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East Sussex
County Council

Innovate East Sussex

December 2014

INVESTORS IN PEOPLE

POSITIVE ABOUT DISABLED PEOPLE

Innovate East Sussex

…the location for innovation

1. Executive Summary

Innovate East Sussex has been produced to set out a framework and goals to achieve economic development benefits and support the creation of more efficient, responsive, cost-effective services.

The goals are not quantified; they should be achieved through the ideas being embedded in delivery and project plans across East Sussex partnerships, and that is where targets should be set and monitored.

The document draws on the EU Smart Specialisation agenda and BIS and Innovate UK research over recent years, which aim to embed innovation to secure sustainable growth.

Innovate East Sussex has been based on review and analysis of a range of evidence, interviews and workshops conducted with stakeholders from the business, public- and third sectors, and an assessment of the existing landscape that can support innovation in East Sussex.

Innovation is important for the Private, Public and Third Sectors: In services and production, in low-tech as well as high-tech fields. There are many areas where embedding innovation is common across all three, but there are some differences in how it can work in the different sectors.

Key findings in the report are highlighted below and a technical annex provides the additional data and evidence upon which Innovate East Sussex is based.

The vision for Innovate East Sussex is to make the county **the location for innovation**. Where innovation is the natural order rather than something that happens better, faster and more often elsewhere. This is predicated on strong partnerships that will, on the one hand, stimulate and support innovation and on the other, work to remove barriers to it working.

Key findings

1. Exporting is closely associated with both innovation and the growth of firms: When surveyed in 2012 only 7.5% of East Sussex firms said their main geographic market lay outside of the UK; given this evidence preparing and supporting firms to export should clearly be an area to help encourage innovation. Page 10

2. There is also evidence to support the strong link between SMEs that are high growth and firms which secure Intellectual Property rights (IP) (e.g. via patents), which is also a key indicator of innovation. In East Sussex, the annual number of patent applications is extremely small, both in absolute terms and also relative to those in SE LEP; 10% of all patent applications in the SE LEP area over the last 5 years were made by East Sussex-based inventors, yet East Sussex is home to 13% of the LEP's population, 14% of its firms, and generated just over 11% towards its combined Gross Value Added in 2012. Page 9

3. Between 2007 and 2011 the single technology yielding the greatest number of patents in East Sussex was ICT. Page 10

4. It is important in driving forward the ambitions of growth and increasing innovation that we ensure actions are not delivered at the expense of the sectors that provide most of our jobs and may also have ambition and innovation potential. Page 11

5. Research emphasises the importance of relevant skills in relation to Highly Innovative Firms which have a significantly higher share of employment accounted for by science and engineering (STEM) graduates. Page 11; Page 24

6. We need to recognise and create mechanisms to support innovation wherever it happens, rather than purely supporting a few specified sectors or sub-sectors or other business types. There is an increasing body of evidence to support this approach, including a 2012 study of Highly Innovative Firms, which found that "*in general we do not find a particular class of firms in high-tech, science-intensive sectors … driving innovation in the economy*".[1] This does not preclude some targeted sectorial investment, where the evidence suggests that this could be effective in accelerating growth, but the general premise is that innovation support to any sector could reap growth returns. Pages 12/13

7. Almost a third (30%) of all businesses classified as HGFs are in the Wholesale, Retail and Motoring sector, although only 18% of all local business units fall into this category. The Health and Social Care sector has a relatively high number of HGFs (6% of all businesses but 10% of all HGFs) and Manufacturing (5% of all businesses but 9% of all HGFs). Page 13

8. In respect of Manufacturing there are several sub-sectors within this category, many of which are engaged in exporting, an innovation indicator. These include: Precision weights and measurement technology; dental and med tech; fabrics (both for domestic and industrial use); metal and plastics fabrication and; vacuum and photonics. Page 14

9. In respect of some creative industries where design is an intrinsic element of businesses and may also provide enabling technologies there are some groups of growth businesses in East Sussex that could be targeted for support: The sub-sectors of telecommunications/website providers/web designers/reproduction of computer media (spread as businesses throughout the county). 20 existing HGFs appear directly in these specific industry codes. Page 14

10. We estimate there are 1,619 Higher Growth Firms in East Sussex out of 22,800 VAT registered businesses. Currently at 6% nationally, HGFs produce between 50 – 70% of all new jobs; they include established SMEs and start-ups, but 70% are 5 years plus old. *They cover every sector, region and can be high or low tech*. Page 12; Page 14

11. Nationally 5-10% of firms have the potential to join the current total 6% HGFs nationally. Research shows there are 1,538 firms in the county with the potential to become HGFs based on growth in terms of GVA and jobs; if they became HGFs this would nearly double the number in the county bringing the total of HGFs up to c3,157. Potential HGFs are often termed 'pre-gazelles', HGFs being 'gazelles'. Pages 13/14

12. Although overall only 18% of East Sussex businesses are in Wholesale, the data shows a disproportionately high number of pre-gazelles (27%) fall within the Wholesale, Retail and Motoring category. In the same pattern as HGFs, Human Health & Social Work follows at nearly 11%. Unlike existing HGFs, Accommodation and Food Services are the third-largest group of pre-gazelles at just over 8%, followed closely by Manufacturing at just below 8%. Page 15

13. In a national DEFRA survey between 2008 and 2010, around 42% of both urban and rural businesses surveyed were involved in broader innovation activities (for example new or significantly improved products, processes, structures, or concepts, specific innovation projects, research and development etc.). This strongly suggests that innovation is not affected directly by whether the business is located in an urban or rural settlement. Page 17

[1] BIS UK Innovation Survey 2014 – Innovation Firms & Growth, Coad et al

14. Business to business (or facilitated networks) is an area that East Sussex businesses specifically identified as an important aspect of business support; the 2012 East Sussex Business Survey identified in the Employees and Markets Theme paper 'access to relevant business networks' as the 2nd highest requirement after 'general advice on accessing finance' (which falls under general business support provision). Networking and networks are recognised as an excellent medium to grow innovative ideas and ways of working. Pages 16/17

15. There are major rewards for both business and Higher Education Institutions when co-creation is achieved, which suggests that there is scope for both to learn more about building truly collaborative relationships. Page 19

16. The issue of an ageing population and the associated health and care implications makes a very logical focus for innovation, particularly at a time when public-sector budgets are under pressure and people are living longer. Our percentage of older people[2] (22.7%) is also considerably higher than the South East (17.2%) and England and Wales (16.4%). This has major implications for the calls on our public-sector health and care budgets, our available workforce and housing. The existing and forecast needs of our ageing population make this an obvious focus for innovation to provide much-needed solutions. As the overall area of healthcare is very broad, specific targeting of support around dementia could be considered. Page 20

17. In relation to tourism this may offer fertile ground for guiding future investment (linking where appropriate with the East Sussex Cultural Strategy), for innovative approaches to improve the offer, reposition it, make it more sustainable and 'future proof' as appropriate to future visitor needs, short medium and long term. Page 21

18. In respect of the creative industry sub sectors digital and ICT are key enabling technologies, and with a shortage of skills in these areas in East Sussex (and elsewhere in the UK) this presents a clear area for focus. Whether these enablers need to be developed within East Sussex or whether the focus should, instead, be on facilitating access to these skills in neighbouring areas requires further exploration. Page 22

19. In line with EU and national policies, a horizontal theme across our approach to innovating East Sussex is creating an economy that reduces our carbon footprint: whether through investments in low-carbon products, through energy efficiency innovations that also reduce financial cost or ensuring the embedded carbon is minimised from design of product to end-of-life. Page 23

[2] Over 65 years old

2. Introduction

There are two concepts which underpin this document.

1. **Innovation:** *The process by which new ideas are successfully exploited to create economic, social and environmental value*. Department for Business, Innovation and Skills

2. **Smart Specialisation:** *Smart Specialisation is an approach to policy that considers whether those activities already strong or showing promise for a region can benefit from R&D and innovation*. Ignacio González Vázquez, S3 Platform Joint Research Centre

Innovation is part of everyday life and happens in small and big ways throughout human activity. Evidence from a variety of research sources suggests that innovation: more specifically the value capture of innovation, supports and sustains wealth creation on the one hand, and can reduce costs and increase the efficient use of resources on the other. A 2010 innovation report made the point that: *Cutting back public investment in support of innovation may provide short-term fiscal relief, but will damage the foundations of long-term growth. …. It will also be needed to foster the breakthrough technologies for dealing with climate change and other global challenges*.[3] As we emerge from recession and public services continue to be subject to large-scale cuts, it is important that we invest wisely in innovation to support the ambitions set out for the county in documents such as the South East Local Economic Partnership (SE LEP) Strategic Economic Plan and the East Sussex Growth Strategy.

This paper has been produced based on review and analysis of a range of evidence, interviews and workshops conducted with stakeholders from the business, public- and third sectors, and an assessment of the existing landscape that can support innovation in East Sussex. With this evidence base and taking into account East Sussex's ambitions for growth, Innovate East Sussex sets out in brief our vision for the county as **the location for innovation**, where innovation is the natural order rather than something that happens better, faster and more often elsewhere. This is predicated on strong partnerships that will, on the one hand, stimulate and support innovation and on the other work to remove barriers to it.

If successful, businesses and innovators from all fields will know of and belong to wide-ranging networks – UK and international – that are part of an ongoing cycle of innovation and commercialisation of emerging ideas. Investors, both local, nationally and from abroad, will recognise East Sussex as a destination where they can confidently invest and where the workforce has the drive, curiosity and skills to deliver great returns on that investment.

To complement embedding innovation in the Private-Sector support, the Public Sector will innovate to improve services and deliver them more efficiently. With its planned investments in infrastructure and enabling technologies (transport, broadband and mobile connectivity, appropriate premises, access to R&D), the county will be supported by a range of accessible financing options to grow-on innovative developments.

[3] OECD 2010: The OECD Innovation Strategy: Getting a Head Start on Tomorrow

3. Who and what is Innovate East Sussex for?

Innovate East Sussex is not just about East Sussex County Council or delivery partners themselves doing things, although the ideas contained here should be embedded within their delivery plans: It is more about identifying goals and tools to help create impetus for people in the Private, Public- and Third-Sectors to think differently. It should recognise where the county has relative strengths and a natural advantage, and where there are the greatest challenges to long-term growth and sustainability.

To complement this, planned investments in infrastructure and enabling technologies (transport, broadband and mobile connectivity, appropriate premises, access to R&D), we need to establish a range of accessible financing options to grow-on innovative developments.

Goals

By identifying a number of goals we want to achieve in the table below, we aim to stimulate thinking among all the stakeholders: businesses; research establishments; further and higher education; local authorities; NHS, investors etc., who are, or should be engaged in supporting innovation for growth, on how we could make this a reality and generate some transformational changes to achieve our vision for the East Sussex economy. More detail on these is in chapter 7 on potential areas of focus and support.

Goal	Mechanisms to embed or deliver goals
1. More graduates, particularly STEM, choosing to work in East Sussex – whether as employees or starting their own businesses	Encouragement of business appropriate apprenticeships, accessible evidence of success and investigation of new tools to facilitate more graduate placements and employment
2. Routes into employment created for children and young people who favour a more informal learning	Creation of informal learning opportunities with facilitated direct business engagement
3. Public-Sector leading by example and applying innovation to improve service quality, efficiency and reduce costs	Senior management buy-in and leadership needed to establish new models for working, either developed in-house or adapted from models successful elsewhere: taking these seriously with required resource (invest-to-save)
4. Public-Sector spend used as a tool to deliver innovation goals	Co-design of contracts with relevant partners where applicable; conditional clauses that are enforceable and enforced in contract and rigorous contract management with measurable outputs
5. Resources available and easily accessible to business for e.g. prototyping on 3D printers to speed up development	Assessment of likely demand, audit of relevant equipment and support services, and negotiation to agree flexible access terms to meet need
6. Higher numbers of firms registering Intellectual Property where appropriate	Creating accessible IP support: through drop-in sessions, the Growth Hub, networks and events

Goal	Mechanisms to embed or deliver goals
7. More firms involved in open innovation	Tools and partnerships in place to encourage uptake
8. More business–to-business collaboration	Support for networks, some targeting innovation specifically, and easily accessible evidence of success
9. More international trade, partnerships and collaboration	Greater support for internationalisation through UKT&I, networking and mentoring and planting the idea with firms of 'what would it take for me to become an exporter?'
10. More collaboration between business and the knowledge base and greater investment in R&D	More tools and financial mechanisms to encourage and facilitate business access to widen the knowledge base
11. Suite of funding & finance options in place to support innovation with clear access routes	Growth Hub to develop networks and provide access route and develop relationships with traditional (banks, venture capitalists etc.) and more innovative organisations (Angels, Crowd Funding, Credit Unions etc.)
12. Increased innovation and creativity in our firms leading to more and sustained growth	Single point of access to business support (Growth Hub) and range of underlying tools to support innovation, leadership, creativity and commercialisation of ideas
13. Create a centre of excellence (possibly a catapult), around the ageing population agenda: making East Sussex a place to come and stay young	Using diverse tools to increase Public- and Private-sector collaboration around agreed objectives; cross-sector co-design; national and EU funding at key projects leveraging private investment

4. The case for innovation

Innovation for Business

Evidence on the relationship between innovation and economic growth is mixed, which makes it more complex when designing innovation policy to deliver Economic Development. High-Growth Firms (HGFs)[4] create a disproportionately high number of jobs compared to other growth companies. This makes them and firms with the potential to become high growth (often-coined pre-Gazelles) a target for policy makers, and in East Sussex the percentage of HGFs is lower than the England average (0.41% versus 0.81% respectively). However, their growth is often characterised by being episodic and they may cease to be High Growth after a few years. Research[5] suggesting that Highly Innovative Firms (HIFs)[6] experience more sustained growth and grow *twice as fast as less innovative firms* makes it important to embed innovation within them.

Evidence on the virtuous circle between exporting, innovation and growth[7] is quite conclusive: Exporting SMEs are on average more productive, more innovative and more resilient than non-exporters.[8] Highly Innovative Firms (HIFs) *tend to be much more internationally oriented than Less Innovative Firms (LIFs) and more focused on exporting to international markets*.[9] In terms of the impact on the economy*, across a wide range of countries and industries, exporters have been shown to be larger, more productive, more skill- and capital-intensive, and to pay higher wages than non-exporting firms. Furthermore, these differences exist even before exporting begins. Exporting firms also benefit local regions by generating local jobs in non-traded local services through a 'local multiplier' effect*.[10] Export is both a catalyst for and a means of capturing the value of innovation[11], for *although innovation may influence the decision to export, exporting itself promotes innovation and investment in R&D*.

Given this evidence, preparing and supporting firms to export should clearly be an area that is an innovation focus.

There is also evidence to support the strong link between SMEs that are high growth and firms which secure Intellectual Property rights (IP) which is also a key indicator of innovation; IP active firms are more likely to be classified as high growth than non-IP active firms. Trademarks in particular seem to be important for high growth.[12] Trademarking is associated with a 12% higher growth rate among UK SMEs.[13] The evidence shows that East Sussex lags behind the rest of SE LEP in absolute and relative terms of registering Patents: Patent statistics provide an indication of innovation in an area.

- In East Sussex, the annual number of patent applications is extremely small, both in absolute terms and also relative to those seen in neighbouring areas in SE LEP; 10% of all patent applications in the SE LEP area over the last 5 years were made by East Sussex-based inventors, yet East Sussex is home to 13% of the LEP's population, 14% of its firms, and generated just over 11% towards its combined

[4] Firms with a turnover growth rate of at least 20 % p.a. for three or more consecutive years
[5] Mason, C. and Brown, R. (2010) High Growth Firms in Scotland
[6] Defined in this report as the top 20% of firms in terms of R&D spending and the top 20% of firms with sales from new to market products and services, which is operationalized as those firms with more than 11% of sales from new-to-market products and services
[7] BIS Economics Paper No. 5, Internationalisation of Innovation and High Growth SMEs, March 2010
[8] BIS (2011) International Trade and Investment - the Economic Rationale for Government Support
[9] BIS UK Innovation Survey 2014 – Innovation Firms & Growth, Coad et al
[10] Firms in International Trade: Bernard et al 2007
[11] BIS Economics Paper No. 5, Internationalisation of Innovation and High Growth SMEs, March 2010
[12] BERR (2008) High Growth Firms in the UK: Lessons from an Analysis of Comparative UK Performance. BERR Economics Paper No. 3
[13] Rogers, M., Greenhalgh. C., Helmers, C. (2007a). An Analysis of the Association between the Use of Intellectual Property by UK SMEs and Subsequent Performance

Gross Value Added in 2012. Patent applications have declined across SE LEP area in recent years, although in East Sussex, this fall was most noticeable in 2011.

- Between 2007 and 2011 the single technology yielding the greatest number of patents in East Sussex was ICT.

A 2012 survey showed that for only 7.5% of East Sussex firms their main geographic market lay outside of the UK[14], and with Eastbourne and Lewes being East Sussex's areas with the highest percentage of businesses citing the export market as their main market. However at 4%, this is only half of the South East average, so relatively a very low figure.

Innovation for the Public Sector

Innovation is equally as important for this sector[15], where long-practiced processes and silo working can be barriers to change and efficiency. Through innovative initiatives, co-design of services and collaboration with partners from different disciplines, there is the potential for designing and delivering better services more efficiently.

[14] East Sussex Business Survey 2012, ESIF
[15] NESTA 2011 Innovation in Public Sector Organisations - A pilot survey for measuring innovation across the public sector

5. The East Sussex Context

Policy and Strategy Context

Within the Public Sector the emphasis on innovation is increasing, with examples such as Service Redesign & Innovation Teams employed within NHS Clinical Commissioning Groups. In the 2014-17 East Sussex Council Plan there is clear recognition of the need for innovation **within** the Council … *we have to change the way we work, and become more innovative, efficient and effective*.

In relation to the Private Sector, strategies and plans at County and LEP level have, over recent years, recognised the need to embed and support innovation in the Private Sector, so there are foundations to build upon.

The ESCC Economic Development Strategy places innovation at the heart of our first strategic priority: *Create the right environment to attract new businesses, retain existing ones and foster enterprise, job creation and innovation – encouraging and supporting entrepreneurship, business growth and R&D activities*. It also emphasises the need to work with HEI and FE to *increase STEM*[16] *graduate placement and employment in local SMEs to stimulate innovation and ensure graduates are linked into local employment opportunities*.[17] Some of the actions to achieve these have been implemented, but there is further work to do with Public-Sector support, informed by this document, and the new East Sussex Growth Strategy, to make greater progress and respond to subsequent changes in the wider economy.

Nevertheless, most employment in East Sussex is within the sectors of Wholesale, Retail & Motoring trades, Human Health & Social Work, Education, and Accommodation and Food Services, where innovative products, processes and service development are less prominent than in other sectors, and where there may actually be little overall growth. It is important therefore that driving forward the ambitions of growth and increasing innovation is not delivered at the expense of the sectors which provide most of our jobs and may also have ambition and innovation potential.

South East Local Economic Partnership (SE LEP)

East Sussex is one of the partners in SE LEP – a partnership of the private and public sector put in place to steer the strategic direction of economic growth in Kent, Medway, Essex, Southend, Thurrock and East Sussex. SE LEP submitted both a Strategic Economic Plan (SEP, March 2014) and an EU Structural and Investment Fund Strategy (EU SIF, January 2014) to central government that set out the evidence base and rationale for targeting investment over the period from 2014 to 2020. This included a bid for resource to further the SEP under a Growth Deal via the Local Growth Fund. Specific support for innovation is one of the strands of the EU funding, and at least 20% (£16,500 million) of the £65 million European Regional Development Funding (part of the EU SIF) project expenditure must fall under this strand.

In the SEP, SE LEP identified the grounds for investing in innovation: relatively low productivity; difficulties for businesses in raising funds for expansion; the need to encourage greater collaboration with our universities and colleges to deliver higher-level skills and support of expansion, research, development and innovation.[18] For this approach to be successful, HEIs need to make their business communications and routes into the research base as clear and accessible as possible, and response to business needs to be rapid; where a business identifies a need, if an HEI can respond, the time lag

[16] Science, Technology, Engineering & Mathematics
[17] East Sussex County Council Economic Development Strategy 2012
[18] SELEP Strategic Economic Plan 2014

between the two must be minimised, or the opportunity may well be lost and the business deterred from future engagement.

SE LEP work on the innovation strand of the EU SIF established that *the SE LEP area has a distributed make-up, rather than major centres of sectorial focus, with a new geography emerging, based on its digital and physical connectivity with London and mainland Europe*.[19] This is why SE LEP has adopted an overall approach of being 'innovation blind'; recognising and creating mechanisms to support innovation wherever it happens, rather than purely supporting a few specified sectors or sub-sectors or other business types: An approach supported by recent research.[20] Instead, *SE LEP has also taken the route of identifying issues which have great innovation potential and should have some targeted support*:

1. *The challenge of an ageing population by focusing on new products and services for assisted living and modern high quality health care solutions. This could involve maximising the deployment of key enabling technologies in advanced materials, nanotechnologies, big data, ICT, psychology/ behavioural change and med tech to meet this challenge*.

2. *Leveraging the region's research base and capacity in food and drink manufacture and science*.

3. *Maximising opportunities and expertise to design and produce advanced materials and electronic systems and combine these with the ability to exploit data and wireless technologies in order to drive the transition to new mobility services, building products and energy production/storage systems*.[21]

Innovation and Sectors

The general premise of this document is that innovation support to **any** sector could reap growth returns. However, this does not preclude some targeted sectorial investment, where the evidence suggests that this could be effective in accelerating growth. Among the sectors identified in the SEP where SE LEP has, or could have, a competitive advantage which resonate with the East Sussex business landscape are: Advanced Manufacturing, Healthcare, Environmental Technologies and Energy, Creative, Cultural and Media and the Visitor Economy.

Reflecting the lack of 'keystone' sectors, where there is a targeted focus in the remainder of this document, it will not be on sectors, but on some of our niche sub-sectors to establish which are significant in terms of their High-Growth status or potential to become High Growth, to help inform where support can increase innovation, for the reasons given earlier.

Identifying and quantifying HGFs and pre-gazelles in East Sussex

In preparing this document we undertook detailed analysis across East Sussex of which sectors, sub-sectors[22] or clusters[23] are growing. The evidence has been broken down into existing High Growth Firms (HGFs) and potential High Growth Firms (pre-gazelles), as they require different types of support.

Whilst the evidence on a correlation between innovation activity and HGFs is not uncontested, in East Sussex we have a relatively small number of HGFs[24] (1,619[25] out of 22,800[26] VAT registered businesses),

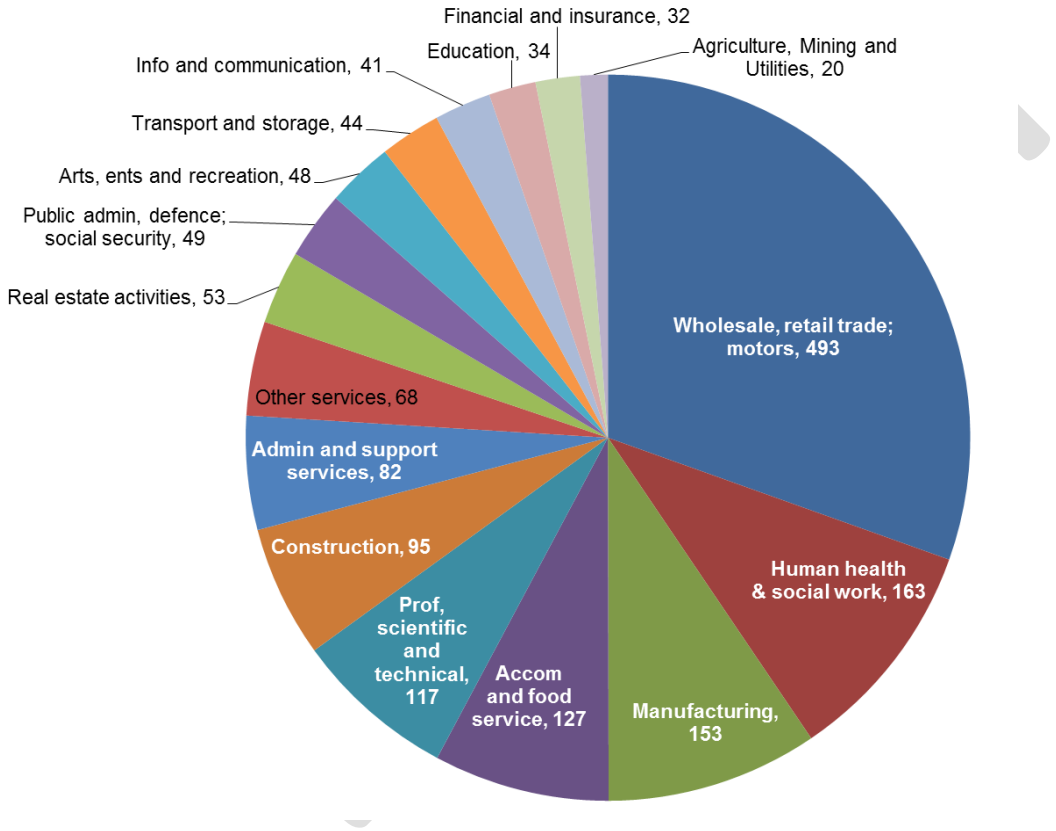
[19] SELEP – BSK innovation workshop report
[20] BIS UK Innovation Survey 2014 – Innovation Firms & Growth, Coad et al
[21] SELEP – BSK innovation workshop report
[22] OECD definition - A group of establishments engage in similar kinds of economic activity. A sector can be a subgroup of an economic activity - as in "coal mining sector" - or a group of economic activities - as in "service sector" - or a cross-section of a group of economic activities - as in "informal sector"
[23] OECD definition - Clustering is the tendency of vertically and horizontally integrated firms in related lines of business to concentrate geographically
[24] Companies achieving 20% growth in turnover or jobs over three consecutive years, OECD
[25] Experian 2014
[26] ONS 2012

but they are important to Economic Development as they account for a disproportionately high level of job creation.[27] These HGFs currently have support available through programmes such as Growth Accelerator and other general business-support mechanisms, but may require further nurturing to help them maintain momentum and overcome future barriers to sustainability. Types of possible support will be covered later.

Existing HGFs

The majority of the 1,619 HGFs appear in the high-level sectors of Public Admin., Defence & Social Security. In terms of private-sector support this figure is skewed by the large number of Public-Sector organisations it includes. The Health and Social Care sector has a relatively high number of HGFs (6% of all businesses but 10% of all HGFs) followed by Manufacturing (5% of all businesses versus 9% of all HGFs)[28], both of which have sub-sectors and niche sub-sectors which fall within target groups for support identified in other strategies and plans. These are followed by Manufacturing, Financial Services and Other Services (including Personal Services). Figure 1 shows the breakdown of HGFs by sector.

Figure 1: HGFs in East Sussex by industry (source: Experian 2014)



Whilst increasing innovation would have a beneficial impact on all sectors of the economy, direct investment in most of the firms in some categories (Retail, Wholesale, Accommodation & Food Services, and Leisure Activities) can be problematic for government because of regulation around market distortion and potential displacement e.g. one retailer or wholesaler with another. In this case, the aim of embedding greater innovation generally in East Sussex and indirect support through the supply chain can be the means by which these firms can become more innovative.

[27] Experian 'High-Growth Potential' 2012
[28] Note that total numbers of businesses from business count are rounded to the nearest 5, whereas HGF data is not rounded. Some sectors appear to have a large proportion of businesses classified as HGF, but numbers are very small and therefore results showing that they have a high proportion of HGFs should not be considered to be significant. Results for Mining and Utilities sectors especially fall into this category.

Within the broad sectors, there are specific niches of HGFs that have developed in East Sussex: whether because of natural advantage or for other, less definable reasons. Outside of the Wholesale, Retail and Motoring Trades (excluded for the reason given above), more detailed analysis of the data has identified the following:

Manufacturing

There are several sub-sectors within this category, many of which are engaged in exporting: an innovation indicator. These include: Precision weights and measurement technology; dental- and med-tech; fabrics (both for domestic and industrial use); metal and plastics fabrication and; vacuum and photonics. The last of these is a sub-sector that is being identified as a cluster, with 51 HGFs appearing in this category.

Creative

This is a notoriously difficult sector to define, and even establishing which sub-sectors fit within the umbrella of creative industries is difficult, because in many cases elements and job roles, rather than a whole business, are considered creative.

Drawing upon the data, some of the specific areas where design is an intrinsic element of businesses and may also provide enabling technologies there are some groups of growth businesses in East Sussex that could be targeted for support where design and the use of related technologies is an important factor within the business itself.

The sub-sectors of telecommunications/website providers/web designers/reproduction of computer media are spread as businesses throughout the county, with no obvious geographic clustering. 20 existing HGFs appear directly in the specific industry (SIC) codes, but there are more examples under more generic codes. Similarly to med tech, within this group are some of the enabling technologies which can help embed innovation in other firms, so identifying those and targeting support can have a two-fold benefit. These firms have particular skill supply issues which suggests a key role for intervention to ensure they can both self- innovate and support other firms with innovation.

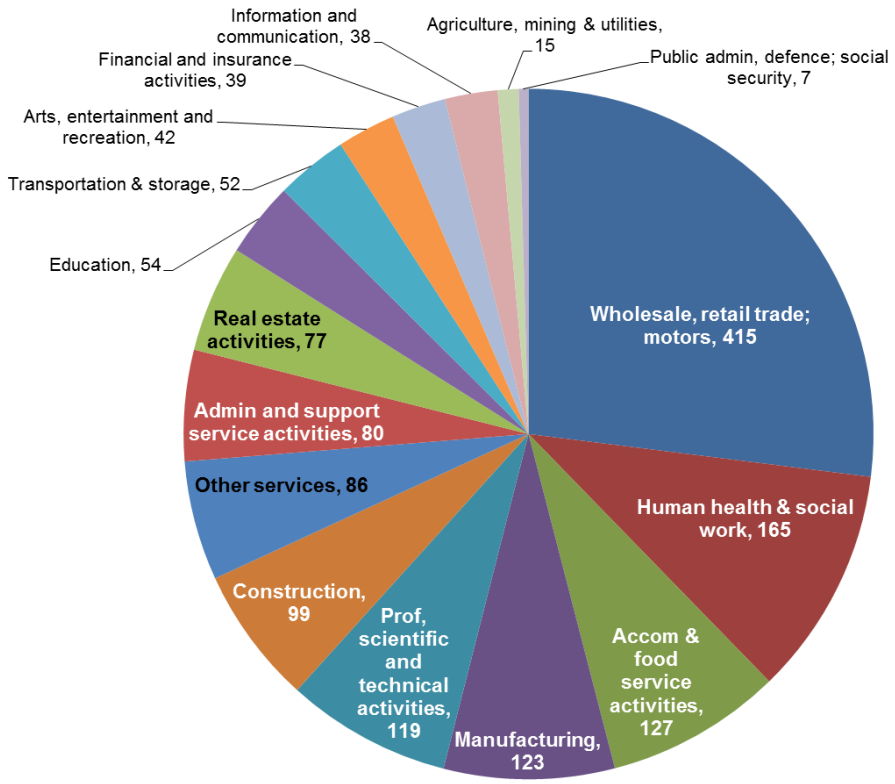
Financial Services

The financial services sector is one that is not easy for the Public Sector to support, because of various EU and national rules. Nevertheless, given their role as wealth generators, it may be worth considering what conditions have led to their choice of location in East Sussex and whether there are interventions that could support their remaining here and, perhaps, encouraging more. 34 businesses appear directly under the Financial Services SIC codes.

Pre-gazelles

We also need to identify firms which have *the ability to become HGFs* (sometimes-coined pre-gazelles) and ensure the right support and guidance is made available to them to realise their potential. Support for innovation is an important tool to help them do so, with the aim of ensuring at an early stage that they develop into both HGFs and HIFs. NESTA estimates are that nationally 5-10% of firms have the potential to join the current total 6% HGFs nationally which are responsible for generating most of the country's jobs; currently at 6% these HGFs produce between 50 and 70% of all new jobs (OECD/NESTA); they include established SMEs and start-ups, but 70% are 5 years plus old. *They cover every sector, region and can be high or low tech*.

Figure 2: Pre-gazelle firms by industry – East Sussex



Mirroring, to some extent, the pattern of existing HGFs in the county, Figure 2 above shows 1,538 firms in the county with potential to become HGFs, based on growth in terms of GVA and jobs, if they became HGFs this would nearly double the number in the county bringing the total of HGFs up to c3,157.

As with HGFs, the largest percentage of pre-gazelles (27%) are in the Wholesale, Retail & Motoring sector, although to emphasise, this is only a small overall proportion as only 18% of all local business units fall into this category. Human Health & Social Work follows at nearly 11%, but unlike existing HGFs, Accommodation and Food Services are the third-largest group of pre-gazelles at just over 8%, followed closely by Manufacturing at just below 8%. Niche areas among pre-gazelles echo those of HGFs.

Through direct engagement with local firms, it is becoming apparent that two niche areas which do not, as yet, show significantly in this data are the brewing and viticulture sectors. Increasing numbers (13 since 2013) of artisan brewers are setting up micro- and larger breweries, in some cases with the assistance of public funding, and the viticulture sector (developing on the basis of a natural geographic/ geological and climatic advantage) is expanding in terms of firms entering the market, reputation and market penetration. Viticulture and, to some extent brewing, appear to have a greater propensity to export, thus being more likely to be more inherently innovative than some other activities, so support at these early stages needs to be considered to encourage innovation.

With this evidence of the benefits of innovation and the innovation activity currently in East Sussex, we need an understanding of what infrastructure exists in the county that could be combined in additional or different ways to deliver our innovation goals.

6. The current East Sussex innovation landscape

East Sussex is not home to major, heavy industry, large-scale logistics hubs. We have a business base almost entirely made up of SMEs (99+ %), which are – in turn – dominated by micro businesses of fewer than 3 people (85.2%). This means on the one hand that we are not dependent on a limited number of sectors to drive our economy and we have a lot of flexible, fleet, adaptable entrepreneurs, many of whom are used to collaboration – and on the other hand, it means we have a less size balanced business base with a smaller proportion of high-growth firms and large-scale employers.

Our entrepreneurs are not just 'young' people: firms are being created by people of all ages, with some suggestion that people over 55 are the fastest-growing age group to set up a business.[29] That is in contrast to research in 2005, which showed that *new entrepreneurial activity was particularly low among the 55-64 year old age group (3.5%).*[30]

Over half a million people live in the county and, despite low job density (0.69 of a job for every working age resident); the majority rely directly on the county for their livelihoods.

The SE LEP Strategic Economic Plan identifies employment in the knowledge economy[31] of East Sussex at 12% as being considerably below the national at 19.4% and lower than the SE LEP average (13.8%).[32] Whilst the knowledge economy is not the only place where innovation takes place, it is an indicator of an innovative economy. We are not yet the home to any 'catapult centres'[33] and we have only one national Centre of Excellence at Plumpton College in Wine Education, Training and Research.

The East Sussex economy relies heavily upon the Public Sector for employment (19.4% of jobs)[34]. This should offer a major opportunity for the sector to lead the move to greater innovation. The top three sectors in terms of Gross Value Added (GVA)[35] contribution are, in descending order, the Public Sector[36], Distribution/Transport & Hospitality[37], and Real Estate, together accounting for over 53% in 2011[38]. To create a more diverse, wealth-generating economy, there needs to be a rebalancing in favour of other sectors.

With the role of digital and ICT as a key enabling technology, and a shortage of skills in this sector in East Sussex (and elsewhere in the UK), this presents a clear area for focus. It is difficult to capture statistical data on the extent to which this happens within the county and how it compares with other parts of the country. This is an area however that business has specifically identified as an important aspect of business support; the 2012 East Sussex Business Survey identified in the Employees and Markets Theme paper 'access to relevant business networks' as the 2nd highest requirement after 'general advice on accessing finance'. It was notable in the same survey that 'access to support with products or services, R&D, innovation' was 10th on the list out of 13 elements. The building of relevant business networks will

[29] 2013 survey by online freelancer marketplace PeoplePerHour, showing an 88% rise in new micro and small business owners registering on the company's website over a year
[30] The Global Entrepreneurship Monitor (GEM), 2005 Total Early Stage Entrepreneurial Activity: the proportion of individuals who are either in the process of setting up a business or who have been running one for less than 42 months.
[31] 'The knowledge based economy is an expression coined to describe trends in advanced economies towards greater dependence on knowledge, information and high skill levels, and the increasing need for ready access to all of these by the business and public sectors.' OECD
[32] ONS (2013) Business register and Employment Survey
[33] A Catapult is a physical centre where the very best of the UK's businesses, scientists and engineers work side by side on late-stage research and development - transforming 'high potential' ideas into new products and services to generate economic growth.
[34] 2013 ONS BRES data
[35] GVA measures the contribution to the economy of each individual producer, industry or sector in the United Kingdom. ONS
[36] Public Administration; Education; Health
[37] Distribution; Transport; Accommodation and Food
[38] ONS GVA NUTS3 2011

however be a key area within the new East Sussex Growth Hub business support provision. These networks should also include the innovation 'question' in all aspects of their work.

We also need to look at other ways to maximise the potential of our research base to nurture existing specialisms or stimulate entirely new fields or sectors.

Urban/Rural - geographic spread of innovation

The data in previous chapters shows that there are not really concentrations of sub-sectors in particular geographic areas of East Sussex. Whilst the majority of people in East Sussex live and work along the coastal fringes, there are also many firms throughout the rural areas of the county, and some of our most innovative firms are in these locations. A 2011 piece of research showed that, *whilst overall Businesses in most of East Sussex's Districts appear to be less innovative and dynamic than the average for the whole of Sussex, Wealden (a largely rural district), appears to be an exception, where businesses are more likely than average to be introducing new products and entering new markets*.

In a national DEFRA survey between 2008 and 2010, around 42% of both urban and rural businesses surveyed were involved in broader innovation activities (for example new or significantly improved products, processes, structures, or concepts, specific innovation projects, research and development etc.). This strongly suggests that innovation is not affected directly by whether the business is located in an urban or rural settlement. This fits with other research suggesting greater levels of entrepreneurialism in rural East Sussex.[39] By encouraging greater innovation we can hope to capitalise on this entrepreneurialism and, combined with major investments to improve ICT led accessibility[40], deliver higher levels of sustained growth in rural areas.

East Sussex innovation infrastructure

We have two universities with a presence in East Sussex: the University of Brighton, with a number of faculties based in Eastbourne and Hastings, and the University of Sussex, which straddles the East Sussex/Brighton & Hove border. These universities already provide innovation support and facilities to some of the local business base through e.g. the Sussex Innovation Centre, linked to the University of Sussex, and Knowledge Transfer Partnerships, such as the one between the University of Brighton, in conjunction with the London Metropolitan University's Polymer Centre, and Plastipak, based in St Leonards. Both universities have Research & Development specialisms – some of which are complementary between the two institutions which ambitious entrepreneurs in the county could draw upon to create new commercial opportunities that will grow and help diversify our business base. Understanding exactly the interaction between our local universities and business is a key element moving forward.

The Sussex Learning Network is a partnership of universities, colleges, training providers and guidance agencies and offers a platform for vocational learners that supports innovative ways of responding to employers skills needs; exploring and implementing new ways of delivering training, and providing research into new ways to deliver learning.

We also have a network of Further Education Colleges across the county which offer education and training for the 16+ age group. Much of their focus is on the full-time 16-18 student cohort studying to levels 3 and 4, but they also provide a wide range of technical and vocational courses across different disciplines. Among these is Plumpton College, a land-based college which is home to the British Centre of

[39] The Global Entrepreneurship Monitor (GEM), 2005
[40] Including transport improvements through the SELEP Growth Deal, and East Sussex County Council's Superfast Broadband programme and Wheels to Work scheme

Excellence in Wine Education, servicing the burgeoning viticulture sector in East Sussex and elsewhere in England and Wales.

Central Government already has arrangements in place to support firms in targeted ways:

- UK Trade and Investment to increase exporting;
- The Manufacturing Advisory Service, which works directly with businesses on issues such as improving manufacturing processes and identifying and helping forge new links within supply chains, which are predicated on innovation; and
- Growth Accelerator, who work intensively with businesses on issues such as developing sales and marketing capacity and improving and widening leadership skills: often incorporating the capture of innovation as a way of unlocking growth.[41]

We also have a number of firms which have strong research capacity in specialist areas, such as measuring and testing, who could provide services to other firms to help them innovate.

Beyond this 'local' infrastructure, East Sussex has access to the wider SE LEP offer, including several Universities, and the land-based East Malling Research Centre, which have all been involved in the formulation of SE LEP's strategies and plans and have identified roles for their organisations in delivering growth in the sub-region.

In addition to these organisations with a specific SE LEP remit there is, of course, potentially access to other national and international specialist support, and a range of private-sector product designers and innovation-support companies which can provide honest brokerage to the most relevant and useable innovation resources may be an important useful role for the innovation 'partnership' in East Sussex.

[41] NB – MAS and Growth Accelerator have now merged to form Business Growth Service

7. The potential areas of focus and support

Based on knowledge of existing tools, programmes and projects that are available or under consideration at present, this section gives some indication of what type of investment we may make, which hinge on creating the mind set and skills to enable innovation to flourish and achieve our stated goals.

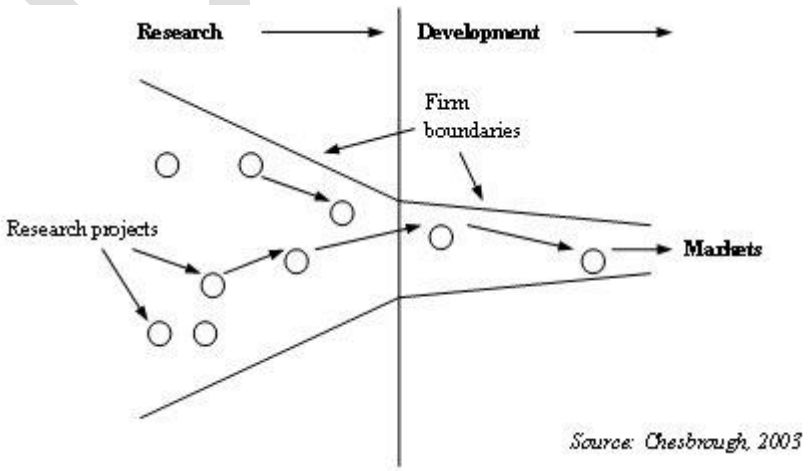
East Sussex Growth Hub – Business East Sussex

Whilst businesses can engage with various types of innovation support through different channels, we have identified the need for a simplified, one-stop-shop through the mechanism of a Growth Hub: a combination of a virtual and physical outreach centre, overseen by the Growth Hub Steering group (The Business East Sussex 'Innovation Group'). The aim is for the Growth Hub to provide the most comprehensive knowledge of the range of services and possible sources of support within East Sussex and elsewhere to East Sussex businesses and potential inward investors and facilitate a range of networks to support growth and innovation. In addition, to ensure strong links to innovation, this group will also oversee achieving the goals set out in this document.

Open Innovation (as against closed innovation)

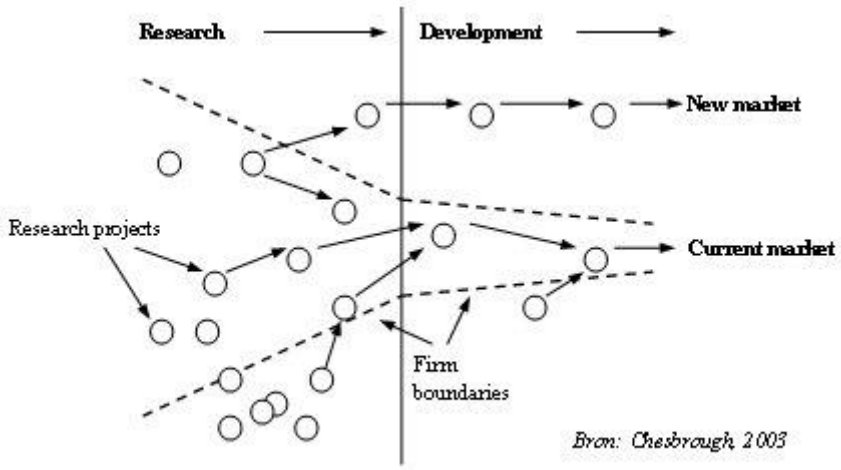
Open innovation is increasing and overtaking knowledge transfer (from HEIs to business) as a policy, favouring knowledge co-creation.[42] There are major rewards for both business and HEI when co-creation is achieved, which suggests that there is scope for both to learn more about building truly collaborative relationships, although it can be difficult for a significant proportion of companies to achieve their objective of addressing complex business challenges through co-creation.[43] The same approach can also reap benefits for the Public and Third Sectors, so East Sussex stakeholders have a role in creating the conditions for this to happen: moving firms from a position of closed innovation, represented below in Figure 3, which takes place within the boundary of the firm, to a position of open innovation illustrated in Figure 4. This is where the firm boundaries are permeable, and there is greater potential for innovative projects to happen, both within or outside the firm and, with a variety of partners. By identifying and publicising case studies of how this has been successfully achieved by others and facilitating partnerships, we can encourage more firms to recognise and take up opportunities.

Figure 3: Closed innovation



[42] Joint development and integration of knowledge with universities to address a business and social opportunity or challenge
[43] Big Innovation Centre – Collaborate to Innovate - Andersen, Silva, Levy 2013

Figure 4: Open innovation



Taking the SE LEP innovation work as a starting point to establish the extent to which the three issues identified (Ageing Population, Food & Drink and Advanced Manufacturing, Environmental Technologies and Energy & Electronic Systems) align with the East Sussex context and what specific aspects might be a focus for investment, before considering other East Sussex-specific issues.

Ageing Population

The issue of an ageing population and the associated health and care implications makes a very logical focus for innovation, particularly at a time when people are living longer and public-sector budgets are under pressure.

Healthcare is major area of employment for East Sussex and there are a large number of HGFs and pre-gazelles within this sector overall. By far the largest sub-sector is care, and this is currently one where non-innovators and closed innovators[44] are more likely to be the norm. We should take an ambitious approach to this opportunity: turning our demography to our advantage and making East Sussex a centre for excellence and test-bed for innovation around the ageing population.

In line with the saying that 'necessity is the mother of invention', the existing and forecast needs of our ageing population make this an obvious focus for innovation to provide much-needed solutions. Because this is a broad area, we could use the current high-profile condition of dementia as a specific focus. There are many potential aspects of this condition which could be considered and a number of work strands are already underway, and it is a global, national and very important local issue: *The number of people living with dementia worldwide is currently estimated at 35.6 million. This number will double by 2030 and more than triple by 2050.*[45]

Creating a centre for excellence on this issue would need careful preparation involving partners bringing their expertise from our local HEI research base, design, manufacture, health and social care sectors and, vitally, those who have the condition and the organisations and people who care for them, to bring current innovations together into a more cohesive whole and identify where additional activity can add the greatest value.

A focus or programme of activity could, for example, bring cutting-edge neuroscience research into practice, involving comparative evaluations of different combinations of care, clinical and telecare

[44] Organisations which generate their own innovations that they then develop, manufacture, market, distribute and service themselves
[45] World Health Organization: Dementia – A Public Health Priority 2012

interventions, and explore technical developments that will enable more firms to enter or expand into the field of med tech/telecare and tele health.

Food & Drink

With regard to food and drink manufacture and science, the major areas of large-scale food production are in the Kent and Essex areas of SE LEP, and do not feature strongly in the overall business or employment base of East Sussex, nor in the HGF and pre-gazelles data. There may be some scope for work on specialist, high-quality production in the fields of viticulture and brewing, which were highlighted earlier, and on niche, high-value food production. As these sub-sectors are at an early stage or on a small scale, this provides an opportunity to use innovation to support accelerated growth – whether through the use of technology to monitor and manage grape vines, or to provide a means of sector-wide benchmarking, or through the stimulation of networks and exporting that inspire innovation – both directly within the sectors, but also in developing a more local supply chain.

Advanced Materials & Electronic Systems Manufacturing

Some East Sussex Advanced Manufacturing firms and local universities have existing expertise within the Advanced Materials and Electronic Systems sectors identified by SE LEP: Combining these with the ability to exploit data and wireless technologies. We need to look more closely at the specific needs of our existing firms, in terms of both technical and human assets, and see how the use of the research base to access and incorporate new developments in the sector can help them grow. With the major investment across East Sussex in Superfast Broadband, the potential to manage and move big data is increasing, and may well provide opportunities for both cross-SE LEP and inter-LEP collaboration, including business to business that have similar potential.

Beyond the issues identified in the SE LEP innovation work strand, there are other sectors and sub-sectors, which are identified as priorities in local and sub-regional strategies and plans that relate to East Sussex.

There is also potential for the creation of a centre of expertise in the field of quantum physics, where commercialisation of applied new technology is in its infancy. With the current investments in improvements to infrastructure (transport and ICT connectivity), combined with good-quality business premises available in rural and urban locations across the county, East Sussex could become home to one of these new centres for innovative technology.

Environmental Technology and Energy

The plans for a wind farm off the coast at Newhaven and the setting up of a University Technical College to specialise in Clean, Green, Marine technology and skills to service this market, offers an excellent focus for investment in innovation around the local supply chain and other businesses in this sector. This is a field that is developing rapidly and many areas across the world are investing in this, so understanding any particular advantage that the Newhaven site offers and avoiding duplication of others' activities is needed if investments in this area are to be successful. This also ties in with the supply chain work undertaken under PATCH.

Visitor Economy

With expertise at the University of Brighton in the East Sussex-based School of Sport and Service Management, there is a research base with particular expertise in sustainable development, policy and planning; ethical and responsible tourism; niche tourism; heritage; identity; visual consumption; gender and sexuality. By potentially using this resource to investigate the seven sub-sectors that make up the

wider visitor economy[46] may enable modelling of what the potential future of the visitor economy **could be** in East Sussex. This may in turn offer fertile ground for guiding future investment in specialist skills development (linking where appropriate with the East Sussex Cultural Strategy) to ensure a workforce pipeline of appropriately skilled local people, for innovative approaches to improve the offer, reposition it, make it more sustainable and 'future proof' as appropriate to future visitor needs, short medium and long term.

Creative Industries – key sub sectors

The data in the East Sussex context above sets out some of the difficulties in identifying and, therefore, evidencing which aspects of this group of sub-sectors to support. With the role of digital and ICT as a key enabling technology, and a shortage of skills in this sector in East Sussex (and elsewhere in the UK), this presents a clear area for focus. Through support for this sub-sector, we can also help maximise the returns on the public-sector investment in Superfast Broadband that is currently underway. This is an area where the development of skills and knowledge through informal learning may have a major role to play, as technology is often accessed outside of the classroom. Similarly, the design sub-sectors which can be very important in creating high-value products and services are another potential focus that can have two-fold benefits in terms of growing the firms directly and in the positive impact of good design on firms which buy in design services.

Funding innovation

The current rounds of Growth Deal funding provide focused investment in Economic Development for the SE LEP area. However, the amounts are relatively modest and intended to leverage in other sources of funding: particularly from the private sector. The EU SIF monies, of which £16.5 million are to be targeted at innovation, are similarly aimed at maximising leverage, and from both sources the portion likely for East Sussex over the coming 5-7 years will not be enough to deliver all of our growth ambitions. We will need to draw upon a much wider variety of funding and make those funds work in a complementary way to reach the scale of investment we are likely to need to effect major, lasting change. Bringing together EU Horizon 2020 and possibly Interreg funding etc. alongside national streams such as from Innovate UK, NESTA, Skills Funding Agency, universities and the Department of Health are some examples. Leveraging in all-important private sector funding will require excellent planning and coordination among partners and a very clear message of benefit to the sector.

Research on HIFs reveals that they perceive more barriers to innovation than LIFs, despite their superior performance. They are particularly concerned about financial issues, and skill issues, and relatively unconcerned about the impact of regulation.[47] Ensuring appropriate signposting and support when accessing funding for innovation (e.g. Central Government R&D funds and EU Horizon 2020 programmes), and potentially making additional funds available where there are gaps in provision (e.g. innovation vouchers for capital and/or revenue: whether for generic innovation, or for specific aspects of it, such as ICT), are an important part of the innovation package that should be investigated. We need to become more expert in the whole range of financial support available to firms and widen our partnerships where needed to include organisations that can complement and expand the existing offer, such as the Business Angel network and Crowd funding.

[46] East Sussex County Council Research & Information Team identified these in 2013 as: Accommodation for visitors; Food and beverage serving activities; All transport related tourism activity; Travel agencies & other reservation services activities; Cultural activities; Sporting & recreational activities; Country-specific tourism characteristic activities

[47] BIS UK Innovation Survey 2014 – Innovation Firms & Growth, Coad et al

Alongside this funding, we will need a robust monitoring and evaluation framework to capture the impacts and results of our interventions, and will look to partners to find a way to bring this type of data and analysis together across the areas of innovation, so we can learn what works best in the East Sussex context.

Low-carbon innovation

In line with EU and national policies, a horizontal theme across our approach to innovating East Sussex is creating an economy which reduces our carbon footprint: whether through investments in low-carbon products, through energy efficiency innovations that also reduce financial cost, or ensuring the embedded carbon is minimised from design of product to end-of-life. In setting this as a requirement, we will need to ensure we are able to measure and monitor the carbon impacts of our investments and behavioural decisions.

Tools to support innovation

Research of high growth support programmes[48] found a tendency for public sector business support on transactional forms of support[49] *based on the principle of 'market failures' in the innovation process*. Whilst there is certainly a role for this type of Public-Sector support, research indicates that *a large bulk of this kind of support is often less important to potential HGFs than more 'hands-on' forms of support such as business mentoring, leadership development and strategic guidance. In fact, it is exactly this kind of 'relational' support which HGFs and high potential firms seek, in contrast to less ambitious firms which are more inclined to favour more direct forms of financial assistance from the public sector*.[50] The newly formed Business Growth Service will certainly deliver part of this 'relational' support, but there is also scope to e.g. introduce short innovation courses for management defining clear value propositions and how to integrate innovation processes into established businesses.

One key element of fostering greater innovation in any business is to develop supply chains, with research concluding that: *The stronger are local supply chains and other market interactions (e.g. licensing agreements), the stronger will be any innovation spillovers. Where local linkages are weaker, innovation spillovers will also be more limited*. Some supply-chain networking has been undertaken as part of an EU funded Interreg project – PATCH – in preparation for the building of the offshore wind farm near Newhaven. The evaluation of this project and lessons learned can inform future supply-chain-development activity.

As we aspire to increase business-to-business innovation, supporting the creation and development of local supply chains is key to achieving this. This could be sectorally or thematically focused – with a role for partners in identifying upcoming growth areas and helping local businesses appreciate and then seize opportunities for them to become suppliers. Given the lack of large employers (especially Manufacturing/Engineering locally) there are however no obvious supply chains to work with. Our businesses are more likely to be involved in such chains emanating from elsewhere and will be supplying a single/few components that are actually far removed from the final whole product and the final manufacturer. We question whether a better understanding of whom our component manufacturers supply, and the final products the components are used in may help inform the future innovation needs of our local industry and better place them to continue and grow their supply.

[48] (OECD, 2013; Roper, S. and Hart, M. (2013) Supporting Sustained Growth Among SMEs – Policy Models and Guidelines, Enterprise Research Centre White Paper No 7)
[49] the provision of grants, subsidies or fiscal incentives such as tax relief
[50] (OECD, 2013; Roper, S. and Hart, M. (2013) Supporting Sustained Growth Among SMEs – Policy Models and Guidelines, Enterprise Research Centre White Paper No 7)

The evidence of what type of 'relational' interventions work for HGFs might suggest that in order to encourage innovation among HGFs, investment in strongly managed real innovation centres, with clear strategies and hands-on support to push firms towards growth could be effective. In this case there would also be the potential to create an open innovation centre with a stronger, more wide-reaching remit than a standard innovation centre, in order to extend and embed innovation. There are different models of these: either with the centre performing the role of co-designer and developer of innovation, or an intermediary role in creating and supporting networks and governance. Were we to choose this route, we would need to evaluate which would best suit the needs of East Sussex.[51] Any physical centre would need to sit alongside other such intensive-intervention tools and programmes such as facilitated networks on specialist technical subjects, mentoring, Knowledge Transfer or Exchange Partnerships and Profitnet, where the diagnostic of the firm's growth potential justifies these more costly interventions.

For businesses in production and design, the increasing use of enabling technologies, such as 3D printing technology for rapid prototyping, is an issue that needs exploration. Firms need affordable, flexible access to a range of these printers and the relevant support (whether in the form of technical knowledge or funding e.g. proof of concept) to use them, so some form of audit of resources currently available and negotiations to secure easy access is needed. Where gaps are identified, Private-Sector suppliers could be funded to provide those additional services: ensuring the technology remains current and supported. This could be transformational, stimulate innovation and grow and bring improved design and engineering skills into the county, and attract in product-design businesses, which, in-turn, would help grow the sector in a virtuous circle.

Skills for innovation

The need to introduce innovation skills, particularly STEM, as a driver for a company and the wider economy to become innovative, is very clear from the research. We have to find more tools to capture those skills, often, but not exclusively, from university students, and bring them into more East Sussex businesses more often. The flip side of this is the need to ensure that our businesses are in a position to capitalise on STEM graduates and offer them the quality of work to make them want to stay. Various models exist for student placements and upcoming higher apprenticeships etc. and bursaries could be used to encourage students to take up STEM subjects combined with a work placement and 'golden handcuffs', to ensure their knowledge is retained in the county for at least an initial period.

In some skills areas, particularly STEM, employers claim that skills need to be developed at an earlier stage or the opportunity is missed. For certain skills sets, such as digital and engineering, providing forums for specific innovative skill development for younger age groups, which may not currently be available through formal education, could start to fill this gap. Recognition of impact of modern technology on education and increased potential and uptake of curious minds looking for the education that suits them – need to find a balance with increased government emphasis (and employer reliance) on accredited, formal learning, and the ability for individuals to seek out the education they are interested in which the internet facilitates.

As students adapt to new and more innovative ways of learning, firms that want to embrace innovation will also need to adapt to new ways of running businesses that attract in these skills, such as adopting flatter management structures, truly flexible working, and more project-based collaborations rather than always taking on employees. Employers looking to secure the skills they need to succeed and grow may need to engage more actively in schools to share skills and articulate what they are looking for in

[51] Roper, S and Hewitt Dundas, Nola 2012, Open Innovation Centre for Northern Ireland, Supporting Evidence/Research Paper for the Draft Innovation Strategy for Northern Ireland 2013 - 2025

employees/associates. The challenge here will be for public-sector funders to find ways to support such businesses as current support is predicated often on job creation in exchange for fresh ideas and a perspective from the next generation of consumers/workforce.

Where such learning is supported by employers it can also help those involved network – another key skill for innovation – and open young people's eyes to the possibilities their newly-acquired skills will make available to them. In the field of digital, projects such as coding clubs recently run in Eastbourne, and 'FabLabs'[52] may offer an approach to start the skills development process at an early stage. Key to the success of such an approach would be finding champions to promote and participate in schemes, and robust quantitative and qualitative ways of monitoring how successful these are.

Proximity to Brighton could offer a route to attracting a different demographic with higher skills levels, as the cost of living there rises and prices some of the workforce out. If the conditions can be created in East Sussex to capitalise on this potential, it could bring much-needed skills into the county and an added vibrancy to the business landscape.

[52] Fab labs are a global network of local labs, enabling invention by providing access to tools for digital fabrication

8. Conclusion

This document sets out the case for embedding innovation in East Sussex as a tool for growth, and proposes where partners involved in facilitating and delivering this may reasonably focus their efforts. Aspects of a number of the suggested goals are being developed, mostly in the early stages, but delivery is dependent on the ideas in this paper being integrated into investment plans and organisational behaviours.

The evidence around the nature of the complex relationships between innovation and growth are subject to some debate, but there are sufficient grounds for believing that a mix of general innovation support and some targeted support for HGFs and especially pre-gazelles in our economy (including niche) will support economic development in East Sussex.

Effective innovation is often a collaborative activity, and in order to drive forward the aims in this document, we will need to have a partnership approach based on 'collaborative leadership'[53] – where the stakeholders own a collective vision of what successful innovation could look like in East Sussex, and work collaboratively towards that goal. To give the ideas in this document the best chance of success and sustainability, this partnership should be drawn in to form the 'ES Innovation Group', from business, education and research, Local Authorities and also civic society – both as innovators themselves (e.g. in the case of some of the voluntary sector), and as consumers, to provide a comprehensive perspective.

With the right partnership arrangements in place to implement this document through a robust plan, we will be able to measure ourselves against the challenging targets that we set and, perhaps more importantly, gain a reputation for East Sussex as **the location for innovation**.

Going forward we will take this document out more widely to partners, including the Boroughs and Districts, and work through it with them to help highlight areas where they may wish to take benefit from the framework, actions and goals. It will not be the same for all partners but we feel sure that there are elements within this document that will have at least some resonance with all.

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[53] RIS3 Guidance Foray et al March 2012

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