularly large ones such as Eaton or BAE Systems, already invest heavily in their own skills programmes. In response to rising competition and skill demands, they have developed sophisticated training systems that enable staff to progress along career paths aligned to the business's current operations and future plans. The training to support this progression may be delivered internally (by corporate universities, for instance), externally (in partnership with colleges and HEIs) or both. It may or may not involve the delivery of accredited courses and it may or may not involve drawing down public funds.

As they are 'demand-led', designed to meet the specific needs of specific employers, the range of potential progression routes that could be designed for employers is myriad and well beyond the scope of this paper even to attempt to describe. They need to be discussed and created on a case-by-case basis, by partners working flexibly together to establish the content of each stage and whether progression from Advanced Apprenticeship (at Level 3) to Higher Apprenticeship (at Level 4) and on to full Degree might make sense, given an employer's specific circumstances.

Partners were clear, when interviewed, that filling gaps in higher-level technical skills through the delivery of bespoke training, Higher Level Apprenticeships, and creating routes into HE, is a key challenge.

Solent LEP is fortunate in being home to a series of large, reasonably well-differentiated education and training providers, including: Fareham College, Southampton Solent University,

and the Universities of Portsmouth and Southampton. Although some competition will be inevitable, it is important to avoid a situation where employers moving to Solent EZ are subject to repetitive, conflicting or confusing offers, driven by the agendas of individual institutions. Employers value long-term partnerships with flexible training providers, that are prepared to listen and work together towards meeting their needs. Eaton, for example, recruits Apprentices with the support of PETA, but delivers elements of the Apprenticeship training via Fareham College. Local schools delivering GCSEs in Engineering send pupils to Fareham College for two afternoons per week. A pathway is being developed to enable students with Level 2 and Level 3 engineering qualifications attained at Fareham progress to higher-level provision at the Warsash Maritime Academy.

### **Recommendation 7**

CEMAST must be much more than a college based on the site, and must act as an avenue to a wide range of specialist and higher-level provision.

Solent LEP should encourage a high-level partnership working between training providers and the delivery of an integrated offer to employers moving to the Solent EZ.

Employers locating at Solent EZ should have easy and free access to expert, impartial advice on how their skills need might best be met. They should be supported in assessing the options available to them by an independent Skills Broker, who has knowledge of the sector and an overview of the provision available at different levels in the local area.

Although it will be important for this individual to be independent of Fareham College, we would suggest that the service be delivered from the CEMAST centre, in keeping with the emphasis on building CEMAST as a hub for employers on the site.

## **10.7 Higher Level Skills**

The Government currently provides fully-funded training for qualifications at Level 2, for people who do not already hold a Level 2 qualification. Young people aged 19-24 are also fully funded for learning at Level 3, provided they do not already hold such a qualification. If they do, Level 3 qualifications are co-funded. From 2013/14, people aged 25 and over will need to take out a loan to cover the cost of Level 3 learning, both classroom- and work-based.

Where learning is not funded, loans will be made available to individuals to cover the costs of their training. For Advanced and Higher Apprenticeships, the loan to individuals will be up to a maximum of 50% of the rate for the relevant Apprenticeship framework, reflecting an assumed employer contribution towards the rest of the cost of the provision. In some cases, individuals will negotiate arrangements with employers, whereby employers pick up a higher proportion of the cost in return for a given number of years of continued service. Many large employers, such as BAE Systems, feel that responsibility for securing the skills their organisation requires

lies entirely with them, as a result of which they fully fund Apprenticeships and other forms of learning, without an individual contribution.

As has been pointed out earlier in this document, skills levels in Engineering are rising. Skilled employment in the industry nowadays would normally require qualifications at Level 3, Level 4 or higher.

LEPs are being given increasing discretion over the targeting and use of European funds in their areas. These may be focused on supporting particular areas or providing skills for strategically important industries. In the past, EU funds have been used to cover the costs of higher-level skills provision. Caution is required over any local policy that runs counter to national strategy. However, there remains a case for investigating the potential for targeting an element of EU resources on ensuring that people aged 25 and over and those aged 19-24 who already have a Level 3 qualification, who are employed by SMEs at the Solent EZ or in the Solent EZ priority sectors, can become qualified at Level 3 or above without incurring debt.

#### **Recommendation 8**

Solent LEP should consult with partners on the case for including the delivery of higher-level skills within advanced engineering, aerospace and marine as a priority within a prospectus for the use of EU funds at local level over the period 2014 to 2020.

### **10.8 Progression to Higher Education**

Although employers welcome the strong tradition of STEM Apprenticeship in the area, there are some concerns about the strength of academic STEM progression in the area. Data highlighted earlier in this report shows that:

- only 23.7% of A level entries in Fareham & Gosport are in STEM subjects, compared with 30.4% nationally;
- the proportion of students from Solent LEP authorities who took A level or equivalent qualifications and who progressed to HE is considerably lower than the national average; and
- the proportion of local people in HE who attend local HEIs has been falling each year for the last three years.

Between them, Southampton Solent University and the Universities of Southampton and Portsmouth offer a wide range of programmes that are valued by employers located at Solent EZ. Following the rise in fees, these institutions are under pressure, both to meet their student recruitment targets and to reach out and improve access for groups of students who are currently under-represented. This includes young people from deprived neighbourhoods,

households that have little or no tradition of University study and, interestingly in the context of the Solent EZ priority sectors, working class boys.

HEI programmes for reaching out and engaging schools and communities range from campus visits, mentoring, master-classes, summer schools and work experience. HEIs may also offer bursaries and targeted financial assistance, although a recent Office for Fair Access report suggests that this form of assistance has not influenced the choices of disadvantaged young people as much as hoped and recommends that expenditure would be better switched to outreach activities<sup>60</sup>.

Evidence shows that this activity needs to start early in school careers, to raise aspirations, to enable choices to be made (e.g. on GCSE/A Level subjects of study) and to develop ideas about the relationship between study and future careers. It also suggests that sustained and targeted outreach is the key to success.

As of October 2012, 11 Universities were lead sponsors for Academies, with ten universities co-sponsoring academies, with activities ranging from sharing laboratory, library and other facilities as well as running summer schools and seminars for pupils. There are, in addition, 33 University Technical Colleges, which offer 14-19 year olds the opportunity to take highly regarded, full-time, technically-oriented courses with clear progression routes into HE. None of these is located in the Solent LEP area.

#### **Recommendation 9**

HEIs in the Solent LEP area should be encouraged to align an element of their outreach activities to the Solent EZ priority sectors. They should consider giving less advantaged school pupils and pupils from poorly performing schools in Fareham & Gosport opportunities to engage with their STEM programmes by:

- offering guaranteed interviews and, where appropriate, lower offers to pupils in schools that they support;
- offering guaranteed admissions interviews to those who successfully complete a university-preparation programme, such as summer school;
- recognise the successful completion of such programmes with UCAS tariff points.

These recommendations align with those in the Cabinet Office report, *University Challenge: How Higher Education Can Advance Social Mobility* of October 2012

## **10.9 Retaining STEM graduates**

Manufacturers often point out that STEM skills (e.g. numeracy, problem-solving etc.) are highly valued across much of the economy. Although wages in the sector are good, engineering and

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<sup>60</sup> Have Bursaries Influenced Choices Between Universities?, Office for Fair Access 2010

manufacturing employers can also face difficulties matching salaries offered by other sectors, such as financial services, which also require these skills. As a result, a significant proportion of skilled STEM graduates never take up employment in the sector. Measures should be taken to retain talented STEM graduates within the area by fostering links between graduates and enterprises in the Solent EZ priority sectors.

There are a range of mechanisms through which this could be achieved:

- **Internships or placements** provide a means of: enhancing the employability of graduates; introducing employers to the recruitment of graduates generally (especially where they have not recruited one before); and giving employers an opportunity to assess the talents of specific candidates.
- **Matching Services** aim to help graduates find and apply for internships or graduate-level jobs; and support employers in creating and promoting these opportunities.
- **Knowledge Transfer Partnerships (KTP)** bring a university, business and graduate together to work on a specific project to facilitate the transfer of knowledge, technology and skills in order for the business to realise a strategic objective. The project usually lasts between one and three years, with the graduate being supervised by the university partner. While they are not specifically designed to promote graduate retention, they will have this effect where local businesses partner with local HEIs and local graduates.

HEIs are being assessed on the proportion of their graduates who are in employment and in graduate-level employment six months after graduating and are putting significant emphasis on this agenda. They offer a range of placement and recruitment services to employers, such as those delivered through the University of Portsmouth’s ‘Purple Door’ (See Annex 4).

<p><b>Recommendation 10</b></p> <p>Employers on the Enterprise Zone, and those within the EZ priority sectors across Solent LEP, should be encouraged to participate in HE programmes (such as those described above) that enable them to identify and recruit local graduates with the skills they require.</p> <p>Solent LEP should ensure that impartial information, support and guidance is available to local employers through the services of the Skills Broker (identified in recommendation 7).</p> <p>In keeping with the aspiration of establishing CEMAST as a central hub for employers at Solent EZ, information on these initiatives should be readily accessible through CEMAST.</p>
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## 10.10 Retaining and redeploying people with transferable skills

The Fareham & Gosport and Solent LEP areas have a relatively high concentration of engineering employment and, consequently, large numbers of employees with skills that could be adapted to the needs of employers at Solent EZ. Over recent years, engineering as a sector has seen significant levels of labour turnover, due to the natural transfer of staff between enterprises, the closure of firms and consolidation within enterprises.

As mentioned earlier, skilled staff working in the defence sector may need to be absorbed into the labour market in the next few years. The availability of these skills, and those of workers facing redundancy at Ford, presents an opportunity for manufacturing employers who are in a position to expand. It has been estimated that 70% of engineers who are made redundant never work in engineering again. Enabling highly-skilled staff to remain in jobs within sector is recognised as a clear priority for partners interviewed for this report.

The national Talent Retention Solution (TRS) supports individuals facing redundancy, in particular those exiting the armed services and the defence sector. It does so by putting skilled individuals looking for work directly in touch with companies searching for new employees. Launched in July 2011, it is devoted to the needs of recruitment in the advanced engineering sector and has a particular focus on aerospace. Alternative schemes, designed to minimise the economic and social costs of redundancy, can involve payment of a re-deployment premium directly to employers who employ people at the point of being laid off.

The time and cost required for an employee to convert and adapt skillsets to new contexts is normally considerably lower than that required for a young person or a new entrant to an industry. However, the costs, in both economic and individuals terms, that arise when people are made redundant and cannot find work are considerable. The fact that skills atrophy and may be lost to important economic sectors is recognised both within redeployment and talent retention programmes and through initiatives such as the Rapid Response Fund, which provides support for retraining and up-skilling of those losing employment through redundancy.

Although the cost of Level 3 provision is increasingly covered through individual grants, the priority accorded to Advanced Engineering within the Solent LEP area alongside potential impacts of any redundancies in the defence sector creates a case for providing additional support to individuals who are at risk or who may have recently been made redundant.

### **Recommendation 11**

Solent LEP should include, within their proposals for European Funds for the period 2014 to 2020, scope to create a programme that funds the retraining and up-skilling of individuals who are at risk of redundancy or who have been made redundant from the Solent EZ priority sectors. The structure of this programme, which may take the form of grants to individuals or employers, requires further discussion.

## 10.11 Creating employment for people without jobs

Partners who were interviewed for this report made it very clear that:

- a) employers at Solent EZ must be free to recruit employees whose skillsets and attributes best meet the needs of their businesses, regardless of where they live; but that
- b) steps also needed to be taken to enable local people to compete for jobs that become available at Solent EZ.

The Solent EZ is situated in close proximity to areas of severe deprivation, where Jobcentre Plus and Welfare to Work providers are active in combatting unemployment and finding work for the long-term unemployed. These agencies support employers by providing help with recruitment which can include: candidate assessment and screening; job-trials, interview and pre-employment training; and post-employment support, to ensure jobs are sustained.

As Universal Credit is introduced, Jobcentre Plus will increasingly be working support people who receive in-work benefits to come off benefits. This will involve looking at how they can progress in work, into occupations with higher rates of pay.

In addition to the skilled engineers, employers based at Solent EZ will require significant numbers of support staff, fulfilling administrative, cleaning, maintenance, security, catering and logistics-focused functions.

### **Recommendation 12**

Employers at Solent EZ should be made aware of, and encouraged to make use of, the support available through Jobcentre Plus and Welfare to Work providers.

As Solent EZ grows, Jobcentre Plus should train a number of specialist advisors, who have a detailed understanding of the skills and recruitment needs of employers in the Solent EZ priority sectors as well as IAG, training and other support services. These advisors should be tasked with developing close ties with employers at the EZ, by working in close partnership with others through CEMAST.

## 10.12 Innovation Support

One of the major challenges facing companies in advanced engineering today is to be keeping up to date with technological developments and initiating the continuous improvements required to maintain international competitiveness. Too often enterprises are absorbed in the day-to-day practicalities of staying in business and find it hard to invest time in understanding the drivers of change within their sector and to develop strategies in response. Staying on the cutting edge requires continuous investment in research and development and taking time to



understand how relationships with external partners, such as HEIs, might help with the development of new products and techniques.

The range of support available from Universities within Solent LEP and from specialist centres elsewhere in the country, such as the network for High-Value Manufacturing Catapult centres, is diverse and potentially confusing (see Annex 4 for a brief overview of the help available locally).

There is a strong case for improving the flow of information about the latest industry developments, about the variety of innovation support that employers can access, and the basis on which this is available (e.g. via joint R&D projects or on a purely commercial basis). Developing an 'Asset map' identifying facilities and sources of expert support relevant to the sector could be a valuable step towards this.

### **Recommendation 13**

Partners should take steps to map local assets and ensure that employers are fully aware of the wide range of R&D expertise and facilities that are available to employers at the EZ, both locally and beyond. Networking evenings, presentations, poster-sessions, open-forums or speed-dating sessions should be organised, focused on CEMAST. Site visits should be considered where appropriate, e.g. to view specialist facilities that are available to hire, such as the Warsash wave tank or University of Southampton wind tunnel.

## **10.13 Business Support & Networking**

This awareness-raising should extend beyond specialist innovation and R&D support.

Employers who locate at the Solent EZ should be supported in assessing the value of the help that is available from a wide range of other business support agencies, such as the Manufacturing Advisory Service (which provides assistance with lean production and Business Improvement Techniques) or UK Trade and Investment (which provides support for firms seeking to export).

Business survival rates in Fareham & Gosport have fallen alarmingly in recent years. Labour market research within the engineering sector and across the economy as a whole frequently highlights a shortfall in management skills as holding back British enterprise. Growing enterprises find it difficult to move from generalist to specialist management roles, developing specific expertise across areas such as finance, human resources, R&D or marketing.

There would be considerable value in developing a schedule of breakfast or evening events, focused on bringing employers on the site together to learn about the wider range of business support programmes that are available to them. This could include presentations on management development programmes, business-to-business mentoring, initiatives such as

the local 'Bridging the Gap' grant fund for small companies, or expert talks on topics such as protecting Intellectual Property (IP) and the latest technologies.

Employers attach particular value to employer-to-employer networking. Large employers, such as BAE Systems or Eaton Aerospace, are already used to inviting suppliers and potential suppliers to functions and presentations that they may organise with experts in their field. They are frequently members of wider trade bodies, such as the Farnborough Aerospace Consortium which facilitates networking, learning and the exchange of knowledge amongst member its 300 member companies.

Ensuring that enterprises in and around Solent EZ are fully integrated into these networks, by creating opportunities for collaboration and information sharing is a key feature of cluster development.

**Recommendation 14**

CEMAST should be developed as a focus for employer networking and information-sharing. Employers located on and around the Solent EZ should be encouraged and supported to join a Solent EZ employer network, which should link with wider supply chain initiatives, such as the Farnborough Aerospace Consortium. The Solent EZ employer network, should host a series of business briefings and informal events, based at CEMAST, where employers can gather to collaborate and further their understanding of topics and activities (such as those of business support organisations) that are of mutual interest and advantage.

### 10.14 Enterprise/Incubation Space

Research on EZs established in the 1980s shows that the highest level of additionality (in terms of net new jobs created) was obtained from new start-ups. The lowest was found to be created when companies that are already based locally move to an EZ. Reassuringly, out of all sectors, additionality was highest for manufacturing enterprises<sup>61</sup>.

This data, presented earlier in this report, shows that the rate of business formation fell considerably between 2007 and 2011. Although slightly beyond the scope of a 'Skills Plan', it is worth noting that many stakeholders expressed serious concerns about this issue and felt that there would be considerable value in establishing business incubation/start-up facilities at Solent EZ. They did, however, appreciate that it would be necessary to assess the level of demand for such space, through a review of occupancy rates in comparator units, such as those around the Universities of Portsmouth and Southampton, as a first step. It was also suggested that the location and financial incentives available at Solent EZ would made it more

<sup>61</sup> UK Enterprise Zones and the Attraction of Inward Investment, Potter and Moore, Urban Studies, Vol 37, No. 8, 2000

appropriate for investment in larger 'move-on' units, into which businesses outgrowing incubation space could transfer.

**Recommendation 15**

Solent LEP should conduct a review of the availability of incubation and 'move-on' space in the area, with a view to establishing whether demand is sufficient to warrant further investment, potentially supported through ERDF funds.

## LIST OF RECOMMENDATIONS

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### Recommendation 1

We therefore recommend that employers (and employees) in the Advanced Engineering, Aerospace and Marine sectors should be encouraged to:

- support schools and colleges' Careers Information Advice and Guidance (IAG) activities;
- provide workplace visits and work experience for young people;
- act as STEM Ambassadors;
- encourage more girls and young women to consider engineering and STEM careers;
- support STEM enhancement and enrichment activities;
- support Continuing Professional Development for teachers and technicians.

### Recommendation 2

Public sector partners (such as STEMNET Hampshire and the Portsmouth EBP) should work together to provide a coherent package of information for and support for employers at Solent EZ and across the LEP area, demonstrating the benefits and opportunities that exist for employers wishing to be active in improving the flow of skills into their sector.

### Recommendation 3

Solent LEP should support initiatives to improve Maths and Science teaching in Fareham & Gosport, focusing on schools that need particular support. Employers locating at the Solent EZ should be encouraged to support this agenda. They should be provided with clear information on how they can get involved, and be supported through the EBP and other partners where necessary. Resources could be provided for jointly-developed curriculum enrichment projects and the scope for developing qualifications appropriate to the needs of specific industries could be further explored.

### Recommendation 4

Alongside raising interest in STEM study (Recommendations 1 & 2) and improving STEM teaching (Recommendation 3), larger employers based at Solent EZ could be encouraged to become involved in the governance of local schools and colleges, as a route to ensuring that the provision and skills that they deliver meet local employer needs.

## **Recommendation 5**

Solent LEP, working with employers, should take steps to ensure that facilities at CEMAST keep pace with the latest industry standards. Employers should be encouraged to donate or contribute towards the cost of equipment that is required to meet their training needs. Solent LEP should make it clear that it is willing to seek public sector co-financing for the acquisition of equipment where there is adequate employer support, drawing down public resources through sources such as the Employer Ownership of Skills programme of the European Regional Development Fund. Initiatives that reach out into supply chains, drawing in smaller companies to support collaborative employer-led projects focused on up-skilling in key areas, should be supported.

## **Recommendation 6**

Solent LEP should work with local employers to understand and overcome specific barriers to delivering greater volumes of Apprenticeships better.

Financial incentives should be considered, such as awarding grants to priority sector employers who offer Apprenticeships, Advanced or Higher Level Apprenticeships for the first time (or for the first x number of Apprenticeship offered).

The scope for extending existing Apprenticeship brokerage services for employers at the site should also be examined. Although this may be complex, given the competitive nature of Apprenticeship delivery, it is important that employers have a clear route through which they can: link to young people; establish their entry requirements; identify the content of pre-Apprenticeship training; set up screening processes and job trials; and source impartial advice and training from the organisation best suited to their needs.

## **Recommendation 7**

CEMAST must be much more than a college based on the site, and must act as an avenue to a wide range of specialist and higher-level provision.

Solent LEP should encourage a high-level partnership working between training providers and the delivery of an integrated offer to employers moving to the Solent EZ.

Employers locating at Solent EZ should have easy and free access to expert, impartial advice on how their skills needs might best be met. They should be supported in assessing the options available to them by an independent Skills Broker, who has knowledge of the sector and an overview of the provision available at different levels, in the local area. Although it will be important for this individual to be independent of Fareham College, we would suggest that

the service be delivered from the CEMAST centre, in keeping with the emphasis on building CEMAST as a hub for employers on the site.

### **Recommendation 8**

Solent LEP should consult with partners on the case for including the delivery of higher-level skills within Advanced Engineering, Aerospace and Marine as a priority within a prospectus for the use of EU funds at local level over the period 2014 to 2020.

### **Recommendation 9**

HEIs in the Solent LEP area should be encouraged to align an element of their outreach activities to the Solent EZ priority sectors. They should consider giving less advantaged school pupils and pupils from poorly performing schools in Fareham & Gosport opportunities to engage with their STEM programmes by:

- offering guaranteed interviews and, where appropriate, lower offers to pupils in schools that they support;
- offering guaranteed admissions interviews to those who successfully complete a university-preparation programme, such as summer school;
- recognise the successful completion of such programmes with UCAS tariff points.

These recommendations align with those in the Cabinet Office report, *University Challenge: How Higher Education Can Advance Social Mobility* of October 2012.

### **Recommendation 10**

Employers on the Enterprise Zone, and those within the EZ priority sectors across Solent LEP, should be encouraged to participate in HE programmes (such as those described above) that enable them to identify and recruit local graduates with the skills they require.

Solent LEP should ensure that impartial information, support and guidance is available to local employers through the services of the Skills Broker (identified in recommendation 7).

In keeping with the aspiration of establishing CEMAST as a central hub for employers at Solent EZ, information on these initiatives should be readily accessible through CEMAST.

### **Recommendation 11**

Solent LEP should include, within their proposals for European Funds for the period 2014 to 2020, scope to create a programme that funds the retraining and up-skilling of individuals who

are at risk of redundancy or who have been made redundant from the Solent EZ priority sectors. The structure of this programme, which may take the form of grants to individuals or employers, requires further discussion.

### **Recommendation 12**

Employers at Solent EZ should be made aware of, and encouraged to make use of, the support available through Jobcentre Plus and Welfare to Work providers.

As Solent EZ grows, Jobcentre Plus should train a number of specialist advisors, who have a detailed understanding of the skills and recruitment needs of employers in the Solent EZ priority sectors as well as IAG, training and other support services. These advisors should be tasked with developing close ties with employers at the EZ, by working in close partnership with others through CEMAST.

### **Recommendation 13**

Partners should take steps to ensure that employers are fully aware of the wide range of R&D expertise and facilities that are available to employers at the EZ, both locally and beyond. Networking evenings, presentations, poster-sessions, open-forums or speed-dating sessions should be organised, focused on CEMAST. Site visits should be considered where appropriate, e.g. to view specialist facilities that are available to hire, such as the Warsash wave tank or Southampton University wind tunnel.

### **Recommendation 14**

CEMAST should be developed as a focus for employer networking and information-sharing. Employers located on and around the Solent EZ should be encouraged and supported to join a Solent EZ employer network, which should link with wider supply chain initiatives, such as the Farnborough Aerospace Consortium. The Solent EZ employer network, should host a series of business briefings and informal events, based at CEMAST, where employers can gather to collaborate and further their understanding of topics and activities (such as those of business support organisations) that are of mutual interest and advantage.

### **Recommendation 15**

Solent LEP should conduct a review of the availability of incubation and 'move-on' space in the area, with a view to establishing whether demand is sufficient to warrant further investment, potentially supported through ERDF funds.

## MEASURING SUCCESS

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The LEP is committed to monitoring progress and assessing the performance of the EZ and its impact on the local economy.

To support this aim, the Solent EZ Stakeholder Group was brought together in a workshop, on 28<sup>th</sup> February 2013, to identify a series of indicators to be included in a Solent EZ 'Dashboard'.

Indicators prioritised by the group were:

- The number of enterprises in the EZ priority sectors
- The number of employees in the EZ priority Sectors
- Change in employment by occupational group
- Change in youth unemployment
- Change in the number of young people Not in Education Employment and Training
- % of the population with qualifications at Level 4, Level 3 and below Level 2
- Attainment of Science, Technology, Engineering and Maths (STEM) at age 19
- Levels of STEM study at FE
- The volume of STEM Apprenticeships

This Dashboard is being developed by the University of Exeter and will be published on the Solent LEP website. It will updated regularly and used by partners as a basis for monitoring progress and assessing where there is a need for additional action.

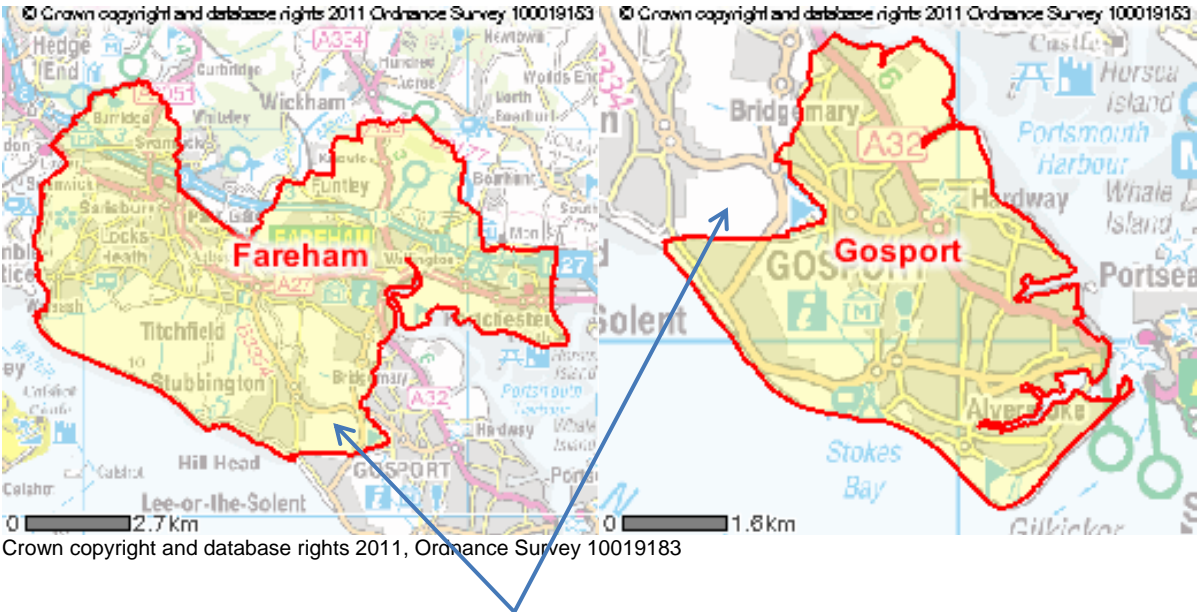


# ANNEX 1 – SOLENT EZ TRAVEL TO WORK AREA

In this report, we have analysed the data for the three Upper-tier and eight District authorities that make up the Solent LEP area<sup>62</sup>. We have also presented data for a 'Fareham & Gosport' area, which combines Gosport and Fareham District data, the Solent LEP, England and the South East. This annex provides an analysis of the potential commuting patterns to and from the Solent EZ and an explanation for our selected geographical analysis.

## Solent EZ travel-to-work area

The Solent EZ is located within Fareham Borough Council, on the border of Gosport Borough Council.



*Solent Enterprise Zone*

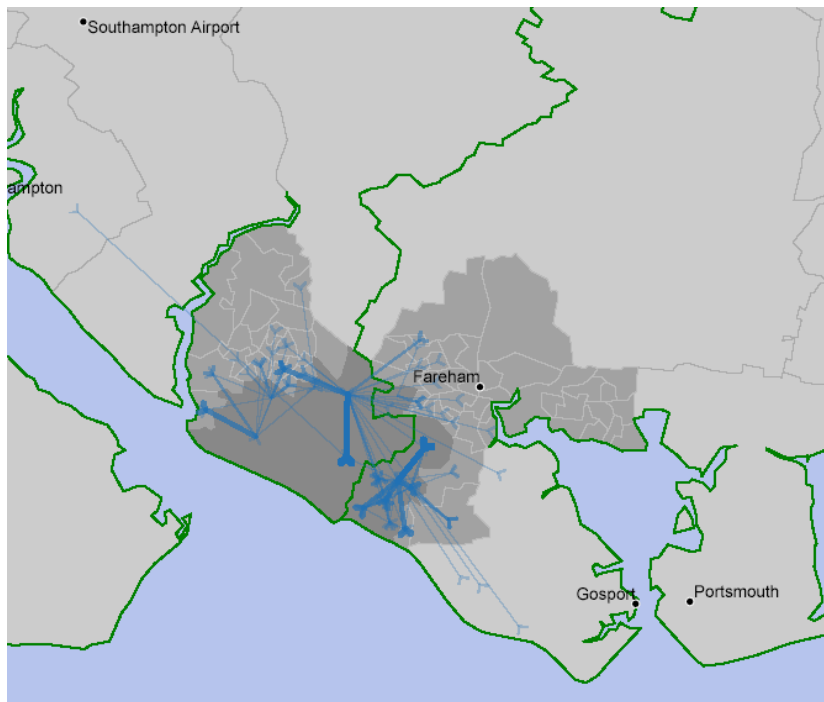
The surrounding area is predominantly residential and, as Figure 31 shows, very few people were commuting *into* the area to work in 2001, when the last detailed Census data was available, from Census 2001. According to analysis by the Gosport Council, 18,200 were commuting out of the Borough in 2001, compared with 7,600 people commuting in<sup>63</sup>.

Figure 1Figure 31also shows that the commuting that did take place tended to be very local.

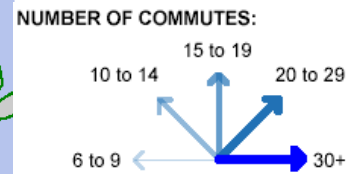
<sup>62</sup> The Upper-tier authorities are: Isle of Wight, Portsmouth, Southampton. The District Authorities are: East Hampshire, Eastleigh, Fareham, Gosport, Havant, New Forest, Test Valley, Winchester.

<sup>63</sup> Gosport Borough Local Plan Review, May 2006

**Figure 31: Inward commuting to work in the vicinity of Fareham & Gosport, all workers, 2001**

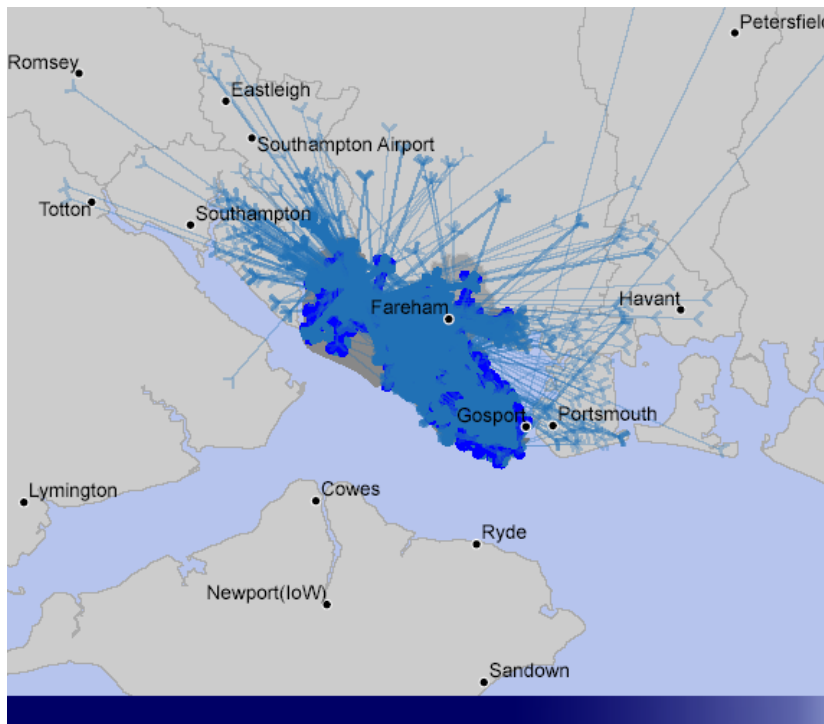


Source: 2001 Census, CommuterView. Crown copyright 2008. Crown copyright material is reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland.

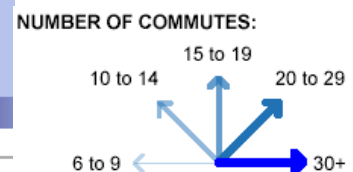


Looking more widely, at inward commuting to all parts of Fareham and Gosport, it appears that the vast majority of journeys to work within these two districts were still made by local residents. It is this high degree of self-containment in respect of inward commutes that justifies the selection of 'Fareham & Gosport' for a narrower level of geographical analysis.

**Figure 32: Inward commuting to work in Gosport and Fareham, all workers, 2001**



Source: 2001 Census, CommuterView. Crown copyright 2008. Crown copyright material is reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland.



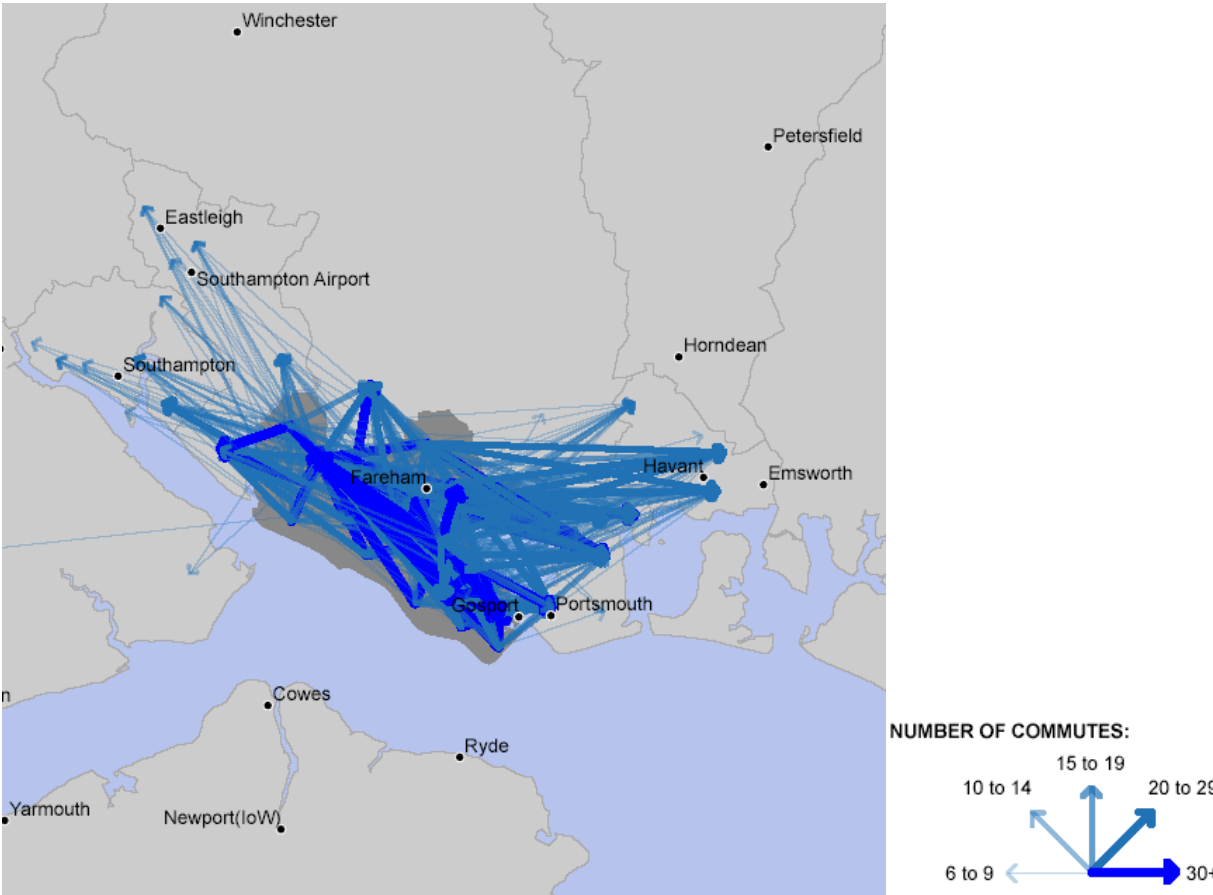
This pattern is, however, partly a reflection of the employment available in the area in 2001. A significant expansion in manufacturing employment on the Solent EZ would change the pattern.

Unfortunately data on *inward* commutes by employees working in 'mining, manufacturing and utilities' (the nearest proxy we have for manufacturing) is unavailable via CommuterView. It is reasonable, however, to suppose that the pattern of inward commuting would be similar that found for *outward* commuting. The distance to work is the same and, as Fareham and Gosport both experience a more outward than inward commuting pattern, people travelling to work at the Solent EZ may find themselves 'going against the traffic' and have an easier journey.

Figure 33 shows that significant numbers of people commute out of Fareham and Gosport to work in Mining, Manufacturing in Portsmouth, Havant, Southampton, Eastleigh and southern Winchester.

Although commuting to the Isle of Wight, the New Forest and the most northerly parts of the LEP is limited, the evidence suggests that the Solent EZ will draw on labour from a significant proportion of Solent LEP. This will particularly be the case for higher-paid and higher-skilled jobs.

**Figure 33: Outward commuting to jobs in Mining, Manufacturing and Utilities by residents of Gosport and Fareham, 2001**



Source: 2001 Census, CommuterView. Crown copyright 2008. Crown copyright material is reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland.

This analysis suggests that it is important to review data for the whole of the Solent LEP area when considering issues such as the skills that will be available to employers in Solent EZ.

We have therefore analysed the data for the three Uppertier and eight District authorities that make up the Solent LEP area, adding an additional 'Fareham & Gosport' area, which combines Gosport and Fareham data. Average data for Solent LEP as a whole is provided, as are England and South East benchmarks.

# ANNEX 2 – PRIORITY SECTORS FOR BRES DATA ANALYSIS

IBDR and BRES data has been analysed for Solent EZ Priority Sectors created using the following 3 digit Standard Industrial Classifications.

<b>Advanced Manufacturing</b> 26.1 : Manufacture of electronic components and boards 26.2 : Manufacture of computers and peripheral equipment 26.3 : Manufacture of communication equipment 26.4 : Manufacture of consumer electronics 26.5 : Manufacture of instruments and appliances for measuring, testing and navigation; watches and clocks 26.6 : Manufacture of irradiation, electromedical and electrotherapeutic equipment 26.7 : Manufacture of optical instruments and photographic equipment 26.8 : Manufacture of magnetic and optical media 27.1 : Manufacture of electric motors, generators, transformers and electricity distribution and control apparatus 27.2 : Manufacture of batteries and accumulators 27.3 : Manufacture of wiring and wiring devices 27.4 : Manufacture of electric lighting equipment 27.5 : Manufacture of domestic appliances 27.9 : Manufacture of other electrical equipment 28.1 : Manufacture of general purpose machinery 28.2 : Manufacture of other general-purpose machinery 28.3 : Manufacture of agricultural and forestry machinery 28.4 : Manufacture of metal forming machinery and machine tools 28.9 : Manufacture of other special-purpose machinery 325 : Manufacture of medical and dental instruments and supplies 293 : Manufacture of parts and accessories for motor vehicles 721 : Research and experimental development on natural sciences and engineering 309 : Manufacture of transport equipment n.e.c. (e.g. motorbikes & bicycles) 310 : Manufacture of furniture 321 : Manufacture of jewellery, bijouterie and related articles 322 : Manufacture of musical instruments 323 : Manufacture of sports goods 324 : Manufacture of games and toys
<b>Defence</b> 254 : Manufacture of weapons and ammunition 304 : Manufacture of military fighting vehicles
<b>Aerospace</b> 30.3 : Manufacture of air & spacecraft machinery 33.16 : Repair & maintenance of aircraft & spacecraft
<b>Aviation</b> 5110 : Passenger air transport 5121 : Freight air transport 5122 : Space transport 5223 : Service activities incidental to air transportation 5224 : Cargo handling 7735 : Renting and leasing of air transport equipment

**Marine**

301 : Building of ships and boats

3315 : Repair and maintenance of ships and boats

***Extended Marine***

0311 : Marine fishing

0321 : Marine aquaculture

0610 : Extraction of crude petroleum

0620 : Extraction of natural gas

1020 : Processing and preserving of fish, crustaceans and molluscs

5010 : Sea and coastal passenger water transport

5020 : Sea and coastal freight water transport

4723 : Retail sale of fish, crustaceans and molluscs in specialised stores

7734 : Renting and leasing of water transport equipment

## ANNEX 3 – MIGRATION ADVISORY COMMITTEE - SKILLS SHORTAGE OCCUPATIONS

In November 2011, the Migration Advisory Committee produced the latest national ‘Shortage Occupation List’. Where an occupation is on the Shortage Occupation List, it means there are not enough resident workers to fill the available jobs in that particular occupation. Employers may sponsor migrants to the UK to perform this skilled work, provided that they pay them more than certain minimum annual or hourly rates.

The fact that aerospace features prominently on this list is a clear signal of government’s concern about skills gaps within the sector and the negative impacts these may have on the national economy. Specific aerospace-related skills occupations on the Shortage Occupation List are provided in Table 30 below.

**Table 30: Aerospace Occupations & minimum salaries, on the national Shortage Occupation List, dated 14 November 2011**

<b>Standard Occupation &amp; code</b>	<b>Job Title</b>	<b>Minimum wage to be paid to migrants</b>
Mechanical engineers (2122)	Mechanical engineer in the aerospace sector	New graduates: £23,000 Other jobs: £14.52 per hour
Production and process engineers (2127)	Manufacturing engineers (process planning) in the aerospace sector Technical services representatives in the aerospace sector	£12.78 per hour
Buyers and purchasing officers (3541)	Manufacturing engineer (purchasing) in the aerospace sector	£11.44 per hour
Professionals not elsewhere classified (2129)	Aerothermal engineers Stress engineers Chief of engineering Advance tool and fixturing engineers	New graduate: £23,000  Other jobs: £14.76 per hour

Source: UK Border Agency. Salary Details from ASHE & the Engineering UK 2009/10 Report

The prevalence of engineering occupations within the list is worth noting. Although less obviously related to the Solent EZ sector priorities, a number of these occupations may be important to enterprises moving to or growing on the Solent EZ. Advanced manufacturers may, for example, require Metal working production and maintenance fitters, Licensed and military certifying engineers/inspector technicians, Simulation development engineers or High integrity pipe-welders. The inclusion of a range off-shore and marine-related occupations

(such as fluids engineers, reservoir engineers, offshore and subsea engineers, control and instrument engineer and process safety engineers) may also be important.



## ANNEX 4 – HIGHER EDUCATION INSTITUTIONS

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### 1. University of Portsmouth

Academic departments within the University of Portsmouth are distributed across the five faculties. One of these, the Faculty of Technology, hosts Schools of Computing and Engineering, which provide academic and knowledge transfer programmes that could be of great value to employers within the EZ.

Undergraduate and MSc courses are provided in a wide range of relevant subjects, such as:

- Computer Aided Product Design
- Computer Engineering
- Electronic Systems Engineering
- Engineering and Technology
- Mechanical and Manufacturing Engineering
- Software Engineering
- Communication Systems Engineering
- Advanced Manufacturing Technology

The Faculty of Technology already works with business, providing access to staff and facilities and developing collaborative projects focused on technology development, product design, manufacturing efficiency, measurement & testing and on computing hardware and software applications.

The School of Engineering identifies its mission as being to 'conduct quality research and knowledge transfer in response to practical demands in defence, healthcare, manufacturing, marine and service industries'. It has expertise in bio-mechanical structures and components, manufacturing techniques, artificial intelligence, control and automation and also hosts a Mechanical Behaviour of Materials (MBM) Laboratory which has 30 years of experience of conducting research into the deformation, fatigue, fracture, impact and buckling of engineering materials and components, in collaboration with enterprises such as Rolls-Royce, QinetiQ, GKN Westland Aerostructures.

The University hosts a DTI-funded Regional Centre for Manufacturing Industry (RCMI), focused on delivering services in design and manufacturing innovation, such as the prototype modelling of household containers, hydraulic test vehicles, electronics instrument panels and boat equipment.

Businesses are encouraged to engage with the University through the 'Purple Door', through which they can:

- Recruit students and graduates. Recruitment consultants assist businesses to specify their needs and to identify appropriate candidates, whether an employer is looking to employ a:
  - graduate on a permanent basis;
  - graduate on a short-term basis, to assist with a specific project, for example;
  - student on a 'Student Placement' - a nine to twelve-month period of employment built into the structure of the course; or
  - student on a part-time basis or over the summer.
- Hire university facilities.
- Develop projects in partnership with university staff, focused, for example, on developing new materials or rapid prototyping of new products.
- Set up Knowledge Transfer Partnerships or develop joint research activity with academic staff members.
- Access workforce training solutions, including:
  - short Continuing Professional Development programmes, designed and tailored to meet organisational needs;
  - learning at work, at either Bachelor or Master's level, developed in partnership with employers and delivered both at work and the University;
  - Doctoral training, particularly for staff engaged in research and development.

The University works with schools, colleges and businesses to enhance the profile of design and manufacturing and to encourage young people to seek careers in the engineering and manufacturing sectors. It also brings entrepreneurs and organisations working in the design and innovation industries together, to enable them to exploit their ideas more effectively and bring products to market more rapidly.

## 2. Southampton Solent University

Southampton Solent University (SSU) has some 17,000 students. It provides HND, HNC and degree-level provision in Electronic Engineering, Engineering with Business, Mechanical Design and Manufacturing.

SSU has a commitment to working with employers and enabling employer training to be accredited by the University. It has a strong tradition of delivering part-time education and training to people who are already in the industry.

SSU has partnerships with a number of 'feeder' colleges. Students at these colleges might progress from an HNC at the college to complete the 2nd and 3rd year of the HND at SSU. Alternatively, students complete A level qualifications and progress to SSU to take degree-level programmes.

SSU also provides enterprises with access to equipment, including an FRP Composite Workshop, equipment used for 3D scanning, product design and rapid prototyping.

## 2.1 Warsash Maritime Academy

SSU also provides the Warsash Maritime Academy, which provides training, consultancy and research to the shipping and offshore oil industries.

Training provision includes certified programmes for deck and engineer officers, from cadet level to Master (Captain) and Chief Engineer. Short safety courses are available, to develop skills such as firefighting and sea survival. There is also access to navigation training, professional development modules and Foundation Degree and Degree level courses in subjects such as Marine Engineering, Marine Operations, Yacht and Powercraft Design and Watersports Technology.

Equipment hired by the Warsash Maritime Academy includes a towing tank with wave generator and a survey vessel equipped with hydrographic and oceanographic survey equipment. The Academy has pioneered the use of bridge and engine room simulators for higher-level training, and hosts both a Liquid Cargo Operations Simulator and manned model ship-handling facility. Organisations hiring equipment have the support of technical staff and can also draw on consultancy support in areas such as: small craft design, virtual modelling and engineering drawing.

## 3. University of Southampton

The University of Southampton is a member of the Russell Group of research-intensive universities. It has over 17,000 undergraduate and 7,000 postgraduate students on a wide range of undergraduate and postgraduate courses, including programmes focused on Aerospace Engineering, Mechanical Engineering and Ship Science.

**Aerospace Engineering** covers both Aeronautics and Astronautics and is focused broadly on the specification, design and construction of airframes, engines, satellites and other spacecraft. Disciplines studied include aerodynamics, flight mechanics, advanced materials, propulsion, structures, as well as aircraft and spacecraft systems. Students can apply for industrial work experience with a wide range of partner companies, either during the summer or by taking a year out from University. Sponsored places are also available to students considering a career in the armed forces.

Industrial partners, working with the group, have access to facilities including high-performance computing and a range of wind tunnels and associated equipment, such as three-axis laser doppler anemometry and motor drive systems for propeller testing. A flight-simulation laboratory is being used to develop cost effective simulation tools for the aerospace industry. Income from commercial use of the wind tunnels is re-invested to maintain the tunnels as state-of-the-art facilities. A range of postgraduate opportunities are available, including an MSc in Race Car Dynamics.

**Mechanical Engineering** at Southampton is ranked No.1 in the UK by the Guardian University Guide. It focuses on the design of machines, conversion of energy, manufacturing

processes, medical engineering and microsystems technology. The University's four-year MEng courses provide a direct route to chartered status. MEng programmes combine Mechanical Engineering with a specialist focus on: Advanced Material, Aerospace, Automotive, Bioengineering, Mechatronics, Naval Engineering or Sustainable Energy Systems.

The University also offers a four-year MEng **Ship Science** programme, with specialisms in Advanced Materials, Engineering Management, Naval Architecture and Naval Engineering.

The University identifies itself as being '*one of the world's leading entrepreneurial universities, with an impressive track record as a partner to business and the public sector and as a source of invention and innovation*'. Employers are encouraged to register on an Employer Portal, where they can upload vacancies and indicate their interest in participating in careers fairs, Knowledge Transfer Projects and other University initiatives. In 2009, collaborative research contracts with industry totalled £35m in value.

Access to expertise at the University is channelled through a series of 'Enterprise Units'. Examples of enterprise units that could provide valuable assistance to employers are listed below:

**ECS Partners Ltd (Electronics and Computer Science)** - a wholly-owned University company whose mission is to facilitate commercial access to the research expertise of Electronics and Computer Sciences.

**ISVR Consulting (Sound and Vibration)** - acoustics, noise, signal processing, modelling, automotive refinement, testing, shock, dynamics.

**IT Innovation Centre** - The IT Innovation Centre specialises in researching, developing, engineering and integrating innovative IT systems.

**Research Institute for Industry (Rifl)** - Multi-disciplinary projects in engineering sciences, FEA analysis, cryogenics, materials and surface engineering.

**Wolfson Unit for Marine Technology & Industrial Aerodynamics (WUMTIA)** - Tank testing, wind tunnel testing, consultancy, design software, on-board systems and innovative research.

In addition, the University hosts five University Technology Centres focused on undertaking intensive research and development and technology innovation in collaboration with industry partners. One of these, the Airbus Noise Technology Centre (ANTC) is the result of the long-standing collaboration focused on meeting the industry's target of cutting perceived noise in half by 2020.

The University's Research Groups support PhD students and deliver research projects, sometimes in partnership with industry, under programmes such as the European Union Framework 7. The most relevant Research Groups to the Solent EZ priority sectors are those in:

**Aerodynamics and Flight Mechanics**, focused on fluid dynamics, computational aero acoustics, applied aerodynamics and flight dynamics.

**Computational Engineering and Design**, which has links to the Rolls-Royce-sponsored University Technology Centre. This Centre applies computational tools, methods and environments to problems in aerospace engineering and related fields. It has access to a dedicated supercomputing cluster with hundreds of 64bit processors and licences for the aerospace industry's principal CFD and FEA codes.

**Electro-Mechanical Engineering**, which has research interests in the application of transducers, measurement systems and control systems to a broad range of activities.

**Engineering Materials** which seeks to develop understanding of the physical processes in materials and transferring this understanding into enhanced materials performance and improved designs.

**Energy Technology**, which provides a focal point for research in mainstream and renewable energy technologies.

**Advanced Tribology**, which aims to understand and reduce wear, friction and erosion in materials, which has clear applications in energy efficiency, durability of engineered products.

The **EPSRC Centre for Innovative Manufacturing in Photonics**, which undertakes research into advanced manufacturing of new photonic materials, fibres and components.

### 3.1 Maritime Centre of Excellence

The University of Southampton is also developing a Maritime Centre of Excellence at the Boldrewood Campus. This site will be occupied from 2014. It will house, amongst others, the Group Technology Centre of Lloyd's Register who have announced a strategic alliance with the University, focused on research within areas such as Marine or Mechanical Engineering, Materials Science/Metallurgy, Fluid Dynamics and Fire & Safety Engineering.

## 4. University of Winchester

The University of Winchester is the final HEI in the Solent LEP area. It focuses on the Arts, Education, Humanities and Social Sciences. There is some provision in Business. However, in general, the University's focus is not particularly relevant to the Solent EZ priority sectors.

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