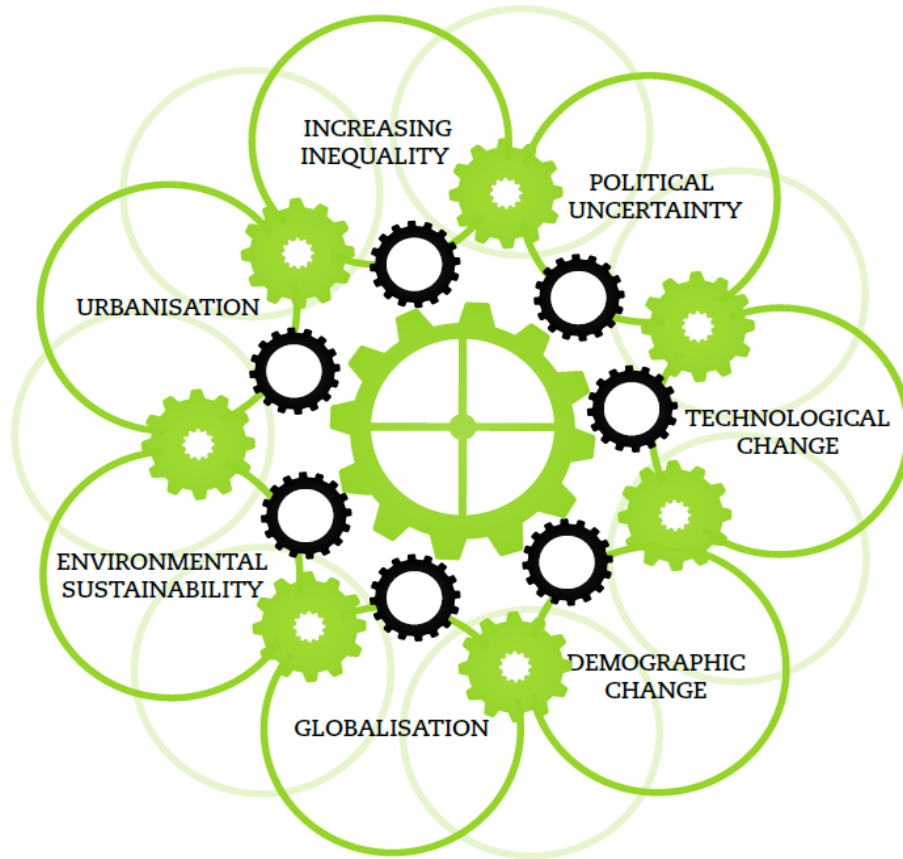


The Future of Work in Southampton

'Southampton a city of opportunity where everyone thrives'.



Source: Bakhshi et al. 2017, *Future of Skills: Employment in 2030*, London: Nesta and Pearson

PANEL MEMBERSHIP – 2018/19

Councillor McEwing (Chair)
Councillor Fitzhenry (Vice-Chair)
Councillor Bogle
Councillor Coombs
Councillor Furnell
Councillor Guthrie
Councillor Laurent

Scrutiny Manager – Mark Pirnie
mark.pirnie@southampton.gov.uk



Contents

Contents	Page
Chair's Introduction	3
The Aim of the Inquiry	4
Introduction, Background	6
Part 1 - How can Southampton stay ahead of the Robots?	10
Skill levels in Southampton – Is Southampton ready for the challenges?	15
What action is being taken to address the skills challenge?	19
SWOT Analysis - Skills	24
Best Practice - Skills	25
Conclusions and Recommendations	27
Part 2 – Growing the Tech Sector in Southampton	31
Catalysts for UK Digital Tech Growth and Innovation – How is Southampton performing?	35
SWOT Analysis – Tech Sector	40
Best Practice – Tech Sector	41
Conclusions and Recommendations	43
Appendices	
Appendix 1 – Terms of Reference	
Appendix 2 – Inquiry Plan	
Appendix 3 – Summary of Key Evidence	
Appendix 4 - Examples of stable, new and redundant roles	

Chair's Introduction



Councillor McEwing - Chair of the Future of Work in Southampton Inquiry Panel (2018/19)

The potential impact of the fourth industrial revolution and other trends on employment has understandably been the focus of numerous international and national studies over the past few years. Reflecting the opportunities and concerns the various reports have identified, this inquiry has sought to consider the potential impact of artificial intelligence, robotics and other digital technologies on the Southampton economy.

At the inaugural meeting of the inquiry the Panel were informed that whilst a number of key sectors in the city are expected to see a growth in job opportunities moving forward, 22 percent of the current jobs in Southampton are in occupations very likely to decline by 2030. This encouraged the Panel to consider how Southampton's workforce can stay ahead of the robots and how the city can create the jobs to replace those that will be disappear.

This report considers the issues in two separate but intrinsically linked parts. Part 1, reflecting the correlation between education and training and the prosperity of a city, looks at the skills mix in the city and the need for a skills revolution to enable the city to respond to the opportunities for economic growth that the technological revolution will bring. Part 2 looks at opportunities to grow the increasingly important technology sector in Southampton.

The Panel recognises that it is essential that both of these objectives are achieved. Without a skilled workforce and a growing economy there is a risk that we will either have an increasingly highly skilled workforce in the city without the jobs for the population to occupy, or, an expanding technology sector without the residents in the city with the required skills to fill the new positions. Both of these scenarios will impact on the economic performance of the city and could result in increased inequality and social tension in Southampton.

In response to the scenarios above the Panel has recommended a number of actions that it believes will help to address the current skills mismatch in Southampton between where the city is now and where it needs to be, and will support the growth of the technology sector in Southampton.

I would like to thank all those who provided evidence to the inquiry and ensured that the Panel were well informed. I would also like to thank members of the Panel for their contributions; the way in which the inquiry was conducted; and their willingness to consider new approaches and ideas.

The Future of Work in Southampton

The Aim of the Inquiry

1. Forecasts indicate that the job market will look very different in 2030. Reports identify that advances in ‘smart automation’, the combination of Artificial Intelligence (AI), robotics and other digital technologies, have the potential to bring great benefits to the economy by boosting productivity and creating new and better products and services.
2. Studies referenced in this report predict that new automation technologies will create totally new jobs in the digital technology area and, through productivity gains, will support additional jobs of existing kinds, primarily in service sectors that are less easy to automate.
3. However, analysis suggests that up to 30% of UK jobs could potentially be at high risk of automation by the early 2030s. The risks appear highest in sectors such as transportation and storage, manufacturing and wholesale and retail, but lower in sectors like health and social work.
4. Given the importance of the issue and the potential impact of ‘smart automation’ on the Southampton economy, the Overview and Scrutiny Management Committee recommended ‘The Future of Work in Southampton’ as an appropriate subject for a scrutiny inquiry at the July 2018 meeting.
5. The set objectives of the inquiry were:
 - a. To develop understanding of the potential opportunities and risks to the Southampton economy generated by smart automation.
 - b. To consider the existing plans and proposals in place to maximise the opportunities and mitigate the risks in Southampton.
 - c. To identify what is being done elsewhere to prepare economies for the impact of smart automation.
 - d. To identify what initiatives could be introduced in Southampton to upgrade the skills mix of the workforce, support digital sectors that can generate new jobs, target new opportunities and seek to ensure that the benefits of this technological revolution are felt by all across the city.
6. The full terms of reference for the inquiry, agreed by the Overview and Scrutiny Management Committee, are shown in Appendix 1.

How the inquiry was conducted

7. The Scrutiny Inquiry Panel undertook the inquiry over 5 evidence gathering meetings and received information from a wide variety of organisations. This included think tanks, representatives from both Southampton universities and higher education, representatives from the UK tech sector, Solent LEP, Southampton based tech entrepreneurs, the Leader of the Council and the Cabinet Member for Aspiration, Schools and Lifelong

Learning as well as Southampton City Council officers. A list of witnesses that provided evidence to the inquiry is detailed in Appendix 2.

8. A visit was also made to Network, the Council funded co-working space located on the 2nd floor of the Marland's Centre, to better understand the facilities that will be available at this welcome development.
9. The key findings, conclusions and recommendations from the inquiry are detailed succinctly later in this report.
10. Members of the Panel would like to thank all those who have assisted with the development of this review, in particular the following who have provided the Panel with invaluable advice throughout the inquiry:
 - Denise Edghill, Service Director – Growth, Southampton City Council;
 - Sajid Butt, Strategic Skills Manager, Southampton City Council;
 - Jeff Walters, Economic Development Manager, Southampton City Council.

Introduction and Background

The Fourth Industrial Revolution

11. The World Economic Forum report, 'The Future of Jobs 2018', provides a succinct interpretation of the dynamics impacting on the global labour market created by increasing automation, artificial intelligence (AI) and emerging technological changes:

*'As technological breakthroughs rapidly shift the frontier between the work tasks performed by humans and those performed by machines and algorithms, global labour markets are undergoing major transformations'*¹.

12. The report, 'The Future of Skills: Employment in 2030' from Nesta (a global innovation foundation) identifies, in addition to automation, the potential effects of other relevant trends, including globalisation, population ageing, urbanisation, and the rise of the green economy on the labour market.²

What impact will it have?

13. The June 2017 report from PwC, 'The Economic Impact of Artificial Intelligence on the UK Economy', concluded that:

'UK GDP will be up to 10.3% higher in 2030 as a result of AI – the equivalent of an additional £232bn – making it one of the biggest commercial opportunities in today's fast-changing economy. The impact over the period will come from productivity gains (1.9%) and consumption side product enhancements and new firm entry stimulating demand (8.4%).

*There will be significant gains across all UK regions, with England, Scotland, Wales and Northern Ireland all seeing an impact from AI in 2030 at least as large as 5% of GDP, and extra spending power per household of up to £1,800-£2,300 a year by 2030.'*³

14. However, significant concerns have been raised about the potential impact of AI and new technologies on jobs and inequality in the UK. The Chief Economist of the Bank of England, Andy Haldane, speaking on the BBC's Today Programme⁴, warned that the UK will need a skills revolution to avoid "large swathes" of people becoming "technologically unemployed" as artificial intelligence makes many jobs obsolete.
15. Andy Haldane said the possible disruption of the Fourth Industrial Revolution could be "on a much greater scale" than anything felt during the First Industrial Revolution of the Victorian era. He said that he had seen a widespread "hollowing out" of the jobs market, rising inequality, social tension and many people struggling to make a living.

¹ The Future of Jobs Report 2018, World Economic Forum, page vii

² Bakhshi, H., Downing, J., Osborne, M. and Schneider, P. 2017, The Future of Skills: Employment in 2030, London: Pearson and Nesta

³ The economic impact of Artificial Intelligence on the UK economy, PwC, June 2017

⁴ Bank of England chief economist warns on AI jobs threat, BBC website, 20 August 2018
<https://www.bbc.co.uk/news/business-45240758>

16. Mr Haldane's points were echoed by the head of the Government's Advisory Council on AI, who also warned there was a "huge risk" of people being left behind as computers and robots changed the world of work.
17. Tabitha Goldstaub, Chair of the AI Council, said that the challenge was ensuring that people were ready for change and that the focus was on creating the new jobs of the future to replace those that would disappear. Indeed Mr Haldane said that job losses would be compensated for by the creation of new jobs as a "new technological wave" broke over society.⁵

Which jobs are likely to be displaced?

18. The Future of Skills: Employment in 2030 report identifies that the job market will look very different in 2030. Generally, those jobs that are made up of routine tasks are at a greater risk of decline, whereas those occupations requiring interpersonal and cognitive skills are well placed to grow.
19. The report identifies that 8% of the current UK workforce are in an occupation that will very likely experience an increase in workforce share and 21.2% in an occupation that will very likely experience a fall.⁶
20. The majority of jobs at risk are in a handful of occupations. Nesta identified 36 minor occupation groups likely to shrink in the future, but 53 percent of all jobs at risk in cities are in just 5 occupations:⁷

Table 1

Occupations representing the majority of all jobs at risk of displacement		
	Minor occupation group	Share of all jobs at risk in cities (%)
1.	Sales assistants and retail cashiers	19.5
2.	Other administrative occupations	11.0
3.	Customer service occupations	9.0
4.	Administrative occupations: finance	7.0
5.	Elementary storage occupations	6.6

Source: Bakhshi et al. 2017, *Future of Skills: Employment in 2030*, London: Nesta and Pearson; ONS 2017, Business Register of Employment Survey; Census 2011.

21. There are a range of views with regards to whether AI and new technologies will create as many jobs in the UK as they displace. Analysis by PwC, whilst recognising that there would be "winners and losers" by industry sector, with many jobs likely to change, identified that AI could give the UK a small net jobs boost over the next 20 years.⁸

⁵ Bank of England chief economist warns on AI jobs threat, BBC website, 20 August 2018

<https://www.bbc.co.uk/news/business-45240758>

⁶ Bakhshi, H, Downing, J, Osborne, M. and Schneider, P. 2017, *The Future of Skills: Employment in 2030*, London: Pearson and Nesta, p89

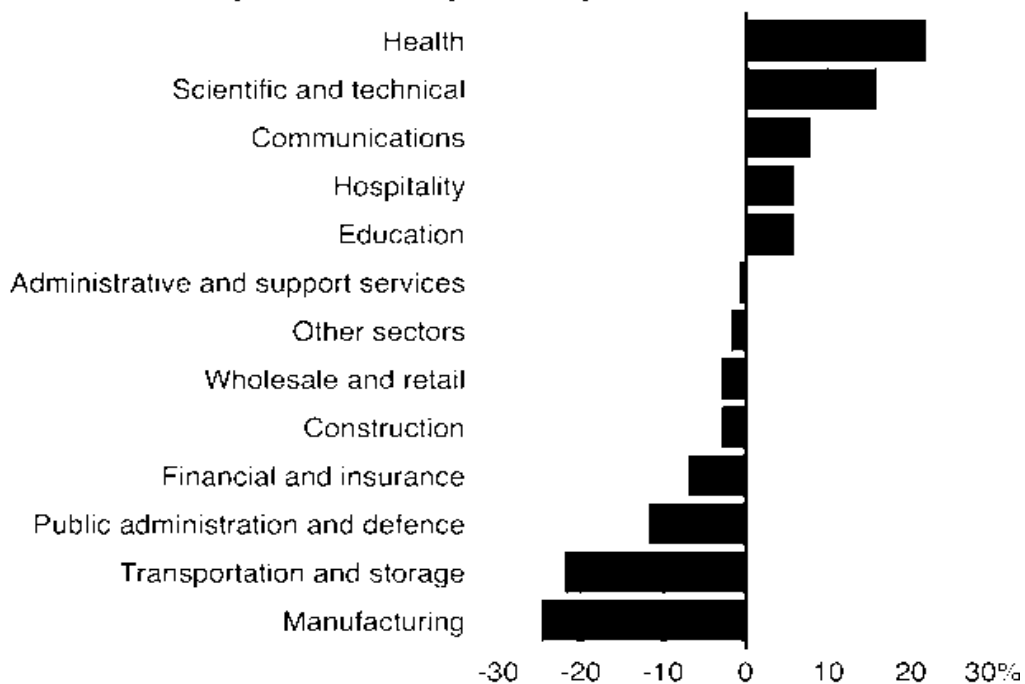
⁷ Reference cited from *Cities Outlook 2018*, Centre for Cities, p15

⁸ <https://www.pwc.co.uk/press-room/press-releases/AI-will-create-as-many-jobs-as-it-displaces-by-boosting-economic-growth.html>

Figure 1:

How AI could change the job market

Estimated net job creation by industry sector, 2017-2037



Source: PwC analysis, July 2018

22. The World Economic Forum has produced a table providing examples of stable, new and redundant roles across industry. This table is attached as Appendix 4.

What jobs are likely to be displaced in Southampton?

23. Andrew Carter, Chief Executive of Centre for Cities, presented an overview of the future of work in Southampton at the inaugural meeting of the Inquiry. Reflecting the occupations at high risk of automation his analysis identified that some cities are more vulnerable to job displacement than others.
24. Utilising the data from the Nesta report the extrapolated information presented identified that 21% of the current jobs in urban Britain (3.6m) are in occupations very likely to decline by 2030. The figure for Southampton was estimated to be 22% (circa 23,000 jobs).
25. However, reflecting the growth sectors identified in Figure 1, and Southampton's strength in the maritime, marine and health sectors it is likely that a number of key sectors in the city will see a strong growth in job opportunities moving forward.

22% of the current jobs in Southampton are in occupations very likely to decline by 2030

26. To better understand the potential impact on Southampton it requires a two-pronged approach:
- a) Job design – Assessing the type and volumes of jobs that will be generated through sectors undergoing transformation.
 - b) Occupational modelling – Assessing the type and jobs that will be under threat from automation and increased digitalisation.

Part 1 - How can Southampton stay ahead of the robots?

27. Whilst factoring in the growth of some existing roles and the creation of new jobs resulting from the “technological wave”, as identified in the previous section an estimated 22% of the current jobs in Southampton are in occupations very likely to decline by 2030.
28. This raises the question how can Southampton avoid a significant part of its population being left behind and, to quote the Chief Economist at the Bank of England, becoming “technologically unemployed” as AI makes jobs obsolete, potentially increasing inequality and social tension?

The Importance of Skills

29. In his presentation to the Panel, Andrew Carter, Chief Executive of Centre for Cities, identified that:
“Skills are one of the most important factors in determining economic outcomes and are fundamental to people’s ability to adapt to the changing world of work. The cities with highly skilled and qualified employees will be able to respond more effectively to the opportunities for economic growth and prosperity that the technological revolution will bring.”
30. Rapid change is a characteristic of the fourth industrial revolution. AI is, and will continue to revolutionise every sector of our economy, transforming the world of work, and the skills base that businesses, and individuals need to succeed. As Tabitha Goldstaub, Chair of the AI Council, stated:
“...change is happening and it is definitely happening quicker than ever before.”⁹
31. The 2018 World Economic Forum report contains two statements that emphasise the size and speed of change relating to workforce skills:
 - By 2022 no less than 54% of all employees will require significant re- and upskilling
 - The proportion of core skills required to perform a job that will remain the same – is expected to be about 58%, meaning an average shift of 42% in required workforce skills over the 2018-2022 period.¹⁰

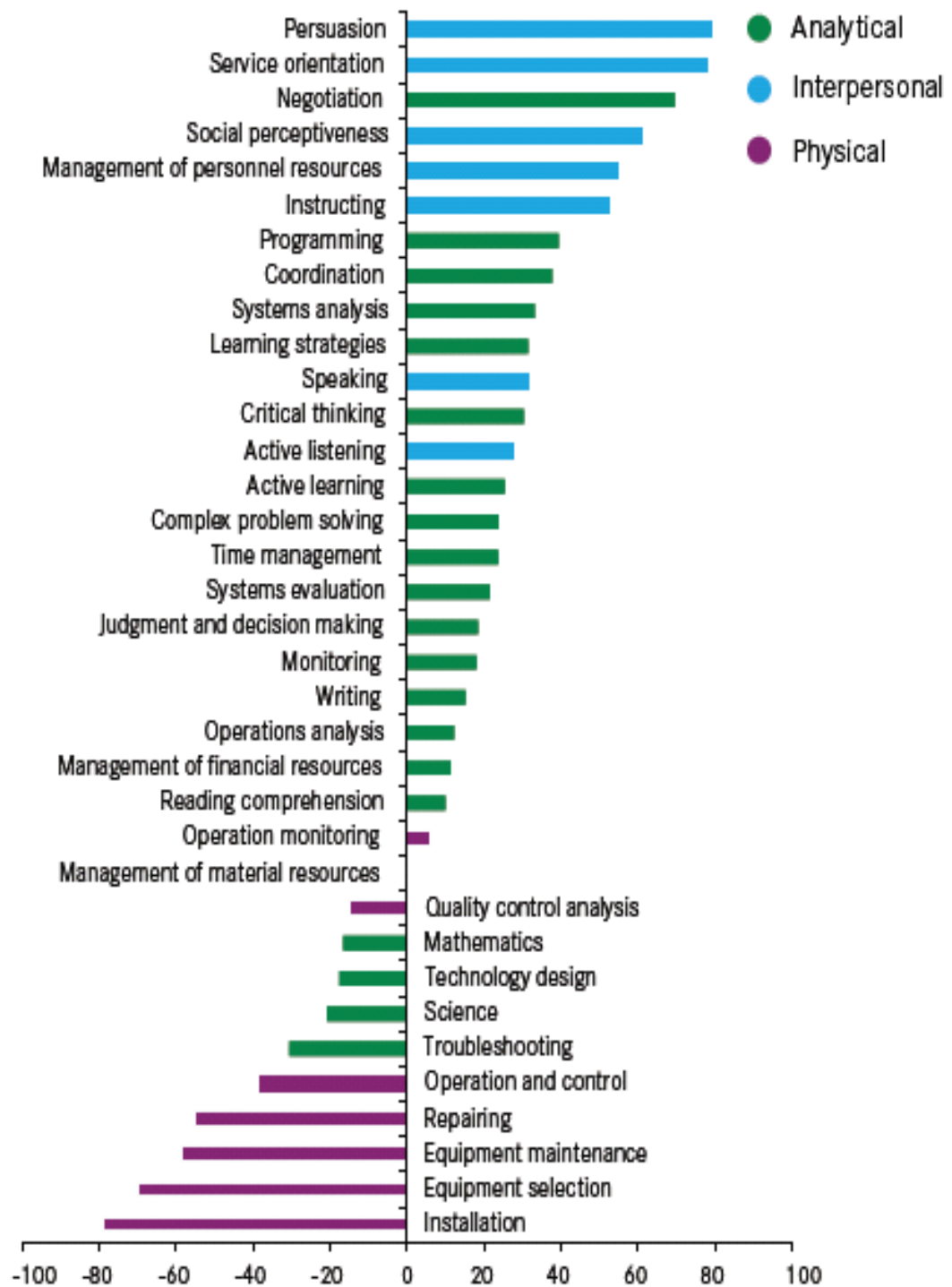
The Skills Required to Succeed in the Labour Market

32. The following charts presented to the Panel by Andrew Carter outline the changing demand for skills, and specifically the increasing need for interpersonal and analytical skills.
33. Getting the required skills mix in Southampton will be a key factor in determining the economic outcomes for the city, reflecting the correlation between a highly skilled population and increased productivity. It is therefore critical that the skills system in Southampton and the Solent adapts to respond to these changes.

⁹ Bank of England chief economist warns on AI jobs threat, BBC website, 20 August 2018
<https://www.bbc.co.uk/news/business-45240758>

¹⁰ The Future of Jobs Report 2018, World Economic Forum, page ix

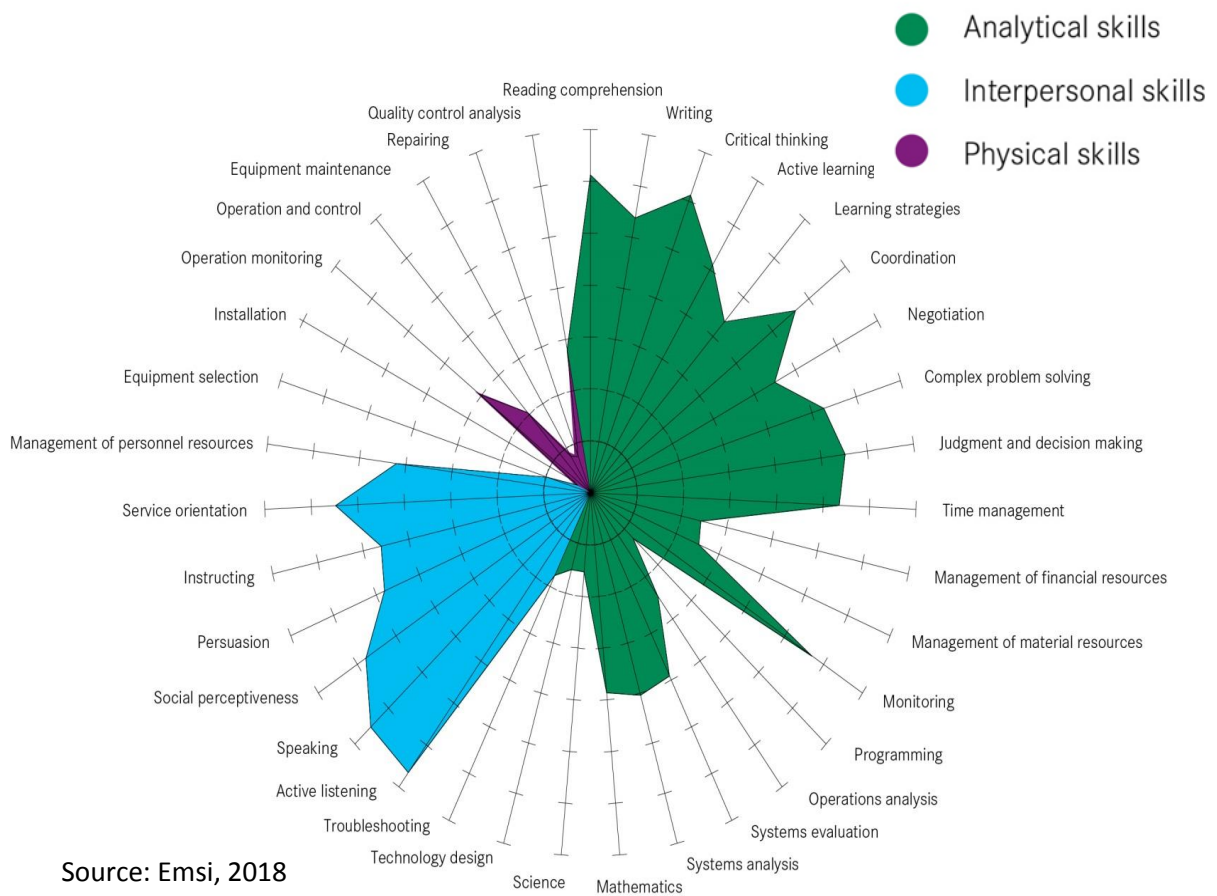
Figure 3 - Growth in the demand for skills in cities: 2006-2016 (%)¹¹



Source: Emsi, 2018

¹¹ Emsi, 2018 – Presented to the Inquiry Panel on 20/09/2018, cited in E Magrini and N Clayton (2018) Can cities outsmart the robots?, Centre for Cities

Figure 4 - Demand for skills in UK cities, 2016



Preparing young people for the future world of work

34. The charts above identify the need to equip young people in Southampton with analytical and interpersonal skills through education and training to enable them to adapt and prosper in the future labour market.
35. The Centre for Cities report, 'Can cities outsmart the robots?', outlines a number of key settings that can help to ensure that young people have the skills to thrive:¹²
 - Early Years – The development of analytical and interpersonal skills begins very early in life and early years has an impact on the ability to learn and achieve over the longer term. Therefore it is important to ensure that every pupil receives excellent early year's education.
 - Schools and Colleges – Analytical and interpersonal skills can be developed through exposure to a varied curriculum and extra-curricular activities, including work experience. GCSE attainment and take-up of extra-curricular activities reveal important insights into the development of analytical and interpersonal skills among children.

¹² E Magrini and N Clayton (2018) Can cities outsmart the robots?, Centre for Cities

Adult Education and Lifelong Learning - Ensuring that the existing workforce is able to adapt to changes in the demand for skills

36. Around 90% of the current workforce in the Solent will be working in 10 years' time.¹³ It is therefore vital that adults that have left compulsory education have the opportunity to develop their skills in response to the constantly changing demands.
37. The chart below however highlights the 15% reduction in the national workforce undertaking job-related training between 2004-2017:

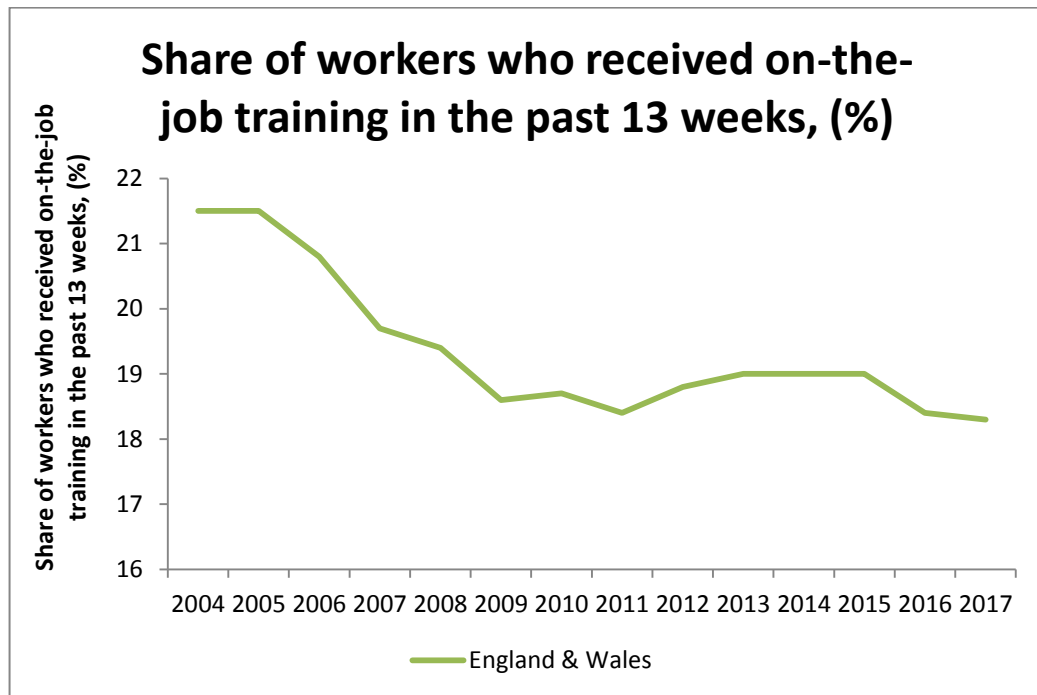


Figure 5 - Source: ONS 2018, Annual Population Survey 2004-2017

38. The skills challenge the fourth revolution is creating requires education and training that reaches beyond the school gates. As technological developments change the landscape there is a need for the workforce to constantly adapt and up-skill. There is a need for agile, life-long learning and a society where such continuous learning is supported and regarded as the norm.
39. The expectation that increasing numbers of economically active people are going to need to embark on lifelong learning in order to maintain skills and capabilities is supported by the prediction by Bernard Salt, commentator on demographics in Australia, that in their lifetime millennials are on track for 25 job changes over a 40 year career.¹⁴

'In their lifetime millennials are on track for 25 job changes over a 40 year career' – Bernard Salt

¹³ Solent LEP Response to the Industrial Strategy Green Paper Consultation, April 2017

¹⁴ Bernard Salt, "Trajectory of Middle-Aged Millennials, Masters of Change, The Australian, June 24 2017 – Cited in Rise of the Humans 2, KPMG, October 2017

Digital Skills - Basic

40. The digital skills of a city's residents will be a key determinant of economic success moving forward. It is predicted that, within 20 years, 90% of all jobs will require some element of digital skills.¹⁵ At present twelve million people in the UK don't have the digital skills needed to thrive in a data-driven economy¹⁶ and the difference between the annual income of those with basic digital skills and those without is on average £13,000.¹⁷ Without basic digital skills it will become increasingly difficult for Southampton residents to access the labour market.

Digital Skills - Advanced

41. The fourth industrial revolution is creating, and will continue to create jobs, in the digital technology sector that require technological expertise to, amongst other tasks, develop, learn to use and interpret AI systems. The Tech Nation report identified that the UK has 2.1 million digital tech jobs, and that employment rose 13.2% between 2014 and 2017 in the digital tech sector.¹⁸
42. With specific reference to AI, the review by Professor Dame Wendy Hall and Jérôme Pesenti, 'Growing the AI Industry in the UK', concluded that 'skilled experts are needed to develop AI, and they are in short supply. To develop more AI, the UK will need a larger workforce with deep AI expertise, and more development of lower level skills to work with AI.'¹⁹
43. The Tech Nation 2018 report also identified access to talent as the biggest challenge in 83% of tech clusters in the UK. Ensuring a pipeline of skilled, diverse and qualified digital experts to meet the skills gap that AI will create is a sensible approach to help Southampton create the new jobs of the future to replace those that will disappear.

¹⁵UK Digital Strategy (2017), Department for Culture, Media and Sport

¹⁶ Go ON UK, Basic Digital Skills, 2015

¹⁷ Lloyds Bank UK Consumer Digital Index 2018

¹⁸ Tech Nation Report 2018, Connection and Collaboration: powering UK tech and driving the economy, Tech City UK, <https://technation.io/insights/report-2018/jobs-and-skills/>

¹⁹ Hall, W and Pesenti, J. (2017), 'Growing the Artificial Intelligence Industry in the UK: The independent review'

Skill levels in Southampton – Is Southampton ready for the challenges?

44. The previous section established the importance of skills in delivering economic outcomes and enabling people to adapt to the changing world of work. At the third meeting of the Inquiry the Panel considered the current skills and qualifications profile of Southampton.

Qualifications Profile of Southampton

45. Table 2 - NVQ Level qualifications of working age population (aged 16-64) - % of all: ONS Annual Population Survey (APS) January 2016 to December 2016.

Region name	% NVQ 4 or higher	% NVQ 3 only	% NVQ 3 or higher	% NVQ 2 only	% NVQ 2 or higher	% NVQ 1 only	% No qualifications	% NVQ 1 or below	% Trade Apprenticeships	% Other qualifications
England	42.4	17.3	59.7	15.2	74.9	10.3	4.8	15.1	3.2	6.7
South East	44.9	17.2	62.1	15.0	77.1	10.6	3.6	14.2	3.1	5.7
Southampton	38.1	22.9	61.0	13.9	74.9	9.9	4.3	14.2	4.2	6.7
Portsmouth	37.4	18.7	56.1	17.1	73.2	11.7	5.4	17.1	3.8	6.0
Isle of Wight	32.1	21.8	53.9	18.2	72.1	15.2	4.0	19.2	4.8	3.9
Hampshire	40.5	20.9	61.4	15.1	76.5	11.7	3.1	14.8	3.5	5.1

46. Analysis published in the Southampton Strategic Assessment, updated in September 2017, summarised that NVQ Level 4 and above qualifications are often taken as a pre-requisite for active participation in the high value-added knowledge economy, whereas Level 3 is generally regarded as the entry point to higher education and therefore future engagement with knowledge intensive activities in the economy. Level 2 is often the basic entry point into employment. Overall, almost three quarters (74.9%) of Southampton's working age residents were qualified to NVQ Level 2 or higher. This is the same as the England average, although 2.2% points lower than the South East (77.1%).
47. At the other end of the skills spectrum, 4.3% of residents in Southampton have no qualifications (5,600 people), which is lower than the England average of 4.8%, but higher than the South East (3.6%). The proportion of the working age population with no qualifications has fallen from 10.0% in 2004 to 4.3% in 2016 in Southampton. Despite improvements, economically active residents with low or no qualifications are still a key group, especially reflecting the need to raise skill levels to improve the human capital necessary to remain competitive in a global economy.²⁰

²⁰ Southampton City Council - Southampton Strategic Assessment, Southampton Economic Assessment, September 2017 <http://www.publichealth.southampton.gov.uk/images/7-skills-and-qualifications-sea-sep-2017-final.pdf>

Preparing Young People for the Future World of Work

48. Early Years – In 2018 the percentage of pupils in Southampton achieving at least the expected standards across all early learning goals was 70.3%. This compares to the England average of 70.2%.
49. Key Stage 4 – In Southampton the percentage of pupils achieving GCSEs 9-4 in Maths and English in 2018 was 57.1%. This compared to the England average of 64.4% and the South East Average of 66.7%.

Youth Opportunities Index

50. In October 2018 the Learning and Work Institute published a Youth Opportunity Index.²¹ This index helped to provide a relative measure of education and employment outcomes for young people across England's local authorities.
51. The Youth Opportunity Index brings together data on achievement at age 16 (Key Stage 4 – GCSEs), attainment of Level 3 by age 19 (A-levels and A-level equivalent), access to higher education (Proportion of 15-year olds in a local authority entering higher education by age 19), take up of apprenticeships, employment rates and a measure of the quality of work (net underemployment).
52. Out of the 150 Local Authority areas Southampton achieved the following ranking (1 being the best):
 - Overall – 146 out of 150
 - Level 4 (GCSE - Attainment 8) – 114 out of 150
 - Level 3 (A level and A level equivalent) – 144 out of 150
 - Apprenticeships – 131 out of 150
 - Higher Education – 142 out of 150
 - Employment – 115 out of 150
 - Net Underemployment – 117 out of 150
53. This index clearly identifies a number of concerning outcomes. Further analysis of higher education participation rates in Southampton was undertaken by SUN (Southern Universities Network) in March 2017²². The data was based on the participation rates of young people aged 18 between 2005 and 2009, who entered higher education (HE) by the 2010-11 academic year.
54. The vast majority of wards within the city of Southampton had lower than average rates of HE progression compared to local and regional averages, with 8 wards within Quintile 1 (lowest 20%). The lowest rates of progression were seen in Bitterne, with a HE participation rate of 11.7 percent. Coxford

²¹ Youth Opportunity Index, Learning and Work Institute, October 2018
<https://www.learningandwork.org.uk/our-work/life-and-society/improving-life-chances/youth-commission/youth-opportunity-index-rank-lea/>

²² White Working Class Males in British Higher Education, Southern Universities Network, March 2017

(13.1 percent) and Redbridge (11.9 percent) also had some of the lowest rates across the city, with Portswood (51.3 percent) being the only ward in the highest quintile (Quintile 5). For comparison the South East regional HE participation rate was between 33.8 percent to 36.6 percent (Quintile 4)

Adult Education and Lifelong Learning

55. Figure 5 presented earlier in this report provided a national overview of the percentage of the workforce undertaking job-related training from 2004-2017. For comparison Andrew Carter informed the Panel in his presentation that, according to the ONS Annual Population Survey, Southampton experienced a 12% reduction in the share of workers who received on the job training. The figure for England and Wales was -15%.



Figure 6 - Source: ONS 2018, Annual Population Survey 2004-2017

56. The Inquiry Panel were also informed that adult education training in Southampton had been hit by funding cuts for formal adult education. City College used to have 12,000 adult education students annually, there are now 3,000 adult learners. The Council delivers support to 3,500 adult learners, this used to be 5,000.

Digital Skills

57. Southampton City Council's Digital Strategy 2018-2022 provides a few measures of digital readiness that provide an insight into the basic digital skills in Southampton. It concludes that 89% of residents have access to a computer and 80% shop or bank on-line.
58. When considering more advanced digital skills that are going to be required to drive the economy forward the Tech Nation 2018 report identified that

access to talent is the third biggest challenge for the Southampton tech cluster.²³

Summary

59. When assessing the information presented to them the Panel concluded that there is a skills mismatch in Southampton between where the city is now and where the city needs to be. The skills profile of the city needs to improve if it is to take full advantage of the forthcoming opportunities and significantly improve its prospects for growth over the medium to long term.

²³ Tech Nation Report 2018, Connection and Collaboration: powering UK tech and driving the economy

What action is being taken to address the skills challenge?

National Initiatives

60. The Government has been proactive in recognising that modern jobs need modern skills and has developed a number of initiatives that will target investment in skills, from schools to adult learning, to help the UK secure the workforce it needs. A number of the key approaches are outlined below.

Industrial Strategy

61. In November 2017 the Government published its Industrial Strategy.²⁴ The strategy sets out proposals to boost productivity by backing businesses to create good jobs and increase the earning power of people throughout the UK with investment in skills, industries and infrastructure.
62. Key policies in the Industrial Strategy that should help to address the identified skills challenges include:
- Investing an additional £406 million in maths, digital and technical education – helping to address the shortage of science, technology, engineering and maths (STEM) skills.
 - Creating a new National Retraining Scheme that supports people to re-skill themselves, beginning with a £64 million investment for digital and construction training.
 - Establishing a technical education system that rivals the best in the world to stand alongside our world-class higher education system. T-Levels – Designed to create parity of esteem between academic and vocational education are due to commence in 2020. Part of the course will include industrial placements.
63. The strategy identifies four Grand Challenges to put the UK at the forefront of the industries of the future. Growing the AI and data-driven economy is the first Grand Challenge and the ambition is to put the UK in the vanguard of the AI and data revolution.
64. The strategy recognises the need for a step-change in digital training and includes plans for a highly skilled digital workforce: industry-funded post-graduate programmes, online professional development courses and government-funded doctorate programmes to improve high level digital skills are included in the proposals.
65. Included within the National Industrial Strategy is an expectation that local areas, led in most areas by the Local Enterprise Partnership (LEP), will develop Local Industrial Strategies. The Industrial Strategy White Paper set out that the first Local Industrial Strategies will be agreed with Government

²⁴ Department for Business, Energy & Industrial Strategy (2017), Industrial Strategy https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664563/industrial-strategy-white-paper-web-ready-version.pdf

by March 2019. Government will aim to agree all places' Local Industrial Strategies in England by early 2020.

66. Local Industrial Strategies are required to:
- Align with the National Industrial Strategy;
 - Set out clearly defined priorities on how areas will maximise their contribution to UK Productivity and respond to Grand Challenges;
 - Make the most of their distinctive strengths;
 - Address local strengths and weaknesses, as well as market opportunities and failures;
 - Build on City Deal and Local Growth Deal investments.

National Careers Strategy

67. In December 2017 the Department for Education published, 'Careers strategy: making the most of everyone's skills and talents'.²⁵ The document, was developed alongside the National Industrial Strategy reflecting the need for high-quality careers support to help people to understand the range of opportunities available to them and the qualifications they need to succeed in the workforce of the future.
68. The strategy outlines a range of actions to be delivered from January 2018 to the end of 2020, including dedicated careers support for adults, and testing "careers hubs" in 20 areas, linking schools, colleges, universities and other local organisations.

National Centre for Computer Education and the Institute of Coding

69. To meet the growing demand for digital skills, the National Centre for Computing Education has been set up to make a significant contribution to the teaching of computing education throughout England.
70. The Centre supports the teaching of computing in schools and colleges across all key stages, giving teachers the subject knowledge and skills to establish computing as a core part of the curriculum.
71. The Institute of Coding are a group of educators, employers, learners and government policy influencers across England and Wales with a mission to bridge the digital skills gap. The Institute are funded by the Department for Education via the Office for Students.

Southampton / Solent Initiatives

72. Numerous initiatives in Southampton, driven by the City Council and partners, and across the Solent Region, predominantly through the LEP, have been introduced recently to prepare the city for the future of work.
73. The initiatives that are to be highlighted do not specifically reflect upon the work that is being undertaken across Southampton's schools and colleges to

²⁵ DfE (2017) Careers strategy: making the most of everyone's skills and talents
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664319/Careers_strategy.pdf

improve outcomes. The importance of young people in Southampton acquiring the required skills and qualifications is understood.

74. Partners across the education sector in the city are working together to improve outcomes and ensure that the gap between the attainment in Southampton and regional / national standards is reduced. The various School's Forums and the Southampton Education Forum (SEF), a collaborative leadership model bringing together educational institutions, networks and leaders from secondary, special, further, higher education and local government, are working to shape and develop future citizens who are equipped for the challenges of tomorrow. More information on the work of the SEF is available from www.teachsouthamptoneducation.co.uk

Solent Apprenticeships Hub

75. Southampton City Council is leading on a Solent wide partnership after securing nearly £1m of funding to deliver a new 'Apprenticeship Hub' in the Solent region. The project will raise local employer awareness of and engagement in Apprenticeships to meet their growth aspirations, whilst simultaneously supporting under-represented groups to increase their participation and progression in Apprenticeships.
76. The Solent Apprenticeship Hub will also support larger employers to spend their levy funds and is working up a model to facilitate the underspend of their levy through the Levy Transfer Fund to boost supply chain capacity.
77. The Solent Apprenticeship Hub will demonstrate a wider skills service to all employers and work in parallel with the Solent Growth Hub to offer a seamless service; thereby simplifying the 'route map to growth' for businesses.

Solent Careers Hub

78. In July 2018 the Solent region was one of 20 areas across the country to receive a boost in preparing young people for the world of work as the Solent LEP was successful in securing one of the Careers Hubs to help transform careers education for young people. This initiative is currently for the East of the Solent LEP region. The LEP have just submitted a bid for the West of the region that includes Southampton.
79. The Solent Careers Hub will have access to support and funding to help meet the Gatsby Benchmarks, a framework of eight guidelines about what makes the best careers provision in schools and colleges developed by the Gatsby Foundation. This includes:
- A 'Hub Lead' to help coordinate activity and build networks
 - Access to bursaries for individual schools and colleges to train 'careers leaders'
 - Central Hub Fund equivalent to around £1k per school or college
 - Access to funding for schools to support employer encounters

80. Sarah McCarthy-Fry, Chair of the Solent LEP Employment and Skills Board, said:

*'It gives us an opportunity to build on the early success of our Enterprise Adviser Network which has resulted in over 50% of all secondary schools in the Solent having a volunteer business leader working collaboratively with them to improve careers provision. Through our Careers Hub, we will provide further links for our young people of today to the careers of tomorrow. Support from our local employers will be vital in ensuring connections are made to future career opportunities and our local workforce can continue pushing the boundaries of technology, innovation and business. We hope to eventually see the Careers Hub rolled out to every school and college in the Solent.'*²⁶

Solent Local Industrial Strategy

81. The Solent LEP have commenced the preparation of a Solent Industrial Strategy. The strategy is expected to be developed by the LEP in partnership with local authorities in the Solent region. Support has been commissioned to help in the preparation of the strategy and in reviewing and developing the evidence base.

Southern Universities Network (SUN)

82. The Southern Universities Network is a collaborative partnership comprising HE providers in Hampshire, Dorset and the Isle of Wight. The SUN provides outreach activities for schools and colleges. The SUN has been tasked with increasing HE participation in over 70 wards, working with 101 schools and all further education colleges in the region. As directed in Office for Students' guidance, work will be focused on young people in Years 9–13 and their 'key influencers'. A number of these key wards are in Southampton.

Southampton Careers Inspiration Group

83. The Southampton Careers Inspiration Group, with EBP South (Education, Business Partnership South) run an event annually called 'Get Inspired'. Employers show children a range of new opportunities that are available. 1200 pupils from Southampton schools attended this year's event with all but one school in the city attending.

Digital Strategy

84. Southampton City Council published a Digital Strategy in 2018.²⁷ The strategy covers the period 2018 to 2022 and includes the following commitments that will, if implemented, help to address some of the identified digital skills gaps in the city:

²⁶ <https://solentlep.org.uk/what-we-do/news/solent-lep-announced-as-careers-hub-to-help-transform-careers-education/>

²⁷ Southampton City Council – Digital Strategy 2018-2022
www.southampton.gov.uk/images/digital_strategy-2018-22_tcm63-398225.pdf

- Commission adult education to support digital inclusion and digital literacy in the city
 - Work with universities and other partners to attract and retain digital talent
 - Work closely with schools to maximise the digital skills of all children.
85. The Council has been in contact with the Institute of Coding to help develop an approach to boost digital skills amongst citizens, learners and employees in Southampton.

Higher Level Digital Skills

86. The city needs a pipeline of people studying for science and technology degrees and a pipeline to PhD's. There also needs to be opportunities for people to retrain and move into this field of work. This is something that the Council has also raised with the Institute of Coding to help develop a solution for enhancing the quality and scope of digital literacy and expertise across all educational phases leading to post graduate level.
87. The Council is also working with the Future of British Manufacturing (FoBM) on its Digital Catalysts programme, which places students into SMEs that can help the transition into Industry 4.0 (a name given to the current trend of automation and data exchange in manufacturing technologies). The Council is liaising with the Solent Growth Hub and Universities across the region to develop strong applications for FoBM to consider in this initiative.
88. The University of Southampton is strong in AI and technology and is a member of the Alan Turing Institute (the national institute for data science and AI). The University hosts a Web Sciences Centre for Doctoral Training funded by the UK Research Council. A bid by the University to become an Artificial Intelligence Centre for Doctoral Training is being evaluated. These initiatives are in addition to the various PHD's and research opportunities, in relevant disciplines to grow the tech industry, supported by the University.
89. Online learning can be an integral element of the skills jigsaw, helping to increase the diversity of learners. The Southampton Data Science Academy, part of the Web Science Institute, was established to bridge the data skills gap and delivers a number of accredited on-line modular courses in data science.
90. The Council is also looking to adapt models such as <https://idea.org.uk/> to provide a digital passport that enables all citizens to continually participate in and apply new forms of learning.

Southampton Education Quarter

91. This is work in progress and has since been adapted to fit with the 'RSA Cities of Learning' model (see paragraph 100). The aim is to not only enrich experiential learning for all citizens but to generate ideas and innovative ways of working using technology and new partnership models that can spark an entrepreneurial, lifelong learning spirit across the City much needed in an era of constant change.

SWOT Analysis – Skills landscape in Southampton

92. To help visualise the skills landscape in Southampton the evidence presented to the Inquiry Panel has been incorporated into a basic SWOT analysis.

<p>Strengths:</p> <ul style="list-style-type: none"> • Ambition and vision – “A city of opportunity where everyone thrives” • The assets of the city – Including 2 leading universities, the Web Science Institute at the University of Southampton and Solent University’s industry-led curricula. • Strong collaboration across the City’s educational institutions and luminaries through the Southampton Education Forum. • Co-location of Economic Development and Skills within the Growth Directorate at SCC. • Genuine, cross-party support and leadership from the Council as demonstrated through undertaking this Inquiry. 	<p>Weaknesses:</p> <ul style="list-style-type: none"> • Too many young people come out of formal education without the required skills and qualifications. • Key Stage 4 and 5 exam results are below statistical neighbours. • Too many young people do not see the full range of job opportunities available to them. This limits aspirations. • Reflecting national concerns the city has a significant number of working age adults that will need re-skilling and upskilling to prosper in the future labour market. • Low aptitude for continuous learning across the City. • The number of adults accessing formal adult education has decreased, thereby limiting their scope for higher paid jobs. • The skills and training landscape is complicated to navigate for businesses and residents. • No Skills Strategy to help co-ordinate activity and align / underpin strategic objectives in a thematic manner.
<p>Opportunities:</p> <ul style="list-style-type: none"> • Solent Industrial Strategy – Opportunity to contribute to and influence through maximising cross-team input within the Council. • Adapting the RSA ‘Cities of Learning’ model to realise the ‘Southampton Education Quarter’ vision. • Replicate model of the Solent Careers Hub in the East of the region into the West to enhance quality and impact of employer engagement, careers information, advice and guidance and work experience. • Solent Apprenticeship Hub – Pool levy funding from large employers to boost quality and volume of skilled labour across key sectors and occupations in the City. • Simplify skills landscape – Create virtual platform that promotes training and upskilling opportunities, including on-line education, with onward progression routes into jobs/for further learning. • Digital Skills – Opportunity to utilise university IT facilities during holidays to upskill residents and to support IT teaching in schools. • Maximise the contacts and influence that the Universities in Southampton have to champion Southampton. 	<p>Threats:</p> <ul style="list-style-type: none"> • The speed of change exceeds the ability to upskill the workforce. • Time limited initiatives and funding reductions. • Lack of co-ordination in Southampton and across the Solent. • Uncertainty in the Further Education sector in Southampton.

Examples of Good Practice outside Southampton

93. Throughout the Inquiry the Panel were informed of practice being delivered outside of Southampton that may help to address some of the challenges raised.

Lifelong Learning – Bristol Learning City

94. Bristol became a UNESCO Learning City in 2016. As a learning city, Bristol is championing learning as a way to transform lives, communities, organisations and the city, with an ambitious vision of a future where:
- All individuals and communities are proud to learn throughout their lives
 - Every organization has a committed, skilled and diverse workforce
 - The city's success is shared by all.
95. The presentation from the Chief Executive of the Centre for Cities identified that Bristol had bucked the UK trend with regards to in work training (20% increase in in-work training from 2014 to 2017).
96. The focus of Bristol Learning City used to be on encouraging entrepreneurialism but now the focus is on raising standards in schools and improving education outcomes - Bristol has seen one of the strongest improvements in school exam results in England and has a high proportion of qualified residents.
97. Bristol Works is a collaboration between employers, learning providers and local communities to develop a skilled local workforce. Their aim is to offer bespoke experience of work programmes created with schools, based on the needs of young people - www.bristol.works/.
98. The Future Bright initiative, funded through the West of England Combined Authority seeks to help people who are in work and in-receipt of in-work benefits improve their skills - www.westofengland-ca.gov.uk/future-bright/
99. A learning festival is being planned to celebrate lifelong learning. Bristol Learning City offered to provide support to Southampton, to share ideas and to connect Southampton to other learning cities.

Lifelong Learning – Cities of Learning Initiative

100. In recognition of the importance of developing a learning culture in Southampton the Panel were also provided with information on the Cities of Learning - www.thersa.org/discover/publications-and-articles/reports/cities-of-learning-prospectus

Digital Skills – West Midlands

101. A number of cities, including London and Bristol are developing initiatives to improve the digital skills of residents. The West Midlands Combined Authority has recently launched the West Midlands Digital Skills Partnership.

The partnership brings together tech firms, businesses, universities, colleges and training providers from the region, and is aiming to find ways to improve local people's digital skills and qualifications: www.wmca.org.uk/news/new-digital-partnership-aims-to-level-up-west-midlands-skills/

Skills Plans – York and London

102. York has produced a skills plan with the aim of developing, retaining and attracting talent and making sure that no one is left behind:
www.york.gov.uk/downloads/download/3957/york_skills_plan_2017-2020
103. The Mayor of London has published a Skills and Adult Education Strategy for London. The strategy, amongst a number of initiatives, looks to re-shape, alongside Smarter London Together, the Apprenticeship Levy into a Skills Levy to gear training towards the high growth sectors of the economy, and to use the soon to be devolved Adult Education Budget to have control over where learning will be prioritised:
www.london.gov.uk/sites/default/files/sfl_strategy_final_june_20186.pdf
www.london.gov.uk/what-we-do/business-and-economy/supporting-londons-sectors/smart-london/smarter-london-together

Part 1 - Conclusions and Recommendations: How can Southampton stay ahead of the robots?

104. A summary of the key evidence presented at each of the inquiry meetings is attached as Appendix 3. All of the reports, presentations and minutes from the inquiry meetings can be found here:
<https://www.southampton.gov.uk/modernGov/ieListMeetings.aspx?CId=703&Year=0>
105. **Conclusions**
- Global labour markets are undergoing major transformations as a result of technological developments and other relevant trends. These changes are happening at a rapid pace.
 - The developments may lead to increased GDP across the UK but jobs, particularly those routine in nature, will be displaced as Artificial intelligence and smart automation makes roles obsolete. Analysis identifies that 22% of the current jobs in Southampton are in occupations very likely to decline by 2030.
 - New jobs will be created to replace those that disappear. Those occupations that require interpersonal, analytical and digital skills are expected to continue to grow.
 - There is a skills mismatch in Southampton between where the city is now and where the city needs to be. A significant cohort of Southampton residents, including those leaving formal education and adults of working age, need to acquire new skills to succeed in the future labour market otherwise they are at risk of being left behind, resulting in increasing inequality and possible social tension in the city.
 - Getting the required skills mix in Southampton will be a key factor in determining the economic outcomes for the city, reflecting the correlation between a highly skilled population and increased productivity. It is therefore critical that the skills system in Southampton and the Solent adapts to respond to these changes.
 - A number of examples of good practice exist in Southampton that are helping to address the skills challenges the city is facing. In addition a number of national, regional and Southampton initiatives have recently commenced, or have been announced, that should ensure that a number of the identified gaps are addressed. These include the Solent Apprenticeships Hub, the Solent Careers Hub, and proposals within the Industrial Strategy.
 - Examples of good practice from other cities have identified that opportunities exist for the city to do more to reduce the risks outlined. These include the following:
 - Supporting the development of essential and advanced digital skills across Southampton;

- Maximising the existing assets and resources in the city;
- Whilst recognising the essential role that businesses need to play in re-skilling their workforce, there is an opportunity to simplify the adult learning landscape in Southampton for employers and residents;
- Stimulating the development of a lifelong learning culture in Southampton; and
- Co-ordinating action across Southampton to promote collective responsibility for improving education, skills and training.

Recommendations

106. Reflecting the key findings and conclusions the following actions are recommended to address the skills challenges facing Southampton and keep the workforce ahead of the robots:
1. **Develop a Southampton focussed contribution to the Solent Industrial Strategy** - The commitment within the national Industrial Strategy to create local industrial strategies offers a chance to set out a coordinated set of actions to deal with the challenges and opportunities the Solent areas faces, including the identified skills challenges that are an impediment to improving productivity. Local Industrial Strategies will also guide the strategic use of local funding streams and act as a gateway to any future local growth funding being deployed. To support and influence the development of the Solent Industrial Strategy, and subsequent funding opportunities, it is recommended that Southampton develops its own action plan that outlines key initiatives to support future growth of the city. This should be a Council-wide methodology to ensure a thematic, evidence-rich approach, including job design and occupational modelling, that bucks conventional approaches to transformational place-making.
 2. **Adapt and actualise the RSA Cities of Learning model for Southampton** - Cities of Learning is a new approach for activating a grassroots, city-based, mass-engagement movement around learning and skills. It seeks to close gaps in opportunity and empower places to promote lifelong learning as core to their cultural and civic identity. This would complement Council discussions on establishing an Education Quarter as part of a wider push for Southampton to be recognised as a City of Learning. This requires close collaboration with the City's core educational institutions and networks, for example, Southampton Education Forum (SEF).
 3. **Develop and implement a Skills Strategy for Southampton** – This should underpin the work underway in the Local Industrial Strategy as it is the capability of the citizens of the City – present and future – who will be at the forefront of change and thus needing to drive it. Virtual tools and platforms such as <https://idea.org.uk/> should be explored to see how they would add value to digital literacy, entrepreneurial spark and work readiness. The strategy should be a bridge between different policy themes at the Council and benchmark, for example, the 'fit' between educational provision to future skills' requirements to ensure a seamless, high-value, progressive journey

for every learner. The role of SEF is critical in this regard. In parallel, the strategy should establish how human capital development and employee performance and wellbeing in the realm of work and entrepreneurship is optimised. Models developed by the likes of the 70:20:10 institute should be considered. The Skills strategy should also be fully cognisant of a desire to:

- a) Generate strong, rewarding, sustained jobs growth
- b) Tackle social mobility
- c) Achieve inclusive growth

4. Simplify the Adult Learning Landscape – A significant amount of money is still being spent on training in Southampton. This is being spent through various formal and informal channels and with different providers. There is an opportunity to increase the accessibility of learning opportunities by simplifying the adult learning landscape for employers and residents. One solution is to develop a virtual platform that informs employers about training courses available in the city, and the proactive support that the Council and partners can give to businesses as they look to upskill their workforce, as well as provide residents comprehensive information about training opportunities available, including the relevant MOOCs (Massive Open Online Courses) and what it will help them to achieve.

5. Digital Skills – Deliver the commitments in the Digital Strategy, namely to:

- Commission adult education to support digital inclusion and digital literacy in the city;
- Work with universities and other partners to attract and retain digital talent;
- Work closely with schools to maximise the digital skills of all children.

Options available include the creation of a partnership similar to the West Midlands Digital Skills Partnership to improve local digital skills and develop a pipeline of highly skilled residents that can fill the tech sector vacancies (a focus on diversity must be a key target reflecting, amongst other issues, the gender inequality employed in the digital tech sector in the UK); Working with the city's universities, utilise their excellent IT facilities during university holidays to upskill residents and pupils; support the City's Sixth Form and FE providers to enhance their digital curriculum offer to learners and employers. Continued work with the Institute of Coding and FoBM (Future of British Manufacturing) will help in this regard.

6. Apprenticeship Levy – To help address specific skills gaps and build supply chain capability across key sectors and occupations, use the Levy Transfer mechanism to increase productivity levels, revenues and prospects for business growth.

7. Leadership and Management Training - Improve the quality, coherence and subsequent roll-out of leadership and management training to cultivate a dynamic leadership culture that can help achieve the City's ambitions over the medium to long term.

8. **Establish a better platform for residents, especially young people, to access accurate information on career opportunities akin to this model**
<http://www.theworldofwork.co.uk> - This provides an opportunity to raise aspirations, help citizens to make better and informed decisions to achieve their career goals, and for the City to retain its talent.
9. **Support and encourage Southampton businesses to adopt the Investors in People Tool, Jumpstart** – This tool supports organisations to grow and develop, to generate better employee engagement, improve performance and to consolidate high standards of HR practices. Organisations such as the Hampshire Chamber of Commerce could assist.
(<https://www.investorsinpeople.com/jumpstart/>)
10. **Southampton City Council to Lead by Example** – If the City Council is to champion the up-skilling of the Southampton workforce it needs to lead by example and ensure that appropriate training is provided to City Council employees, and Councillors, to ensure that the Council’s workforce has the required mix of skills to succeed and make an enhanced economic impact over the long term.

Part 2 – Growing the Tech Sector in Southampton

107. The introduction to this report identified that a number of industrial sectors will increase in size and importance during the fourth industrial revolution. A sector that is growing in the UK, and is forecast to continue to create jobs is the digital technology sector.
108. The 2018 Tech Nation report identified that the UK has 2.1 million digital tech jobs, and that employment rose 13.2% between 2014 and 2017 in the digital tech sector.²⁸
109. As AI and new technology make a number of roles in the city obsolete the Panel considered how the tech sector in Southampton could be supported, and encouraged to grow, to increase the productivity of the city and create the jobs to replace those that will be displaced.

The Technology Sector in Southampton

110. Southampton was recently identified as a technology ‘Super Cluster’ in a report published by CBRE, the world’s largest commercial real estate investment firm. The report, *EMEA Tech Cities: Opportunities in Technology Hotspots*²⁹, identifies four separate categories of technology cluster based on a city’s level, concentration and growth of tech sector employment.
111. Between 2010-16 high-tech employee numbers grew 25%, ranking Southampton individually fifth out of the 23 cities covered in the report. A particular focus on ‘knowledge-intensive’ employment over the same period also saw a greater increase, of 50%, putting Southampton in the top 3 cities.

Figure 7:

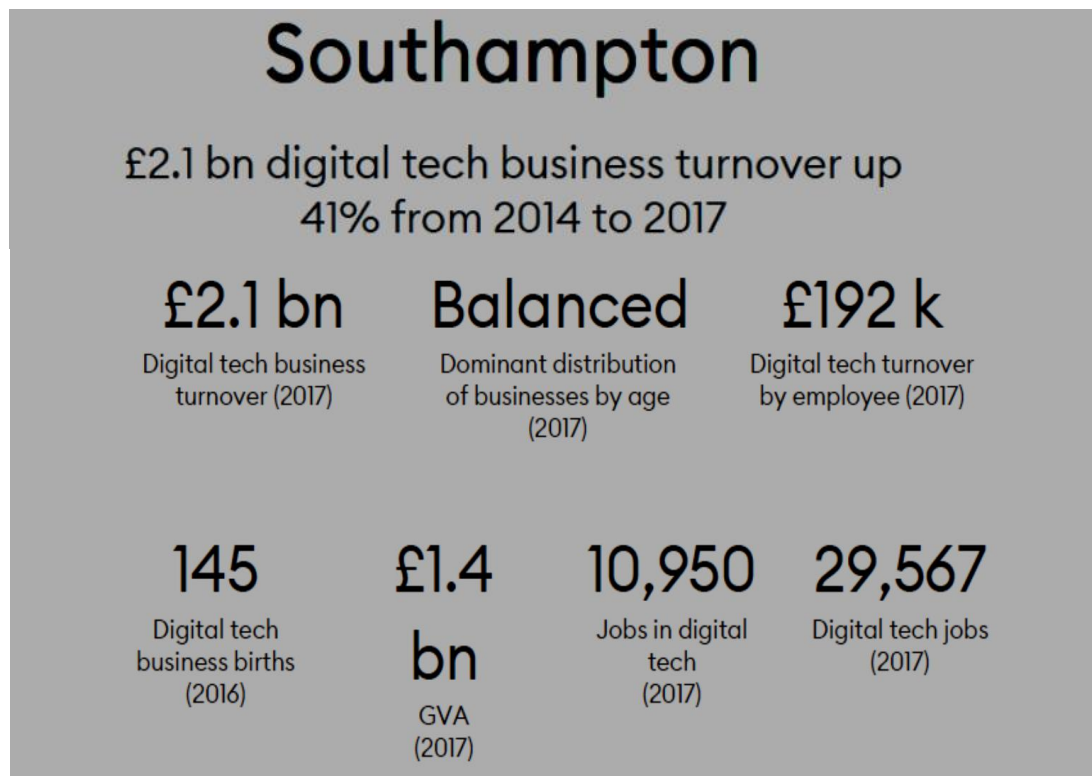


112. The annual Tech Nation report provides an overview of the value and size of technology clusters in the UK. Whilst clusters do not directly correlate to local authority boundaries the 2018 report identified the following about the Southampton tech sector cluster:

²⁸ Tech Nation Report 2018, Connection and Collaboration: powering UK tech and driving the economy, Tech City UK, <https://technation.io/insights/report-2018/jobs-and-skills/>

²⁹ EMEA Tech Cities - Opportunities In Technology Hotspots, CBRE, September 2018

Figure 8:



Source – Tech Nation 2018 report - <https://technation.io/insights/report-2018/southampton/>

- Digital tech jobs – includes all people working in digital tech occupations, irrespective of the industry. For example, a software developer working in a retail company.
- Jobs in digital tech – includes all people working in digital tech industries, including non-digital jobs. For example, an accountant working in a web development firm.

Catalysts for UK Digital Tech Growth and Innovation

113. Whilst recognising that Southampton has a significant tech sector it is vital for the city that it continues to expand and develop to drive economic growth.
114. The Tech Nation 2017 report recognises that nurturing and growing the technology sector requires the collaboration of a great many stakeholders, including start-ups, scale-ups, universities, investors, the Government, local governments and corporates but, following analysis of feedback from digital tech founders and community leaders, it has identified six key areas that could act as catalysts for growth in digital technology in the UK.³⁰
115. Three out of the six catalysts relate to skills and diversity and were referenced in Part 1 of this report. These are:
 - Skilling up for digital business
 - Gender diversity
 - Attract the best and brightest global talent

³⁰ Tech Nation 2017 report, Tech City UK, p41-42

116. The remaining three catalysts that have been identified as important elements that can help to grow the technology sector are as follows:

- Access to finance, at every stage of growth
- Boost digital connectivity
- Physical spaces for company formation and growth

Access to finance at every stage of growth

117. In the Tech Nation 2017 report over 40% of digital tech founders or businesses reported that access to funding is a significant business challenge. The report recognises that although not every company needs venture capital or loans to fuel their growth, improving access to capital can make all the difference to international competitiveness, especially for high growth companies. The Tech UK report concludes that this could be achieved through:

- Nurturing and developing local angel networks
- Patient Capital (long-term capital)
- Harnessing the power of universities – UK universities can provide crucial access to funding and practical business support for their students and alumni.

Boost digital connectivity

118. The Tech UK survey identified that almost one third (30%) of founders and CEOs said digital infrastructure continues to present a challenge. Investment is essential if businesses are to thrive and grow. In the UK, fixed internet traffic is now set to double every two years³¹, whilst mobile data traffic will increase at a rate of between 25% and 42% per year³². In order to meet this rising demand the Tech UK report recommends continuing to increase access to Ultra-Fast Fibre to the Premises (FTTP).

Physical spaces for company formation and growth

119. The Tech Nation 2017 survey identified that co-working spaces play a vital role in successful digital tech ecosystems. Almost three quarters (74%) of survey respondents who had used co-working spaces rated them as useful.

120. The 2017 Tech Nation survey identified the following growth challenges to the tech industry in Southampton when responses from the city's digital tech founders and digital community leaders were extrapolated:

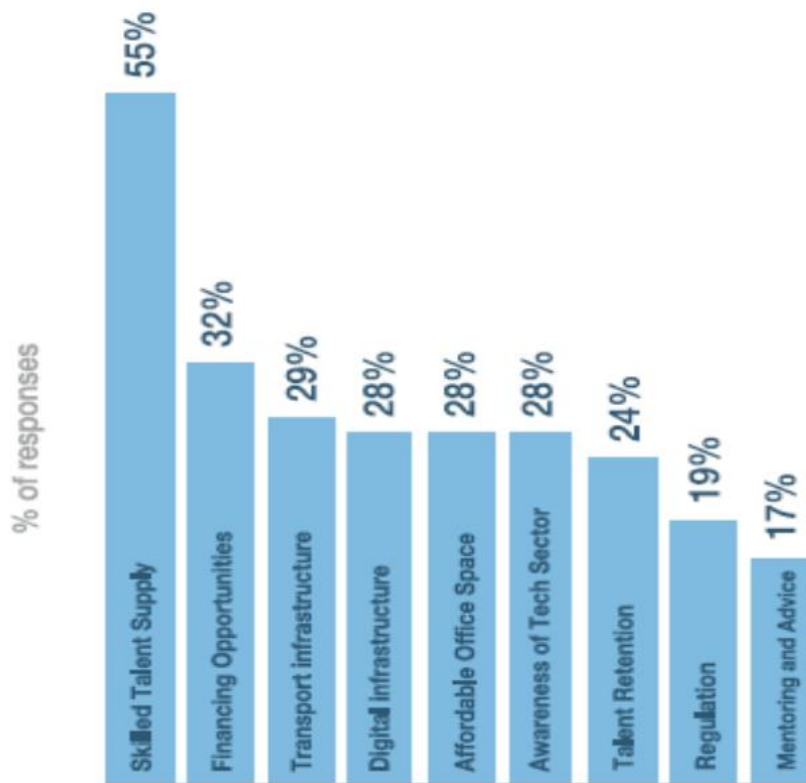
- 57% - Financing Opportunities
- 35% - Limited Highly Skilled Workers
- 35% - Poor Transport Infrastructure
- 29% - Limited Digital Infrastructure

³¹ Fixed internet traffic worldwide: Forecasts and Analysis 2012 - 2018, Analysis Mason (2015).

³² Mobile Data Strategy, Ofcom

121. This compares to the national survey response identified below:

Figure 9: Key challenges faced by digital tech businesses



Source: Tech Nation Survey 2017

122. In addition to the catalysts identified within the Tech Nation report, Sue Daley, Associate Director, Technology & Innovation at TechUK, the representative body for the UK tech sector, highlighted in her presentation to the Inquiry Panel the importance of a number of other ingredients for growing the tech sector in a city. These included the following:

- **Data** – This is the fuel for AI companies. Companies need open data to develop and test services.
- **Computer power** – Small tech organisations need access to high performance computing technology.
- **Leadership and vision**

Catalysts for UK Digital Tech Growth and Innovation – How is Southampton performing?

123. The Inquiry Panel met with key stakeholders to discuss the extent to which the aforementioned key ingredients to grow the tech sector were in existence in Southampton, and how effectively they were performing.

Access to finance at every stage of growth – Harnessing the power of universities

124. Solent University and the University of Southampton have track records in supporting business start-ups and spin offs. Solent University are ranked 8th in the country for student start-ups. These are primarily tech businesses, some of which have gone on to be very successful.
125. The University of Southampton supports a number of initiatives to support business start-ups. The SETsquared Partnership is, according to UBI Global, the global no. 1 university business incubator and enterprise partnership comprising five research-intensive universities: Bath, Bristol, Exeter, Southampton and Surrey.
126. Southampton SETsquared is based on the University of Southampton Science Park. The Science Park contains 17 buildings, 100 companies, 1,000+ jobs, and contributes £500m economic value per annum. The Science Park is open to people that are not graduates of the University of Southampton but most are recruited from the University.
127. Low failure rate of businesses supported through SETsquared (only 20-30 businesses a year) due to high level of support provided (business planning, management support, financing) and the selection process. SETsquared is a successful specialist and niche business incubator. However, they are being tasked by the Government to increase the number of companies that they work with and to deliver programmes with a wider capture.
128. Companies that outgrow the Science Park are encouraged to remain part of the Science Park community and engage in the networks and support new start-ups. Businesses tend to stay in Southampton if they become established here. Southampton has a lower cost base than London and is a pleasant place to live.
129. The University of Southampton has a number of programmes, aside from SETsquared, to support business start-ups. These include Future Worlds, a campus initiative to grow businesses and accelerate start-ups which has a network of mentors, investors and experts, and Z21, an initiative with the Solent LEP to accelerate University of Southampton web start-ups towards investment and rapid growth.

Access to finance at every stage of growth – Nurturing and developing

130. A number of organisations are available in Southampton to provide support to business start-ups. Creative Growth Southampton is a new business support initiative established to help grow and develop small creative

industry businesses, including tech industries, in Southampton. It provides business advice, networking, mentoring and training.

131. The Solent LEP Growth Hub also provides business support. The Hub supports all businesses throughout the Solent region offering advice and signposting to businesses. Solent LEP Growth Hub clients can access support to:
- Finance and Funding
 - Sales and Marketing
 - Export, trading
 - Research and Innovation
132. A new role has been established at the City Council (Economic Development Operations Manager) within the Growth Directorate to raise awareness of available funding and support to businesses, and to identify the gaps in support in Southampton.

Boosting digital connectivity

133. Two applications to Government for full fibre network funding have been unsuccessful. The digital infrastructure of the city needs improving to support economic growth. Businesses are not currently being put off from investing in Southampton because of poor connectivity but, as other cities begin to offer full fibre and 5G, there is concern that they may have a competitive advantage over Southampton.
134. A Digital Strategy for Southampton for 2018-2022 has been produced. Key measures of success include: Southampton is known for good connectivity; more businesses are attracted to the city; improved city centre fast Wi-Fi coverage, including free 5G rollout starts in 2020; and Increase in digital start-ups.
135. There is a general consensus that the objectives and actions within the strategy reflect good practice, with support for the external focus as it relates to growing the digital economy in Southampton, securing external investment in ultra-fast fibre, Wi-Fi and 5G connectivity, as well as improving digital skills.
136. Since the strategy was approved the focus has been on addressing internal digital and IT issues within the Council. When the Inquiry Panel discussed this little progress had been made improving connectivity in the city or, as discussed earlier in Part 1, advancing digital skills.
137. However, alternative mechanisms to deliver 5G and Full-Fibre (FTTP) are being explored and there have been a number of recent developments relating to connectivity in Southampton that should be welcomed.
138. The Economic Development team are working with a specialist infrastructure investor to enable the commercial roll-out of a full-fibre Gigabit network in Southampton. The deployment will begin later this year, to consumers (households) and businesses offering gigabit broadband speeds of up to

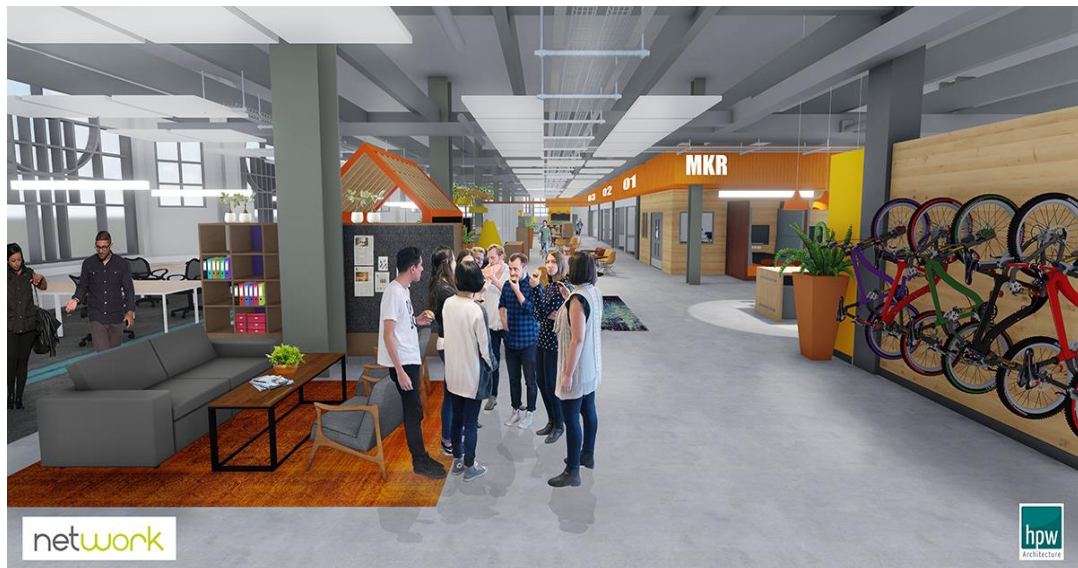
1,000 Mbps. The plan is to deploy the first fibre network to over 100k premises in Southampton for which funding has been secured. The project is fully funded through the National Digital Infrastructure Fund.

139. In addition on 7 March 2019 Vodafone revealed that they intend to launch 5G in Southampton during 2019. The city is one of just 12 locations that will benefit from faster mobile data speeds and an ultra-responsive network.

Physical spaces for company formation and growth

140. The Network co-working space is due to open in June 2019. The Council's £1.5m development on the second floor of the Marland's Centre will provide a new and cutting edge space, offering an environment that will support creative, digital and knowledge based entrepreneurs by providing a collaborative working environment. A management company will be appointed to curate the space at Network and support will be provided to businesses using the facility.

Figure 10: Artists impression of the Network co-working space in Southampton



141. A flexible working space operated by Coffee Lab has also recently opened in Southampton.
142. Plans are being developed for a new Central Business District in Southampton from the train station across to the waterfront. The ambition of the 'Mayflower Quarter' is to create the business environment of the future in Southampton with a mixture of business and residential opportunities.
143. Proposals for a new creative space in the city utilising shipping containers have been proposed to add to the diversity of creative spaces in the city. Feedback provided identified that creative young people are drawn to different, interesting locations.

Open Data / Computer power

144. The Digital Strategy includes an objective to make more datasets available under open data standards. Open data is happening in other cities in the UK including Milton Keynes, London, Bristol and Leeds (working with the Open Data Institute).
145. The Panel were informed that Southampton Connect (the overarching strategic partnership body in the city) and the University of Southampton's Web Science Institute have established a project called Connected Southampton, a 'Smart City' development project. The project will aim to deliver at least one research/delivery pilot that uses data and technology in a new way to help address societal challenges that are negatively impacting on Southampton. It is envisaged that the projects will also attract additional major funding into the city.
146. The first work stream that Connected Southampton is undertaking is a Virtual Infrastructure project to establish the basic infrastructure of data sharing platforms in Southampton. This would take the form of a Data Trust, to enable an improved understanding of available data in the city and sharing of that data between trusted partners, in order to facilitate the use of shared data to address societal challenges.
147. The initiative builds on the Industrial Strategy and AI Sector Deal. It is envisaged that Southampton can become a national demonstrator for how to use AI well and lead in the field.

Leadership and Vision

148. Southampton has a significant tech sector and the Digital Strategy contains an appropriate vision for the city and the ambition to grow Southampton's economy by improving public digital infrastructure and showing digital leadership locally.
149. Feedback from Dan Thomas, Founder and Director, MOOV2, a company recently acquired by EtchUK (also based in Southampton), and the Council's Economic Development Manager identified that, despite having key components for success and some great tech companies operating in pockets across Southampton, the city's tech sector is not achieving its full potential, and the sum is not greater than the individual components. There is also a view that neighbouring cities are perceived to be more vibrant and 'cooler' than Southampton, an important factor in attracting and retaining tech talent and start-ups.

“neighbouring cities are perceived to be more vibrant and ‘cooler’ than Southampton” – Dan Thomas, ETCH

150. Leadership and vision from the city is required to overcome the following issues relating to Southampton's tech sector, identified at the Inquiry Panel meeting:

- Improve the image of the city (The City Council is working collaboratively with partners to develop a narrative to help celebrate and promote the city)
- Raise the profile of the tech sector in Southampton and promote tech events
- Encourage collaboration and networking
- Facilitate knowledge transfer and facilitation of ideas to enhance the scope for innovation
- City leaders and partners need to believe in Southampton as the city of opportunity where everyone thrives and to talk up the city and the assets that we have.

TechUK have offered to support Southampton in growing the tech sector in the city.

SWOT Analysis – Southampton Tech Sector

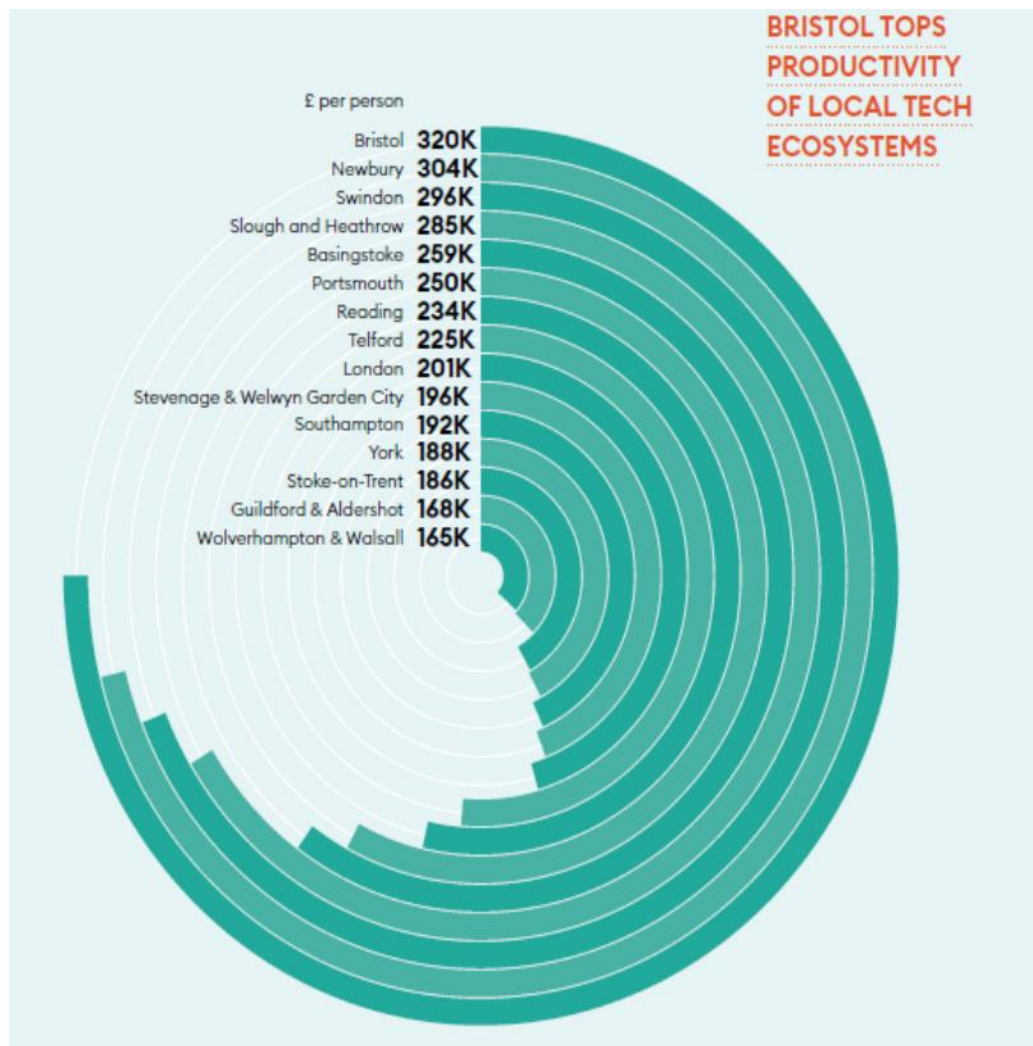
151. To identify where resources need to be focussed to support the growth of the tech sector in Southampton, the evidence presented to the Inquiry Panel has been incorporated into a basic SWOT analysis of the tech sector:

<p>Strengths:</p> <ul style="list-style-type: none"> • Tech sector is already established and recognised as a ‘Super Cluster’. • Great tech companies operating in pockets across the city. • Two universities that have track records in supporting business start-ups and spin offs. • Specialist creative industries business support organisation in Southampton. • Enhanced capacity in the Council to support business growth across the City. • The opening of Network co-working space • A Digital Strategy in place that includes appropriate objectives and ambition. • Willingness and foresight from city leaders (Southampton Connect) and academia (WSI) to collaborate to address city issues through the use of AI, and lead the field. 	<p>Weaknesses:</p> <ul style="list-style-type: none"> • Digital infrastructure and connectivity in Southampton • Perception that city is not cool or vibrant • Limited ‘alternative’ creative spaces to diversify offering and encourage sector development. • Awareness and profile of the tech sector in Southampton. • Other cities are ahead of Southampton in establishing open data hubs, developing ‘smart cities’ and the Internet of Things. • Lack of capacity and resource within the Council to lead Smart Cities approach in Southampton.
<p>Opportunities:</p> <ul style="list-style-type: none"> • Southampton Industrial Strategy Action Plan – Opportunity to showcase and raise profile of the sector through a cross-directorate/One Council approach. • City of Culture bid provides showcase for tech sector. • Proposals to boost FTTP & 5G connectivity • Network – Will encourage more networking and collaboration. • Central Business District – Opportunity to develop a bespoke quarter to bring together businesses and incubators to grow the creative sector in Southampton. • Building on the shipping container proposal encourage the development of alternative spaces for the sector to work from. • Southampton Connect’s Smart City projects – Establishing a data trust; opportunity to use AI & innovation to solve societal challenges. • Maximise the contacts and influence that the Universities in Southampton have to champion Southampton, and the offer of support from TechUK. 	<p>Threats:</p> <ul style="list-style-type: none"> • Open data - As other cities begin to offer open data, data hubs and progress smart city initiatives and the ‘internet of things’ there is concern that they may have a competitive advantage over Southampton. • If the perception of the vibrancy of Southampton is not addressed it could limit tech sector recruitment, retention and encourage businesses to relocate or start up elsewhere. • Long term funding for Creative Growth Southampton.

Examples of Good Practice outside Southampton

152. Bristol is the UK's biggest digital hub outside of London and has the most productive local tech ecosystem as shown in Figure 11.³³ Bristol also came first in the 2017 Huawei UK Smart Cities Index 2017 and was the world's first 'open' city.³⁴

Figure 11 – Productivity (£ per person), turnover by employee for the top 15 UK travel to work areas



Source: ONS Business Structure Database, 2017, cited in Tech Nation 2018 report

153. A report published by the European Commission in January 2017 that highlights the actions that have been taken in the Bristol City Region to transform the digital landscape of the area was circulated to the Panel. The report identifies key roles played by local government, businesses and business incubators, universities and the Chamber of Commerce.
https://ec.europa.eu/growth/tools-databases/dem/monitor/sites/default/files/DTM_Bristol%20v1.pdf

³³ ONS Business Structure Database, 2017, referenced in Tech Nation 2018 report p25

³⁴ Huawei UK Smart Cities Index 2017

154. Whilst recognising that a number of the approaches being employed in Bristol are being delivered or developed in Southampton the Panel identified a number of points of learning from the Bristol case study. These included:
- The strength of the partnership between the universities, local government and businesses
 - The vision and foresight of the city leaders
 - The ability of Bristol to promote the city effectively and to raise the profile of the tech sector and initiatives
 - The initiatives to boost connectivity
 - The commitment to making datasets available and the recognition of the value of the data held by Bristol and its potential to solve societal problems and grow the digital economy
 - Bristol's Engine Shed (www.engine-shed.co.uk) - Housed in Brunel's original station, dating back to 1841 Engine Shed houses a number of 'Components' that together make a hub for activity where entrepreneurs, business leaders, academics, students, and corporates can collaborate, inspire, and be inspired, enable and be enabled. It showcases the strengths and innovations of the Bristol and Bath city region in an informative and inspiring way.

Part 2 - Conclusions and Recommendations: Growing the tech sector in Southampton

155. A summary of the key evidence presented at each of the inquiry meetings is attached as Appendix 3. All of the reports, presentations and minutes from the inquiry meetings can be found here:

<https://www.southampton.gov.uk/modernGov/ieListMeetings.aspx?CId=703&Year=0>

156. **Conclusions**

- Southampton is a significant player within the UK tech sector and is ahead of a lot of cities in a number of key aspects. Key ingredients exist in the city for the tech sector to grow and become more prominent, vibrant, innovative and successful.
- Solent University and the University of Southampton have track records in supporting business start-ups and spin offs and outside of the universities organisations exist to support business start-ups in Southampton.
- The opening of the Network co-working space in the city will help to encourage innovation and collaboration and the proposed Central Business District development is an exciting opportunity to create the business environment of the future in Southampton.
- The partnership between Southampton Connect and the Web Sciences Institute to seek to address societal challenges through the application of AI and innovation is welcomed. Timely progress in developing a data trust and improving the virtual infrastructure will help Southampton establish itself amongst the leading cities in the practical use of AI and data.
- The Digital Strategy rightly includes, as a key success measure, that Southampton is known for good connectivity. The digital infrastructure needs to improve in Southampton. Improving connectivity and securing 5G / full-fibre must be a priority for Southampton to avoid it threatening economic growth.
- The perception that other neighbouring cities are more vibrant and cooler than Southampton could in time restrict the growth of the sector. More needs to be done to improve the image of the city; raise the profile of the tech sector and to better promote what Southampton has to offer as a ‘City of Opportunity where everyone thrives.’

Recommendations

157. Reflecting the key findings and conclusions the following actions are recommended to support the growth of the tech sector in Southampton:

- 1. Deliver the commitment in the Digital Strategy to secure external investment in ultra-fast fibre, Wifi and 5G connectivity**

- 2. Reflecting the heritage of the city create a 'Digital Shipyard' in the proposed Central Business District** – Bristol has its Engine Shed, building upon the success of the Southampton Science Park, Southampton could have a digital shipyard to showcase the strengths and innovation in Southampton. This could bring together businesses and incubators on one site acting as a hub of activity where entrepreneurs, academics, students, and corporates can collaborate, inspire, and be inspired.
- 3. Actively encourage the development of 'alternative' spaces for the creative sector to work from** – Building on from the proposal to establish a creative space in shipping containers, encourage the utilisation of the interesting, quirky and amazing industrial locations that Southampton has to offer to increase the vitality of the sector.
- 4. Tech in the City events** – In support of the development of a Southampton Industrial Strategy action plan, promote existing tech events and work with local tech businesses and TechUK to stage a number of events in the city showcasing the tech sector and raising the profile of the industry and the diverse range of career opportunities it supports.
- 5. Embark on new, cross-sectoral partnerships to resolving societal problems using technological solutions** - There is a need to collectively support the ambition and intent behind the Connected Southampton initiative and do whatever needs to be done to make it a success. Through the Connected Southampton project there is an opportunity to bring the tech sector together, raise the profile and encourage clusters to develop by fully engaging with them to help achieve the ambition to address societal challenges through the application of AI and innovation.
- 6. Seek to secure long term funding for Creative Growth Southampton**
- 7. Improve the branding, promotion and packaging of Southampton** – Southampton has a lot to offer but feedback identified that it is not perceived by some members of the tech community to be a vibrant city in which talented, creative individuals want to start-up tech businesses. This perception needs to change. Southampton needs to learn lessons from cities such as Bristol and improve the narrative about what the city's tech sector has to offer, how the city is promoted and to raise the profile and status of the tech sector in Southampton.
- 8. Utilise the assets and support available to grow the tech sector** – Among numerous assets Southampton has two excellent universities with extensive experience of successful business incubation; the world leading Web Science Institute; Set Squared; members of the tech community that want to help the sector flourish; as well as offers of support from the UK tech sector's representative body – TechUK. To deliver the ambitions in the Digital Strategy Southampton must utilise all its assets and offers of support to grow the tech sector and with it the economic prosperity of the city.
- 9. Develop a clear offer to grow the Tech sector and a vision as to how technology can help to improve outcomes in Southampton** – The Council needs to have a clear 'offer' to develop the Tech sector and enable a 'smarter' approach, using technology, to improve wellbeing, quality of life

and achieve sustained inclusive growth. The Council has a role to play here in facilitating a thematic approach to achieve its own priorities, such as its City of Culture and Cities of Learning ambitions, as well as strive for better sector convergence such as between design and manufacturing. The Council should also consider using fiscal measures to stimulate innovation and growth and the internal capacity needed to drive the Smart/Future City agenda.

Appendices

Appendix 1 – Inquiry Terms of Reference

Appendix 2 – Inquiry Plan

Appendix 3 – Summary of Key Evidence

Appendix 4 – Examples of stable, new and redundant roles, all industries

Appendix 1 – Terms of Reference

The Future of Work in Southampton Terms of Reference and Draft Inquiry Plan

1. Scrutiny Panel membership:

- a. Councillor McEwing
- b. Councillor Bogle
- c. Councillor Coombs
- d. Councillor Fitzhenry
- e. Councillor Furnell
- f. Councillor Guthrie
- g. Councillor Laurent

2. Purpose:

To consider how Southampton can maximise the opportunities created by artificial intelligence, automation and technological changes whilst seeking to mitigate the potential disruption to the labour market.

2. Background:

- Artificial intelligence (AI), robotics and other forms of ‘smart automation’ are advancing at a rapid pace and have the potential to bring great benefits to the economy.
- It has been estimated that UK GDP will be up to 10.3% higher in 2030 as a result of AI – the equivalent of an additional £232bn – making it one of the biggest commercial opportunities in today’s economy.
- New automation technologies in areas like AI and robotics will also create some totally new jobs in the digital technology area and, through productivity gains, will support additional jobs, primarily in services sectors that are less easy to automate.
- However, smart automation could also produce a lot of disruption, not least to the jobs market. Analysis suggests that up to 30% of UK jobs could potentially be at high risk of automation by the early 2030s.
- The risks appear highest in sectors such as transportation and storage (56%), manufacturing (46%) and wholesale and retail (44%), but lower in sectors like health and social work (17%). Analysis identifies that 21.9% of jobs in Southampton are in occupations that are very likely to decline by 2030.

3. Objectives:

- a. To develop understanding of the potential opportunities and risks to the Southampton economy generated by smart automation.
- b. To consider the existing plans and proposals in place to maximise the opportunities and mitigate the risks in Southampton.
- c. To identify what is being done elsewhere to prepare economies for the impact of smart automation.

- d. To identify what initiatives could be introduced in Southampton to upgrade the skills mix of the workforce, support digital sectors that can generate new jobs, target new opportunities and seek to ensure that the benefits of this technological revolution are felt by all across the city.

4. Methodology:

- a. Undertake desktop research
- b. Seek stakeholder views
- c. Identify best practice
- d. Seek views of experts

5. Proposed Timetable:

Six meetings between September 2018 and March 2019.

6. Draft Inquiry Plan (subject to the availability of speakers)

Meeting 1: 20 September 2018

- Introduction, context and background
 - What is meant by Artificial Intelligence and the term Fourth Industrial Revolution?
 - What impact will Artificial intelligence (AI), robotics and other forms of 'smart automation' have on UK jobs and society?
 - What are the potential opportunities that will be created by the growth of AI, robotics and other forms of 'smart automation'?
 - What could the impact of AI, robotics and other forms of 'smart automation' be on Southampton?

To be invited:

- Cllr Hammond, Leader of the Council - SCC
- Andrew Carter, Chief Executive – Centre for Cities

Meeting 2: 18 October 2018

- The national, regional and Southampton policy framework supporting the growth of the AI and data driven economy
 - National Industrial Strategy – Grand Challenge
 - The role and contribution of the Solent Local Enterprise Partnership
 - The Southampton approach

To be invited:

- Tom Barnett, Chair of the University of Southampton's Web Science Institute Advisory Board
- Anne-Marie Mountfield, Chief Executive – Solent Local Enterprise Partnership
- Denise Edghill, Interim Service Director – Growth, Southampton City Council

- Felicity Ridgway, Service Lead – Policy, Partnerships and Strategic Planning, Southampton City Council

22 November 2018 Site visit – Network Co-working space

Meeting 3: 20 December 2018

- Education, skills and re-training – Ensuring that the Southampton workforce has the required skills to stay ahead of the robots

To be invited:

- Professor Dame Wendy Hall, Professor of Computer Science in Electronics and Computer Science and a Director of the Web Science Institute - University of Southampton
- Councillor Paffey, Cabinet Member for Aspiration, Schools and Lifelong Learning - SCC
- Geoff Glover, Associate Lecturer, Southampton Solent University, Chair of the emerging Southampton Education Quarter Forum
- Sarah Stannard, Principal and Chief Executive – City College Southampton
- Denise Edghill, Interim Service Director – Growth, Southampton City Council

Meeting 4: 17 January 2019

- What is required for Southampton to become a centre for AI, robotics and smart automation?

To be invited:

- Sue Daley, Tech UK, Association representing UK technology companies
- Tom Frame, Group Managing Director of Etch
- University of Southampton – Research & Innovation
- Solent University – Research and Innovation
- Denise Edghill, Interim Service Director – Growth, Southampton City Council

Meeting 5: 7th February 2019

- Innovation and best practice – What can Southampton learn from other cities?

To be invited:

- TBD

Meeting 6: 21 March 2019

- Panel to agree a final report

Appendix 2 - Inquiry Plan

DATE	MEETING THEME	TOPIC DETAIL	EVIDENCE PROVIDED BY
20/09/18	Agree Terms of Reference and introduction to the inquiry	Introduction, context and background to the issues.	<ul style="list-style-type: none"> • Cllr Hammond, Leader of the Council - SCC • Andrew Carter, Chief Executive – Centre for Cities
18/10/18	The national, regional and Southampton policy framework supporting the growth of the AI and data driven economy	<p>National Industrial Strategy – Grand Challenge</p> <p>The role and contribution of the Solent Local Enterprise Partnership</p> <p>Southampton approach</p>	<ul style="list-style-type: none"> • Tom Barnett, Chair of the University of Southampton’s Web Science Institute Advisory Board • Anne-Marie Mountifield, Chief Executive – Solent Local Enterprise Partnership • Denise Edghill, Service Director – Growth, Southampton City Council • Felicity Ridgway, Service Lead – Policy, Partnerships and Strategic Planning, Southampton City Council
22/11/18	Visit to the Network		
20/12/18	Education, skills and re-training	Ensuring that the Southampton workforce has the required skills to stay ahead of the robots	<ul style="list-style-type: none"> • Professor Dame Wendy Hall, Professor of Computer Science in Electronics and Computer Science and a Director of the Web Science Institute - University of Southampton • Councillor Paffey, Cabinet Member for Aspiration, Schools and Lifelong Learning - SCC • Geoff Glover, Associate Lecturer, Southampton Solent University, Chair of the emerging Southampton Education Quarter Forum • Sarah Stannard, Principal and Chief Executive – City College Southampton • Denise Edghill, Service Director – Growth, Southampton City Council

DATE	MEETING THEME	TOPIC DETAIL	EVIDENCE PROVIDED BY
			<ul style="list-style-type: none"> Sajid Butt, Strategic Skills Manager, Southampton City Council
17/01/19	What is required for Southampton to become a centre for AI, robotics and smart automation?	<p>Access to finance at every stage of growth.</p> <p>Boost digital connectivity</p> <p>Physical spaces for company formation and growth</p>	<ul style="list-style-type: none"> Catherine Lee – Director of Research, Innovation & Enterprise, Solent University David Bream - Director, Southampton SETsquared, University of Southampton Sue Daley – Head of Programme Cloud, Data, Analytics and AI for TechUK – the trade association representing UK technology Dan Thomas – Founder and Director of MOOV 2, digital specialists based in Southampton that was recently acquired by EtchUK Denise Edghill – Service Director for Growth, SCC. Jeff Walters – Economic Development Manager, SCC Matthew Hill – Economic Development Operations Manager, SCC Sajid Butt – Strategic Skills Manager, SCC
07/02/19	Innovation and Best Practice	What can Southampton learn from other cities?	<ul style="list-style-type: none"> Denise Edghill – Service Director for Growth, SCC. Jeff Walters – Economic Development Manager, SCC Sajid Butt – Strategic Skills Manager, SCC
21/03/19	Agree final report	Approve report for submission to OSMC	

The minutes for each meeting, the evidence submitted to the Scrutiny Inquiry Panel and presentations delivered at each meeting is available at: -
<https://www.southampton.gov.uk/modernGov/ieListMeetings.aspx?CIId=703&Year=0>

Appendix 3 – Summary of Key Evidence

Inquiry Meeting – 20 September 2018

Introduction to the inquiry, context and background

Summary of information provided:

The Leader, Southampton City Council – Councillor Hammond

- Welcomed the inquiry. Now is the time to build the foundations that help to prepare the city for the changes that are going to happen.
- In 10-15 years the economy will be unrecognisable. There will be significant socio-economic disruptions. In particular threats to retail and hospitality industries, both of which are strong in the city, will present challenges to Southampton, however, opportunities will be forthcoming.
- Recently published CBRE research places Southampton in the top 5 ‘Super Clusters’ for Tech Cities. Southampton can be a global player in AI and new technologies.
- SCC is taking steps to raise awareness of future opportunities by hosting a Get-Inspired event at the Guildhall in November and, to encourage start up’s to remain and grow in Southampton, is investing resources in ‘network’, a co-working space for creative, digital and knowledge based businesses at the Marlands.
- There is evidently a need to challenge existing thinking around education and learning. If we are to compete globally and to ‘future proof’ the city lifelong learning needs to be the norm in Southampton.

The Future of Work in Southampton – Andrew Carter, Chief Executive, Centre for Cities

- A [presentation](#) (item 8 – Additional Documents) was delivered by Andrew Carter introducing the findings from the Cities Outlook 2018 report that included in depth analysis on the future of work.
- In addition to the points raised in the presentation, Andrew raised the following key points:
 - Skills are one of the most important factors in determining economic outcomes for both individuals and for productivity and are fundamental to people’s ability to adapt to the changing world of work. The cities with highly skilled and qualified employees will be able to respond more effectively to the opportunities for economic growth and prosperity that the technological revolution will bring.
 - To support the growth in high skilled private sector occupations there will be a greater need for analytical and interpersonal skills in the future workforce of a city.
 - The importance of early year’s education; good schooling; and extra curriculum activity was emphasised.
 - In a rapidly changing work environment the need for people to continue to learn and re-train throughout their life is increasingly important. In

work training has declined across the UK by an average of 15% between 2004 and 2017. In Southampton a 12% reduction was recorded. The exception was Bristol that saw a 20% increase.

- Opportunity for the City Council to lead by example regarding lifelong learning.
- To improve education and training outcome cities should establish skills compacts to promote collective responsibility and action for improving education and training:
 1. Ensure better coordination among organisations
 2. Share knowledge and best practice
 3. Raise awareness of existing initiatives
 4. Set measurable targets and measure progress
 - Other factors such as the cultural offering, attractiveness of the city centre as well as access to appropriate workforce skills contribute to the economic success of an area and will impact on the ability of a city to see growth in new areas.
 - Places need to exploit sector strengths but there is a need to ensure that a local economy does not become over reliant on a few sectors.
 - Having economic development and skills together in the same division at the City Council puts Southampton at an advantage.

Conclusions from meeting:

- Artificial intelligence (AI), robotics and other forms of 'smart automation' are advancing at a rapid pace and have the potential to bring great benefits to the economy. The changes will however produce significant disruption, not least to the jobs market.
- Southampton is in a strong position to take advantage of the opportunities that the global and technological changes will bring but the foundations that are needed to prepare the city for the changes need to be developed now.
- The future success of cities will be determined by, amongst other things, the education and skills of the workforce; a commitment to lifelong learning; opportunities for businesses to develop and grow.

Inquiry Meeting – 18th October 2018

The national, regional and Southampton policy framework supporting the growth of the AI and data driven economy.

Summary of information provided:

Interim Service Director for Growth, Southampton City Council – Denise Edghill

- Informed the Panel that the Industrial Strategy had received widespread support from across business, local government, trade bodies and academia since its publication in November 2017.

- The strategy sets out proposals to boost productivity by backing businesses to create good jobs and increase the earning power of people throughout the UK with investment in skills, industries and infrastructure.
- Outlined the determination across the city to take advantage of the opportunities presented through the AI Grand Challenge and the connections through the Web Science Institute to Government.

Chief Executive of Solent Local Enterprise Partnership - Anne-Marie Mountifield

- Outlined how the Solent LEP is planning to deliver locally the objectives outlined in the national Industrial Strategy.
- Recognised that, despite the assets in the region, productivity in the Solent area is below the national and regional average (- 8%) and the skills profile of the population needs to improve if the area is to take full advantage of the forthcoming opportunities and the growth potential in the region.
- Skills and connectivity are big challenges in the Solent area.
- The Solent LEP has invested significant resources to help unlock transformational growth in the region, invest in start-up businesses and bring industry together with skills. Including the Careers Enterprise Advisory Network where advisors are linked to each secondary school helping to build bridges with industry.
- Solent LEP is working with the Web Science Institute and other areas within the University of Southampton to look at opportunities to work in different, creative ways and equipping individuals to embrace new ways of working.
- Government has tasked LEP's to develop Local Industrial Strategies that align with UK priorities. Government will aim to agree all places' Local Industrial Strategies in England by early 2020.
- Agreeing a Local Industrial Strategy with Government will be a necessary condition for Local Enterprise Partnerships to draw down any future local growth funding.
- Opportunity for this inquiry to help inform the Solent Industrial Strategy.

Chair of the University of Southampton's Web Science Institute Advisory Board – Tom Barnett & Service Lead for Policy, Partnerships and Strategic Planning in Southampton City Council – Felicity Ridgway

- Provided an explanation of the new inter-disciplinary academic field of Web Science. Web Science studies the interaction between technology and human behaviour. The University of Southampton's Web Science Institute is a leading centre in the field of Web Sciences.
- Tom has helped to establish a fund with the Solent LEP and the University of Southampton called Z21. The mission of the fund is to accelerate University of Southampton Web startups towards investment and rapid growth and create high-tech jobs in the Solent region.
- Felicity and Tom provided the Panel with an oversight of an innovative 'Smart City' development project between Southampton Connect and the Web Science Institute of the University of Southampton.

- Details of the collaborative project can be found here (Southampton Connect and WSI collaboration):
<http://www.southampton.gov.uk/modernGov/ieListDocuments.aspx?CId=703&MId=4004&Ver=4>
- The £100k fund is to be used as leverage to attract additional funding. The concept is based on the opportunity to utilise data held across the city to help address some of the problems and challenges in Southampton.
- The first challenge that they are looking to address relates to Virtual Infrastructure.

Conclusions from meeting:

- The Government's Industrial Strategy is well supported and sets out a clear national policy framework.
- The Solent LEP will be developing a Solent Industrial Strategy. There is an opportunity for the inquiry to help inform the Solent Industrial Strategy.
- Through the Web Science Institute (WSI), the assets in the city and the collaboration between Southampton Connect and the WSI, Southampton is in a strong position to take advantage of the opportunities outlined in the AI challenge within the Industrial Strategy.

Inquiry Meeting – 20th December 2018

- The steps that are being undertaken to secure the right skills to drive the data driven economy in Southampton, and;
- How the Southampton workforce can acquire the required skills to stay ahead of the robots.

Summary of information provided:

Professor Dame Wendy Hall - Regius Professor of Computer Science at the University of Southampton, Executive Director of the Web Science Institute and Skills Champion for AI in the UK

Securing the right skills to drive the data driven economy in Southampton

- The UK is strong in AI and has a remarkable legacy. The Government's AI sector deal is ambitious and world leading.
- The University of Southampton is strong in AI and technology and is a member of the Turing Institute.
- UK and Southampton need more people with STEM skills, especially females, as the new jobs created will require skills in science and technology. The more skills and the higher the skills the better.
- The city needs a pipeline of people studying for science and technology degrees and a pipeline to PhD's. There also needs to be opportunities for people to retrain and move into this field of work.
- The University of Southampton hosts a Web Sciences Centre for Doctoral Training funded by the UK Research Council. A bid by the University to become an Artificial Intelligence Centre for Doctoral Training is being

evaluated. These initiatives are in addition to the various PHD's and research opportunities, in relevant disciplines to grow the tech industry, supported by the University.

- On-line learning can be an integral element of the skills jigsaw, helping to increasing diversity of learners. The Southampton Data Science Academy, part of the Web Science Institute, was established to bridge the data skills gap and delivers a number of accredited on-line modular courses in data science. More can be done in Southampton to provide effective on line education to develop tech skills.
- Every country and university wants the top AI researchers. Keeping people in the UK is difficult because in the USA investment funding is easier to access and salaries can be significantly higher.
- To attract top talent the city needs to be open to people from across the globe coming to learn in Southampton and being supported to stay and grow here. We also need to recognise that there are opportunities to become a talent magnet and a developer of talent and accept that some talent will leak out of the system, possibly to return later. We need to create an environment that supports this.
- More needs to be done to ensure quality teaching of computer skills takes place at school. The Government is providing funding to create a National Centre for Computing Education to train teachers - <https://teachcomputing.org/>

How the Southampton workforce can acquire the required skills to stay ahead of the robots?

Cllr Darren Paffey – Cabinet Member for Aspiration, Skills and Lifelong Learning; Geoff Glover – Associate Lecturer, Southampton Solent University, Chair of the emerging Southampton Education Quarter Forum; Sarah Stannard – Principal and Chief Executive, City College Southampton and Chair of the Southampton Careers Inspiration Group; Denise Edghill - Interim Service Director for Growth, Southampton City Council; Sajid Butt – Strategic Skills Manager, Southampton City Council

- Moving forward there is a need for everyone to be digitally literate and have social skills.
- In Southampton there is a skills mismatch between where we are now and where we need to be. There has never been a worse time to not have the required skills.

Skills - Young People

- We need to make 'invisible' jobs visible. Too many young people in Southampton do not see the range of opportunities available. We need them to have experiences of work as early as possible to raise aspirations.
- The Southampton Careers Inspiration Group, with EBP South (Education, Business Partnership South) run an event annually called 'Get Inspired'. Employers show children a range of new opportunities that are available. 1200 pupils from Southampton schools attended this year's event with all but 1 school in the city attending.

- The new Careers Strategy is immensely helpful and it is welcome news that the Solent has been selected for Careers Hub funding (One of 20 areas in the country – funding comes through the LEP) to help transform careers education and improve links between schools and business.
- Encouraging signs that the change in leadership at Ofsted might change the culture of ‘teach to test’ in UK schools, hopefully embracing a more holistic education with more emphasis on soft skills, learning and careers advice.
- T-Levels – Designed to create parity of esteem between academic and vocational education, Technical Levels are due to commence in 2020. Part of the course will include industrial placements.
- The Southern Universities Network (SUN) is a collaborative partnership comprising HE providers in Hampshire, Dorset and the Isle of Wight. The SUN provides outreach activities for schools and colleges. The SUN has been tasked with increasing HE participation in over 70 wards, working with 101 schools and all further education (FE) colleges in the region. As directed in Office for Students’ guidance, work will be focused on young people in Years 9 – 13 and their ‘key influencers’. A number of these key wards are in Southampton.
- It is predicted that, within 20 years, 90% of all jobs will require some element of digital skills. (DCMS 2017 – UK Digital Strategy). Effective digital skills training is essential to ensure that the Southampton workforce is prepared for future technological changes.
- Reflecting initiatives in London (Digital Talent Programme), Bristol (Young Future Bristol) and the West Midlands (Digital Skills Partnership), the Institute of Coding have been invited to Southampton to see how we can work together to enhance coding skills in the city.

A Learning Culture

- Around 90% of the current workforce will be working in 10 years’ time (Solent LEP). The skills profile of the Solent, including Southampton, needs to improve. There is a need to inspire the community to learn and re-learn continuously throughout a working life.
- Funding for formal adult education has diminished. City College used to have 12,000 adult education students annually, there are now 3,000 adult learners. The Council delivers support to 3,500 adult learners, this used to be 5,000.
- However, significant levels of funding still being spent on training in the city but this is less likely to be undertaken through formal channels in a classroom. More training is online. This can result in duplication and less co-ordination of training activity across the city. Co-operation between the education and training providers and corporate Southampton could help increase the quality, diversity and accessibility of learning opportunities in the city.
- After a successful funding bid Southampton City Council will be delivering, on behalf of the Solent region, an Apprenticeship Hub. Plans include making it easier for SMEs to engage with the Apprenticeship Levy, and potentially work with business to pool the 10% share of the Levy that Levy paying firms can share with other businesses to deliver a collective skills offer to the city.

- There was recognition that the skills landscape is complicated for employers. The Council can play a key role in supporting local organisations to get the training they require.
- Southampton Education Quarter – This is work in progress but the concept is that this will be a physical area that inspires people to want to develop skills. The Council is engaging with Solent University, University of Southampton and City College to develop the vision. It is recognised that there are examples of good practice nationally and internationally but that a different approach, tailored to the resources and needs of the city, may be required to improve the culture of learning in Southampton.
- There was recognition that leadership skills were of paramount importance and that the City Council could set an example by ensuring suitable training is provided to staff and elected members.

Conclusions from meeting:

- To ensure that a significant number of residents are not left behind by the technological revolution Southampton needs to re-skill and up-skill its workforce, and improve outcomes for young people coming through the education system.
- Southampton has significant strengths and assets to work with and collaboration is encouraging. Closer collaboration between education, training and business could help align the skills of residents with the needs of Solent businesses now and in the future.
- The young people of Southampton need to be equipped with digital skills today to make sure they are not excluded from accessing the growing future jobs market in the region's digital and high tech sector.
- There is a need to simplify the skills landscape for employers in Southampton and utilise the resources available as effectively as possible.
- Interest were expressed in a 'Leadership Academy in Southampton'.
- The Council can show leadership by ensuring that it leads by example in providing training opportunities for staff and councillors.
- Opportunity to extend the mentoring scheme for Looked After Children in Southampton to support young learners.
- Maximise the contacts and influence that the Universities in Southampton have to champion Southampton. The Web Science Institute is an asset and Professor Dame Wendy Hall is the Skills Champion for AI in the UK.

Inquiry Meeting – 17th January 2019

- How can Southampton benefit from the rapidly expanding technology sector and become a centre for AI, robotics, smart automation, and the digital economy.

Summary of information provided:

- 1. Catalysts for UK Digital Tech Growth and Innovation – Harnessing the power of universities, nurturing and developing**

Catherine Lee - Director of Research, Innovation & Enterprise, Southampton Solent University

- Solent University are ranked 8th in the country for student start-ups. These are primarily tech business, some of which have gone on to be very successful.
- Starting up a business is easier than growing the business. We find that students either lack the technical or business skills required.
- Students get support from Solent, including funding, but many need more support than can be provided by the University alone.
- Students would value an informal, dynamic venue that could act as a one-stop shop for tech support, business advice and funding bringing together business, university and skills.

David Bream - Director, Southampton SETsquared, University of Southampton

- The SETsquared Partnership is the global no. 1 business incubator and enterprise partnership comprising five research-intensive universities: Bath, Bristol, Exeter, Southampton and Surrey.
- Southampton SETsquared site is centred on the University of Southampton Science Park – 17 buildings, 100 companies, 1,000+ jobs, £500m economic value per annum.
- Innovation happens in clusters or themes. Clusters can be supported to develop. At the Science Park a cluster is developing around orthopaedic medicine.
- The Science Park is open to people that are not graduates of the University of Southampton but most are recruited from the University.
- Low failure rate of businesses supported through SETsquared (only 20-30 businesses a year) due to high level of support provided (business planning, management support, financing) and the selection process. SETsquared is a successful specialist and niche business incubator. However, they are being tasked by the Government to increase the number of companies that they work with and to deliver programmes with a wider capture.
- Companies that outgrow the Science Park are encouraged to remain part of the Science Park community and engage in the networks and support new start-ups.
- Businesses tend to stay in Southampton if they become established here. Southampton has a lower cost base than London and is a pleasant place to live.
- The University of Southampton has a number of programmes, aside from SETsquared, to support business start-ups. These include Future Worlds, a campus initiative to grow businesses and accelerate start-ups which has a network of mentors, investors and experts, and Z21, an initiative to accelerate University of Southampton web start-ups towards investment and rapid growth.

- The Science Park has ultra-fast broadband but there is a general need to invest in the broadband infrastructure in the city.
- Catherine Lee and David Bream sit on the Solent LEP Innovation Panel

Denise Edghill - Interim Director for Growth, Southampton City Council

- A number of organisations are available in Southampton to provide support to business start-ups. Creative Growth Southampton is a new business support initiative established to help grow and develop small creative industry businesses in Southampton. It provides business advice, networking, mentoring and training - www.creativegrowthsouthampton.co.uk
- The Solent LEP Growth Hub also provides business support www.solentgrowthhub.co.uk
- The Council's role is to access available funds and to support local organisations take advantage of the funding streams and raise awareness of the opportunities.
- A new role has been established (Economic Development Operations Manager) within the Council's Growth service to make people aware of what is on offer and what the gaps are to support economic development in Southampton.

2. Catalysts for UK Digital Tech Growth and Innovation – Boosting digital connectivity

Sue Daley - Associate Director, Technology & Innovation, TechUK - the representative body for the UK tech sector

- Key ingredients for growing the tech sector in a city are:
 - Leadership and vision
 - Connectivity – Superfast broadband, 5G
 - Collaboration between business and academia
 - Data – Data is the fuel for AI companies. Companies need open data. Open data is happening in Milton Keynes, London and Leeds (working with the Open Data Institute)
 - Computer Power – Small organisations need to access high performance computing technology
 - Cyber Security
 - People – Access to skills and talent
- Tech UK are happy to help Southampton develop the tech sector, particularly to support open data initiatives.

Denise Edghill - Interim Director for Growth, Southampton City Council

- Two applications to Government for full fibre network funding have been unsuccessful. We are exploring alternative mechanisms to deliver 5G.
- Southampton Connect is working on establishing a data trust.

- Connected Southampton, the project between Southampton Connect and the Web Science Institute of the University of Southampton, has commenced a Virtual Infrastructure project to provide organisations, particularly smaller ones that cannot afford to build their own physical infrastructure, access to enterprise-grade technology such as servers and applications.
- Dr Deborah Smart, Service Lead for Digital and Strategic IT will be in attendance at the 7 February meeting of the Inquiry Panel to provide additional detail on the Council's Digital Strategy and proposed actions.

3. Catalysts for UK Digital Tech Growth and Innovation – Physical spaces for company formation and growth

Denise Edghill - Interim Director for Growth, Southampton City Council

- The Network co-working space is due to open shortly. The Council's £1.3m development will provide a new and cutting edge space, offering an environment that will support creative, digital and knowledge based entrepreneurs by providing a collaborative working environment. The Council will be curating the space at Network and support will be provided to businesses using the facility. It is a skilled job to run Network and work effectively to support the businesses.
- Coffee Lab is also opening a co-working facility in Southampton.
- Plans are being developed for a new Central Business District in Southampton from the train station across to the waterfront. Looking to create the business environment of the future in Southampton with a mixture of business and residential opportunities.
- Proposals for a new creative hub in the city utilising shipping containers to add to the diversity of creative spaces in the city.

A perspective from a Director of a creative industry business in Southampton

Dan Thomas – Founder and Director, MOOV2, a company recently acquired by EtchUK (also based in Southampton)

- There are lots of capable people in Southampton but awareness of the tech sector and celebration of the sectors achievements are limited.
- Feeling that neighbouring cities such as Bristol, Brighton and Bournemouth are more dynamic than Southampton and are perceived as being more vibrant and cooler.
- Limited support for events that are happening to promote the sector in Southampton – MOOV2 have been running HackSoton (www.hacksoton.com) for 6 years to raise profile of opportunities within the sector. Help with awareness and communications would be appreciated.
- More collaboration, networking, co-ordination and events would help to raise profile, awareness and vitality of the sector. Need the city to shout about what we have.
- Bournemouth, Guildford and Portsmouth have digital weeks to bring people from the sector together, to network and to celebrate. This would be a valued

initiative in Southampton and could help to change the perception of Southampton.

- MOOV2 applied for and received 'Bridge the Gap' funding from the Solent LEP. Whilst the funding was welcome the process was time consuming and risk averse.

Denise Edghill - Interim Director for Growth, SCC; Jeff Walters – Service Manager, Economic Development, SCC; Matthew Hill – Economic Development Operations Manager, SCC; Sajid Butt – Strategic Skills Manager, SCC

- The City Council is working collaboratively with partners to develop a narrative to celebrate and promote the city.
- Recognition that there are a number of examples of innovative and vibrant businesses operating within the tech sector in Southampton. Great stuff is operating in pockets across the city.
- There is a need to showcase the tech sector in the city through a series of events to generate a critical mass of ideas.
- Potential to use the City of Culture bid as a catalyst to harness the strengths of the sector and to develop the USP of the city.
- Opportunity to build on the strengths of the city in maritime and marine and geo-spatial with Ordnance Survey based in Southampton.

Suggested initiatives to grow the tech sector in Southampton – Good practice

- Sheffield's iForge makerspace (www.iforgesheffield.org)
- Bristol's strategic approach and ability to talk up the city
- Bristol's Engine Shed (www.engine-shed.co.uk) - Housed in Brunel's original station, dating back to 1841 Engine Shed houses a number of 'Components' that together make a hub for activity where entrepreneurs, business leaders, academics, students, and corporates can collaborate, inspire, and be inspired, enable and be enabled. It showcases the strengths and innovations of the Bristol and Bath city region in an informative and inspiring way.
- Whilst recognising the contribution Southampton Science Park makes to Southampton there is the potential to create a digital shipyard (mirroring some of the Engine Shed principles) in Southampton as part of the CBD development to bring together businesses and incubators.
- Look to develop alternative spaces (shipping container proposal is interesting) as young creative people are drawn to different locations. Southampton has amazing locations for new tech companies such as the Mill in the docks and Itchen Riverside.
- A way to bring the sector together, raise profile, encourage clusters to develop, and encourage innovation is to coalesce around a problem that needs to be solved in the city. The use of AI and innovation to solve public sector problems could benefit the economy and the city.
- Improve branding, packaging and make it happen.

Conclusions from meeting:

- Southampton is a significant player within the UK tech sector.
- Solent University and the University of Southampton have track records in supporting business start-ups and spin offs.
- Outside of the universities organisations already exist to support business start-ups in Southampton. Creative Growth Southampton exists specifically to support the growth of the creative industry.
- The key ingredients exist in the city for the tech sector to be more prominent, vibrant, innovative and successful in Southampton.
- The digital infrastructure needs to improve and the open data and virtual infrastructure projects are promising but need to make progress.
- The opening of the co-working spaces in the city will help to encourage innovation and collaboration and the proposed Central Business District development is an exciting opportunity to create the business environment of the future in Southampton.
- More needs to be done to help the sum be bigger than the individual components of the Southampton tech sector. There is a need to showcase the tech sector.
- Tech UK are willing to support Southampton grow its tech sector.

Inquiry Meeting – 7th February 2019

- Innovation and Best Practice

Summary of information provided:

Dr Deborah Smart – Service Lead, Digital and IT, Southampton City Council
Jeff Walters – Economic Development Manager, Southampton City Council

- A Digital Strategy for Southampton for 2018-2022 has been produced. There is a general consensus that the objectives and actions within the strategy reflect good practice, with support for the external focus as it relates to growing the digital economy in Southampton and improving digital skills.
- Since the strategy was approved the focus has been on addressing internal digital and IT issues within the Council. Little progress has been made improving connectivity in the city or advancing digital skills.
- A bid to Government for funding for 5G / Full Fibre was unsuccessful.
- The digital infrastructure of the city needs improving to support economic growth. We are not seeing businesses being put off from investing in Southampton because of poor connectivity but, as other cities begin to offer full fibre and 5G, there is concern that they may have a competitive advantage over Southampton.
- Improving digital infrastructure and connectivity needs to be a priority for the city. External funding will be required to deliver this.

Good practice – Bristol Learning City

Mark Pirnie, Scrutiny Manager, spoke with Tommy Jarvis – Education Partnership and Programme Manager at Bristol Learning City, about the progress being made in Bristol to create a learning culture.

- Bristol became a UNESCO Learning City in 2016. As a learning city, Bristol is championing learning as a way to transform lives, communities, organizations and the city, with an ambitious vision of a future where:
 - All individuals and communities are proud to learn throughout their lives
 - Every organization has a committed, skilled and diverse workforce; and
 - The city's success is shared by all.
- The presentation from the Chief Executive of the Centre for Cities identified that Bristol had bucked the UK trend with regards to in work training (20% increase in in-work training from 2014 to 2017).
- The focus in Bristol used to be on encouraging entrepreneurialism but now the focus is on raising standards in schools and improvement education outcomes - Bristol has seen one of the strongest improvements in school exam results in England and has a high proportion of qualified residents.
- A learning festival is being planned to celebrate lifelong learning.
- Work experience - Bristol Works is a collaboration between employers, learning providers and local communities to develop a skilled local workforce. Their aim is to offer bespoke experience of work programmes created with schools, based on the needs of young people - www.bristol.works/
- The Future Bright initiative, funded through the West of England Combined Authority seeks to help people who are in work and in-receipt of in-work benefits improve their skills - www.westofengland-ca.gov.uk/future-bright/
- However, Bristol remains a city where many citizens who do not share in the city's success. There are significant challenges for the city in terms of health, education and employment. The north and centre of Bristol remain more affluent than the south.
- Bristol Learning City offered to provide support to Southampton, to share ideas and to connect Southampton to other learning cities.

Sajid Butt – Strategic Skills Manager, Southampton City Council

- A presentation drawing together good practice from conversations with experts in city development and industry was delivered by Sajid Butt. (<https://www.southampton.gov.uk/modernGov/ieListDocuments.aspx?CId=703&MId=4019&Ver=4> : item 7 – Additional Documents)
- In addition to the points raised in the presentation, the following key points were made:
 - Southampton is ahead of a lot of cities in a number of key aspects. Most of the key components for success are here.
 - The future of work is not necessarily about technology it is about the workforce
 - There is a need to shout about the qualities of the city and make more of what we have – Believe in Southampton as the city of opportunity where everyone thrives

- Connectivity must be a priority and in the presentation, a thematic approach can help achieve 'smarter city capability' across Southampton.
- There are some interesting learning points from the Cities of Learning initiative and the UNESCO Learning Cities programme. Opportunity to incorporate the best points of the programmes and tailor them to reflect the resources and needs of Southampton when developing the Southampton Education Quarter.

Conclusions from meeting:

- The Southampton Digital Strategy reflects the ambitions of the city and good practice. There is a need to make progress delivering key objectives within the strategy relating to connectivity, infrastructure and digital skills – this must be a corporate priority.
- Important lessons can be learnt from the various initiatives that are seeking to develop learning cultures within cities. These can be incorporated into the Southampton Education Quarter initiative.
- Southampton has many of the key ingredients to succeed and prosper in the future. There is a need for city leaders and partners to believe in Southampton as the city of opportunity where everyone thrives and to talk up the city and the assets that we have.

Appendix 4 – Examples of stable, new and redundant roles, all industry

Stable Roles	New Roles	Redundant Roles
<ul style="list-style-type: none"> • Managing Directors and Chief Executives • General and Operations Managers* • Software and Applications Developers and Analysts* • Data Analysts and Scientists* • Sales and Marketing Professionals* • Sales Representatives, • Wholesale and Manufacturing, Technical and Scientific Products • Human Resources Specialists • Database and Network Professionals • Supply Chain and Logistics Specialists • Risk Management Specialists • Information Security Analysts* • Management and Organisation Analysts • Electrotechnology Engineers • Organisational Development Specialists* • Chemical Processing Plant Operators • University • Higher Education Teachers • Compliance Officers • Energy and Petroleum Engineers • Robotics Specialists and Engineers • Petroleum and Natural Gas Refining Plant Operators 	<ul style="list-style-type: none"> Data Analysts and Scientists* AI and Machine Learning Specialists General and Operations Managers* Big Data Specialists Digital Transformation Specialists Sales and Marketing Professionals* New Technology Specialists Organisational Development Specialists* Software and Applications Developers and Analysts* Information Technology Services Process Automation Specialists Innovation Professionals Information Security Analysts* E-commerce and Social Media Specialists User Experience and Human-Machine Interaction Designers Training and Development Specialists Robotics Specialists and Engineers People and Culture Specialists Client Information and Customer Service Workers* Service and Solutions Designers Digital Marketing and Strategy Specialists 	<ul style="list-style-type: none"> Data Entry Clerks Accounting, Bookkeeping and Payroll Clerks Administrative and Executive Secretaries Assembly and Factory Workers Client Information and Customer Service Workers* Business Services and Administration Managers Accountants and Auditors Material-Recording and Stock-Keeping Clerks General and Operations Managers* Postal Service Clerks Financial Analysts Cashiers and Ticket Clerks Mechanics and Machinery Repairers Telemarketers Electronics and Telecommunications Installers and Repairers Bank Tellers and Related Clerks Car, Van and Motorcycle Drivers Sales and Purchasing Agents and Brokers Door-To-Door Sales Workers, News and Street Vendors, and Related Workers Statistical, Finance and Insurance Clerks Lawyers

Source: Future of Jobs Survey 2018, World Economic Forum.

Note: Roles marked with * appear across multiple columns. This reflects the fact that they might be seeing stable or declining demand across one industry but be in demand in another.